SPIE. PHOTONICS WEST

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2016

# PHOTONICS WEST EXHIBITION GUIDE

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MOVING TECHNOLOGY TO MARKET™

The Moscone Center San Francisco, California, USA

Conferences & Courses 13-18 February 2016

BiOS EXPO 13-14 February 2016

Photonics West Exhibition 16-18 February 2016



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# SPIE. PHOTONICS WEST

#### 13-18 FEBRUARY 2016

The Moscone Center San Francisco, California, USA

Moving Technology to Market™

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# **BiOS EXPO**

#### **MOSCONE WEST HALL**

Saturday 13 February · Noon to 5:00 pm Sunday 14 February · 10:00 am to 5:00 pm

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# **PHOTONICS WEST**

#### HALL ABC SOUTH AND HALL D NORTH

Tuesday 16 February  $\cdot$  10:00 am to 5:00 pm Wednesday 17 February  $\cdot$  10:00 am to 5:00 pm Thursday 18 February  $\cdot$  10:00 am to 4:00 pm

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#### SPIE.

SPIE is the international society for optics and photonics, an educational not-for-profit organization founded in 1955 to advance light-based science and technology. The Society serves nearly 264,000 constituents from approximately 166 countries, offering conferences and their published proceedings, continuing education, books, journals, and the SPIE Digital Library in support of interdisciplinary information exchange, professional networking, and patent precedent. SPIE provided more than \$5.2 million in support of education and outreach programs in 2015.

#### **GENERAL INFORMATION**



# **Exhibition, Registration, and Badge Pick-Up Hours**

#### **BIOS EXPO**

#### **Photonics West**

Location: Moscone Exhibition Halls AB	C South and Hall D North
Tuesday 16 February	10:00 am to 5:00 pm
Wednesday 17 February	10:00 am to 5:00 pm
Thursday 18 February	10:00 am to 4:00 pm

#### **Badge Corrections**

Badge corrections can be made at the Badge Corrections station. Please have your badge removed from the badge holder and marked with your changes before approaching the counter.

#### **Course and Workshop Registration**

Courses and workshops are priced separately. Course-only registration includes your selected course(s), course notes, coffee breaks, and admittance to the exhibition. Course prices include applicable taxes. Onsite, please go to Course Materials Pickup after you pick up your badge.

Multiple facilities may be used for courses; allow yourself enough time to register, pick up your materials and possibly walk to a nearby facility before your course begins.

#### **FOOD AND BEVERAGE SERVICES**

#### **Coffee Breaks**

#### **Desserts**

#### **Food and Refreshments for Purchase**

Various Locations

Saturday through Thursday

A variety of food outlets will serve hot and cold snacks, espresso, beverages, hot entrees, deli sandwiches, salads, and pastries are available for purchase. Cash and credit cards accepted.

# Food Outlets in the Exhibition Halls



# Versatile Measurement Systems for Objective Lenses and Camera Modules

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- Additional functions for assembled camera modules: determination of shift, tilt and defocus of the sensor
- Available for various wavelengths (e.g. VIS, IR)



#### **GENERAL INFORMATION**

#### ONSITE SERVICES

#### **Internet Stations**

Locations: Moscone North Exhibit Level-near Hall D Entrance Moscone West Level 1 Lobby

Complimentary wired Internet access is available; attendees can hook up their laptops or use provided workstations.

#### Wireless

Locations: All Moscone Lobbies and Conference Rooms

Complimentary wireless access is available; instructions will be posted onsite

#### **SPIE Conference and Exhibition App**



DOWNLOAD NOW

Search and browse the program, special events, participants, exhibitors, courses, and more. Free Apps available for iPhone and Android smart phones.

#### **SPIE Bookstore**

Location: Moscone West Level 1 Lobby, Saturday through Sunday Moscone North Lower Lobby, Monday through Thursday

The SPIE Bookstore is your source for the latest SPIE Press Books, Proceedings, and Education and Professional Development materials. Become an SPIE member, explore the Digital Library, take home a free SPIE poster, or buy a souvenir (tie, t-shirt, educational toys, and more).

# SPIE Education Services / Course Materials

Location: Moscone West Level 1 Lobby, Saturday through Sunday Moscone North Lobby, Monday through Thursday

Browse course offerings and the other education services available: SPIE courses, videos, and CDs as well as customized in-company courses.

#### **SPIE Press Room**

Location: Moscone West Level 1 Lobby

Moscone South Exhibit Level - Room 104

Open during Registration hours

For Registered Press only. The Press Room provides meeting space, refreshments, access to exhibitor press releases, and Internet connections. Press are urged to register before the meeting by emailing name, contact information, and name of publication to media@spie.org. Preregistration closes approximately 10 days before the start of the event.

#### SPIE Luggage + Coat Check

Location: Moscone West Level 1 Lobby, Saturday through Wednesday Moscone South Exhibit Level, Room 104 Monday through Thursday

Complimentary luggage, package, and coat storage are available. Please note posted hours; no late pickup available.

#### **Business Center**

Location: Near Moscone Exhibition Hall C on the Exhibit Level Tuesday through Thursday

The Moscone Business Center provides full service business needs for your convenience. Their services include photocopying, faxing, computer workstations and printing services.

#### **Restaurant and City Information**

Location: Moscone South Lobby

The San Francisco Travel Association will have visitor guides and maps available. Staff will be available during the posted hours to discuss city information including tips on local restaurants, the city's many attractions, sightseeing suggestions and transit information.

#### **Child Care Services**

- ABC Bay Area Child Care Agency, San Francisco, CA 94122, Phone: 415.309.5662
- American Childcare Services, 580 California Street, Suite 1600, San Francisco, CA 94104, Phone: 415.285.2300, americanchildcare.com

Note: SPIE does not imply an endorsement nor recommendation of these services. They are provided on an "information only" basis for your further analysis and decision. Other services may be available.

#### **Urgent Message Line**

An urgent message line is available during registration hours: **415.978.3700** 

#### **Lost and Found**

Location: Cashier – Moscone West Level 1 Lobby, Saturday through Wednesday Cashier – Moscone North Lobby, Monday through Thursday

Found items will be kept at Cashier during the meeting and available only during registration hours. At the end of the meeting, all found items will be turned over to Moscone Security Control, 415.974.4021.

#### CAR RENTAL

Hertz Car Rental is the official car rental agency for this Symposium. To reserve a car, identify yourself as a Photonics West Conference attendee using the Hertz Meeting Code CV# 029B0021.

In the United States call 1-800-654-2240

#### **Parking During Photonics West**

For parking information please check the SPIE website www.spie.org/pwparking

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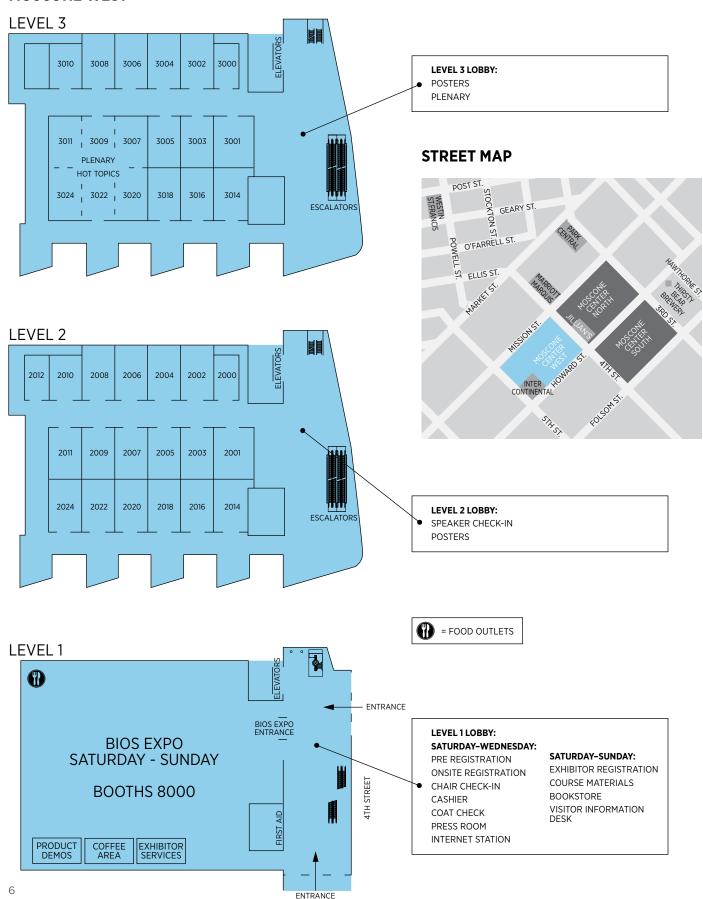
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See us at
BiOS Booth #817
Photonics West Booth #1004



#### THE MOSCONE CENTER

#### **MOSCONE WEST**



# Spanning the Spectrum



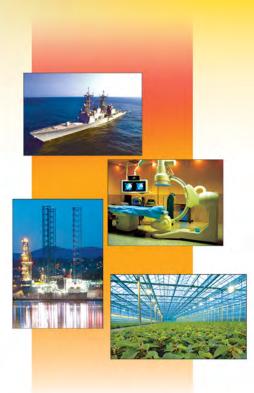
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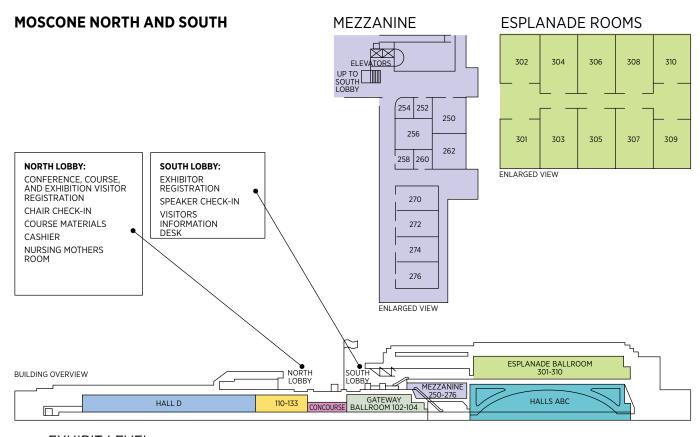
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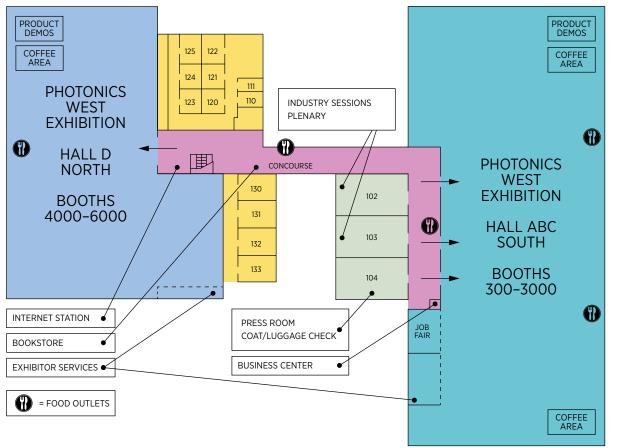




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#### **EXHIBIT LEVEL**



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Take advantage of face-to-face instruction from some of the biggest names in industry and research and earn CEUs to fulfill ongoing professional education requirements.

SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY		
New Courses	New Courses for 2016						
	SC1174 Improving Laser Reliability, an Introduction (Grossman, Asbury) 8:30 am to 5:30 pm, \$600 / \$710	SC1163 Lithium Niobate Devices and Applications (Toney) 8:30 am to 5:30 pm, \$745 / \$855	SC1175 Optics in the Hospital - Endoscope Specification and Design (Leiner) 8:30 am to 12:30 pm, \$375 / \$410	SC1176 Computational Nanomedicine (Letfullin) 8:30 am to 12:30 pm, \$375 / \$410			
	SC1179 Optical Glass – Properties and Application-oriented Specification (Hartmann) 8:30 am to 5:30 pm, \$645 / \$755	SC967 High Dynamic Range Imaging: Sensors and Architectures (Darmont) 8:30 am to 5:30 pm, \$645 / \$755	SC1177 How to Construct Your Own Spectrometer (Kaltenbacher) 8:30 am to 12:30 pm, \$375 / \$410	SC1178 Fundamentals of Molded Optics (Symmons, Schaub) 8:30 am to 12:30 pm, \$375 / \$410			
	SC1180 Passive and Active Fiber Optics (Paschotta) 8:30 am to 5:30 pm, \$600 / \$710		SC1167 Gradient Index (GRIN) Optical Design (Moore), 1:30 to 5:30 pm, \$375 / \$410	SC1181 Ultrafast Lasers and Amplifiers (Paschotta) 8:30 am to 5:30 pm, \$600 / \$710			
				SC1186 Fluorescence Sensing and Imaging: Towards Portable Healthcare (Levi) 8:30 am to 12:30 pm, \$375 / \$410			

See SPIE Cashier, North Lobby, to register for courses



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## **DAILY COURSE SCHEDULE**

SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
Optical Syste	ms and Lens I	Design			
	SC156 Basic Optics for Engineers (Boreman) 8:30 am to 5:30 pm, \$640 / \$750	SC935 Introduction to Lens Design (Bentley) 8:30 am to 5:30 pm, \$635 / \$745	SC1177 How to Construct Your Own Spectrometer (Kaltenbacher) 8:30 am to 12:30 pm, \$375 / \$410	SC720 Cost- Conscious Tolerancing of Optical Systems (Youngworth) 1:30 pm to 5:30 pm, \$375 / \$410	Thu SC003 Practical Optical System Design (Youngworth) 8:30 am to 5:30 pm, \$690 / \$800
	SC690 Optical System Design: Layout Principles and Practice (Greivenkamp) 8:30 am to 5:30 pm, \$635 / \$745	SC1080 Modeling and Simulation with Computational Fourier Optics (Voelz) 8:30 am to 5:30 pm, \$655 / \$765	SC1167 Gradient Index (GRIN) Optical Design (Moore), 1:30 to 5:30 pm, \$375 / \$410		
	SC011 Design of Efficient Illumination Systems (Cassarly) 1:30 pm to 5:30 pm, \$375 / \$410	SC609 Basic Optics for Non-Optics Personnel (Harding) 1:30 pm to 4:00 pm, \$175 / \$225		See SPIE C North Lobb to register	
		SC1123 The Building Blocks of IR Instrument Design (Grant) 1:30 pm to 5:30 pm, \$375 / \$410			
Optomechan	ics				
	SC014 Introduction to to Design (Vukobratovich) \$1,075 / \$1,330		SC010 Introduction to Optical Alignment Techniques (Castle) 8:30 am to 5:30 pm, \$600 / \$710		SC1085 Optomechanical Systems Engineering (Kasunic) 8:30 am to 5:30 pm, \$670 / \$780
		Mon SC015 Fastening Optical Elements with Adhesives (Daly) 8:30 am to 12:30 pm, \$375 / \$410			
		Mon SC1147 Vibration Control for Optomechanical Systems (Ryaboy) 8:30 am to 5:30 pm, \$600 / \$710			
Optical Mate	rials and Fabri	ication			
	SC1179 Optical Glass – Properties and Application-oriented Specification (Hartmann) 8:30 am to 5:30 pm, \$645 / \$755		SC1086 Optical Materials, Fabrication and Testing for the Optical Engineer (DeGroote Nelson) 1:30 pm to 5:30 pm, \$375 / \$410	SC1178 Fundamentals of Molded Optics (Symmons, Schaub) 8:30 am to 12:30 pm, \$375 / \$410	SC386 Advanced Thermal Management Materials for Optoelectronic, Microelectronic and MEMS Packaging (Zweben) 8:30 am to 5:30 pm, \$600 / \$710

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#### **DAILY COURSE SCHEDULE**

SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
Metrology an	nd Standards				
	SC1153 A Practical Guide to Specifying Optical Components (Aikens) 8:30 am to 12:30 pm, \$375 / \$410	SC212 Modern Optical Testing (Wyant) 8:30 am to 12:30 pm, \$410 / \$465		SC700 Understanding Scratch and Dig Specifications (Aikens) 8:30 am to 12:30 pm, \$445 / \$500	SC1017 Optics Surface Inspection Workshop (Aikens) 8:30 am to 12:30 pm, \$375 / \$410
		SC1003 Optical Scatter Metrology for Industry (Stover) 1:30 pm to 5:30 pm, \$445 / \$500			
Imaging					
		SC967 High Dynamic Range Imaging: Sensors and Architectures (Darmont) 8:30 am to 5:30 pm, \$645 / \$755		SC157 MTF in Optical and Electro-Optical Systems (Boreman) 8:30 am to 5:30 pm, \$640 / \$750	
Biomedical S	pectroscopy, I	Microscopy, an	d Imaging		
SC1148 Introduction to Quantitative Phase Imaging (QPI) (Popescu, Park) 8:30 am to 5:30 pm, \$600 / \$710		SC1150 Flow Cytometry Trends and Drivers (Vacca) 1:30 pm to 5:30 pm, \$375 / \$410			
SC1072 Statistics for Imaging and Sensor Data (Bajorski) 8:30 am to 5:30 pm, \$680 / \$790				See SPIE Co North Lobb to register	_
Clinical Tech	nologies and S	Systems			
	SC312 Principles and Applications of Optical Coherence Tomography (Fujimoto) 1:30 pm to 5:30 pm, \$375 / \$410	SC981 Biomedical Applications of Specialty Optical Fibers and Fiber Sensors (Mendez, McLaughlin) 1:30 pm to 5:30 pm, \$435 / \$490			
	SC868 Optical Design for Biomedical Imaging (Liang) 8:30 am to 12:30 pm, \$455 / \$510				
Tissue Optics	s, Laser-Tissue	Interaction, a	and Tissue Eng	gineering	
	SC029 <b>Tissue Optics</b> (Jacques) 1:30 pm to 5:30 pm, \$375 / \$410	SC1152 Monte Carlo Modeling Explained (Kanick) 8:30 am to 12:30 pm, \$410 / \$465			
Photonic The	erapeutics and	Diagnostics			
		J	SC1175 Optics in the Hospital - Endoscope Specification and Design (Leiner) 8:30 am to 12:30 pm, \$375 / \$410		

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## **DAILY COURSE SCHEDULE**

SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY THURSDAY
Nano/Biophe	otonics		-	
				SC1176 Computational Nanomedicine (Letfullin) 8:30 am to 12:30 pm, \$375 / \$410
				SC1186 Fluorescence Sensing and Imaging: Towards Portable Healthcare (Levi) 8:30 am to 12:30 pm, \$375 / \$410
Neurophotor	nics, Neurosur	gery, and Opto	ogenetics	
	SC1126 <b>Neurophotonics</b> (Levi, Dufour) 1:30 pm to 5:30 pm, \$375 / \$410			
Laser Source	Engineering			
	SC748 <b>High-Power</b> <b>Fiber Sources</b> (Nilsson) 8:30 am to 5:30 pm, \$600 / \$710			SC972 Basic Laser Technology (Sukuta) 8:30 am to 12:30 pm, \$375 / \$410
	SC1174 Improving Laser Reliability, an Introduction (Grossman, Asbury) 8:30 am to 5:30 pm, \$600 / \$710			
	SC1180 Passive and Active Fiber Optics (Paschotta) 8:30 am to 5:30 pm, \$600 / \$710			See SPIE Cashier, North Lobby, to register for courses
	SC752 <b>Solid State</b> <b>Laser Technology</b> (Hodgson) 8:30 am to 5:30 pm, \$600 / \$710			
	SC1020 Splicing of Specialty Fibers and Glass Processing of Fused Components for Fiber Laser and Medical Probe Applications (Wang) 8:30 am to 12:30 pm, \$375 / \$410			
Laser Applica	ations			
	SC743 Micromachining with Femtosecond Lasers (Nolte, Schaffer) 8:30 am to 12:30 pm, \$375 / \$410		SC1144 Laser Systems Engineering (Kasunic) 8:30 am to 5:30 pm, \$600 / \$710	SC1181 Ultrafast Lasers and Amplifiers (Paschotta) 8:30 am to 5:30 pm, \$600 / \$710
				SC744 Ultrafast Fiber Lasers and Frequency Combs (Fermann) 1:30 pm to 5:30 pm, \$375 / \$410

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- > Continuous Pad & Pitch Polishing
- > Precision Cleaning & Packaging
- > CNC Machining
- > Metrology & Inspection

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#### **DAILY COURSE SCHEDULE**

SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
Laser Micro-	/Nanoenginee	ring			
	SC689 Precision Laser Micromanufacturing (Schaeffer) 1:30 pm to 5:30 pm, \$375 / \$410				
MOEMS-ME	MS in Photon	ics			
	SC1125 <b>Design Techniques for Micro-optics</b> (Kress) 8:30 am to 5:30 pm, \$600 / \$710		SC454 Fabrication Technologies for Micro- and Nano- Optics (Suleski) 8:30 am to 12:30 pm, \$375 / \$410		
Semiconduct	or Lasers and	LEDs			
	SC052 <b>Light-Emitting Diodes</b> (Schubert) 8:30 am to 12:30 pm, \$450 / \$505		SC1146 Laser Diode Beam Basics, Characteristics and Manipulation (Sun) 1:30 pm to 5:30 pm, \$375 / \$410	SC1145 Powering and Integration of Laser Diode Systems (Bystryak, Trestman) 1:30 pm to 5:30 pm, \$375 / \$410	
Optoelectron	ic Materials ai	nd Devices			
	SC747 Semiconductor Photonic Device Fundamentals (Linden) 8:30 am to 5:30 pm, \$600 / \$710	SC1163 Lithium Niobate Devices and Applications (Toney) 8:30 am to 5:30 pm, \$745 / \$855			
		SC1091 Fundamentals of Reliability Engineering for Optoelectronic Devices (Leisher) 1:30 pm to 5:30 pm, \$375 / \$410			
Displays and	Holography				
			SC1096 Head Mounted Displays for Augmented Reality Applications (Browne, Melzer) 8:30 am to 5:30 pm, \$640 / \$750		
Nonlinear O	ptics				
	SC746 Introduction to Ultrafast Optics (Trebino) 1:30 pm to 5:30 pm, \$375 / \$410	SCO47 Introduction to Nonlinear Optics (Fisher) 8:30 am to 12:30 pm, \$375 / \$410			
Photonic Inte	egration				
		SC1071 Understanding Diffractive Optics (Soskind) 8:30 am to 5:30 pm, \$635 / \$745		SC817 Silicon Photonics (Michel) 1:30 pm to 5:30 pm, \$375 / \$410	

#### DAILY COURSE SCHEDULE

SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY		
Professional	Professional Development Workshop						
		WS667 The Craft of Scientific Presentations: A Workshop on Technical Presentations (Haas) 8:30 am to 12:30 pm, \$125 / \$175	WS1058 Critical Skills for Compelling Research Proposals (Diehl) 8:30 am to 12:30 pm, \$125 / \$175				
		WS668 The Craft of Scientific Writing: A Workshop on Technical Writing (Haas) 1:30 pm to 5:30 pm, \$125 / \$175	WS1059 Resumes to Interviews: Strategies for a Successful Job Search (Lawson, Krinsky) 1:30 pm to 5:30 pm, \$125 / \$175				

See SPIE Cashier, North Lobby, to register for courses



# Honor your co-workers with an SPIE Award

The SPIE Awards Program is not only one of the most prestigious ways the Society recognizes excellence, but also one of the longest running SPIE Programs. Since 1959, SP/E has honored the best in optics and photonics for their significant achievements and contributions in advancing the science of light.

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#### **Business Perspectives That Help You Grow.**

Grow your skills and grow your business with insights, opportunities, and personal connections that will give you a competitive edge. Learn from veteran executives, technology thought-leaders, and talented entrepreneurs there to share and connect with you.

THESE PROGRAMS ARE FREE TO ATTEND

## MONDAY\_\_\_\_

#### Modeling Camera Performance Without A Camera: The Use and Advantages of an Online Simulation Engine

Monday 15 February \* 9:00 to 10:00 PM Location: South Exhibit Level, Room 102

# Inbound Marketing: How to Bring Customers to You

Monday 15 February • 10:30 AM to 12:30 PM Location: South Exhibit Level, Room 102



Michele Nichols Launch Team Inc.

Your customer is changing, and your strategy must, too. You may have heard a lot of talk about inbound marketing, but how does it translate to our industry? Engineers, scientists and program managers want to come to their own conclusion, and do their own research before they

engage with you. Learn from others in the industry about what works in attracting and engaging with the new customer.

Intended Audience: CEOs, VP of Marketing or Sales, product managers, marketing staff, and others in "customer development" with responsibility for ensuring a healthy pipeline.

Join Michele after the workshop for a roundtable discussion over lunch. 12:00 to 1:00 pm

# Marketing Roundtable: Wins and Lessons Learned

Monday 15 February • 1:00 to 2:30 PM Location: South Exhibit Level, Room 102

INSTRUCTOR:

#### **Michele Nichols**

Launch Team Inc.

Looking to improve the ROI on your marketing and sales? Compare notes with your peers in this open discussion. Speaker Michele Nichols will share successes and lessons learned across many of the optics and photonics companies she works with, and will facilitate this roundtable session.

INTENDED AUDIENCE: CEOs, VP of Marketing or Sales, product managers, marketing staff, and others in "customer development" with responsibility for ensuring a healthy pipeline.

# ITAR and Other International Trade Regulations

Monday 15 February • 3:00 to 4:00 PM Location: South Exhibit Level, Room 102 INSTRUCTOR:



**Ian Moss** BakerHostetler Law Firm

If your company's sales activities, products or services come into contact with foreign jurisdictions, this is a must-attend program. The stakes have never been higher. Anyone who wants to answer questions such as, "How do

U.S. export controls apply to me?" or "What are the legal pitfalls of doing business internationally?" or "What are best practices for engaging in global trade?" will benefit from attending this workshop.

INTENDED AUDIENCE: Owners, executives, product managers who wish to learn how to grow business while effectively and efficiently navigating U.S. international trade laws and regulations.

# Updates to the US Munitions List (USML) That Affect ITAR

Monday 15 February • 4:00 to 5:30 PM Location: South Exhibit Level, Room 102 MODERATOR:



Jennifer Douris Lobbyist for SPIE

Join us for a discussion on changes to the US Munitions List (USML) that will impact export control regulations for both industry and research universities. The rewrite of category XII of the USML is part of the overall effort undertaken by the Administration's Export Control Reform

(ERC) Initiative.

The USML contains the items controlled under the International Traffic in Arms Regulations (ITAR). Category XII covers much of the optic and photonic commodities and components controlled under ITAR. Most of the other categories have already been addressed, but they have saved Category XII for last due to its complexity and importance to both industry and the military.

On May 5th, 2015, a proposed Category XII rule was released and opened for comment in the Federal Register. We now await an interim rule to be released in the coming weeks and months. Come hear what changes are being made and how you can influence the rule before it is finalized.

#### **Photonics Cluster Reception**

Monday 15 February • 5:00 to 6:30 PM Location: InterContinental Hotel, Fremont, Ballroom A

KEYNOTE SPEAKER:



Stephen G. Anderson

Director, Industry Development, SPIE

All leaders from regional optics and photonics clusters are invited to join this SPIE-hosted reception. Connect with your peers while enjoying drinks and appetizers, compare notes, and hear an update from Stephen Anderson called

"Photonics Industry Update: A Global Industry Profile. 2014 vs 2012."



## TUESDAY\_\_\_\_



#### Job Fair

Tuesday 16 February • 10:00 AM to 5:00 PM Location: South Exhibit Hall

Top employers are coming together to interview and hire candidates at Photonics West 2016

Whether you are looking for employees or looking for a job, this is your chance to connect with the best.

Meet over 30 recruiters on the exhibition floor Including Apple, Daylight Solutions, DSI, II-VI, KLA Tencor, Lumentum, Microsoft, ACT, Newport, Rockley, Thorlabs, and more.

#### Silicon Photonics and Photonic Integrated Circuits: an Industry Perspective

Tuesday 16 February • 1:30 to 3:00 PM Location: South Exhibit Level, Room 103

Demand for smaller and cheaper optical interconnections inside networks and computers will create a new market of miniaturized, low-cost photonic components that can leverage the scale of CMOS manufacturing. Learn what industry leaders have developed at the frontier of the silicon photonics market.

MODERATOR:



Peter Hallett

Director of Marketing and Industry Relations, SPIE





Philippe Absil 3D and Optical Technologies Department Director, imec



Peter De Dobbelaere VP of Engineering, Luxtera



**Douglas Gill** Research Staff, IBM T. J. Watson Research Center



Ashok Krishnamoorthy Architect and Chief Technologist, Photonics, Oracle



**Joan Fong** Staff Engineer. Mellanox

## TUESDAY.

# Patent Filing Considerations and Portfolio Evaluation for Photonic Engineers and Managers

Tuesday 16 February • 1:30 to 3:00 PM Location: South Exhibit Level, Room 102

INSTRUCTORS:



**Babak Tehranchi** Perkins Coie



**Bing Ai** Perkins Coie

This optics-flavored workshop begins with an introduction to U.S. patents and global patent protection, including legal and business impacts of the first-inventor-to-file regime under the America Invents Act (AIA). The workshop also covers patent valuation and intellectual property due diligence considerations for small and large companies that may be the target of acquisition, may be looking to secure financing or purchase/license another companies IP assets. Time permitting, the workshop will also venture into additional issues faced by IP managers such as pros and cons of patent filings versus trade secrets.

# Non-Financial Reporting: Managing Risks and Leveraging Opportunities

Tuesday 16 February • 3:00 to 4:30 PM Location: South Exhibit Level, Room 102

SPEAKER:



**Douglas Hileman**Douglas Hileman Consulting,
Compliance Expert

Corporate reporting on sustainability, corporate responsibility, and other non-financial matters has become routine. The Global Reporting Initiative (GRI) and CDP are two

frameworks commonly used for non-financial reporting.

Besides the "voluntary" reporting mechanisms intended for public release, other avenues of non-financial reporting (such as disclosures to customers) have grown in scope and importance. Some reporting requirements that were "emerging issues" just a few years ago are now regulatory requirements: conflict minerals, human trafficking, forced labor in the supply chain, and greenhouse gas emissions. This workshop will outline reporting frameworks, stakeholders and their expectations, and common pitfalls in approach to non-financial reporting.

The session will provide practical tips on approaches to non-financial reporting.

Douglas Hileman has 40 years of experience in operations, compliance, financial and non-financial reporting, business strategy, and risk management. He launched his firm eight years ago, after six years at PricewaterhouseCoopers. He has been deeply involved in conflict minerals since providing comments on the draft SEC Rule. His firm has conducted two of only 10 Independent Private Sector Audits (IPSAs) voluntarily submitted to the SEC in the first two reporting periods - and is one of only three U.S.-based firms to do so. He helped a Fortune 400 electronics company build their conflict minerals program, and has supported numerous external reviews by customers and auditors. He supports clients nationwide in areas of Sustainability/ Social Responsibility, external reporting of non-financial information, specialty audits, audit readiness, and risk management. He has written Sustainability reports for clients, and performed risk assessments and pre-assurance reviews of non-financial reporting. He holds CRMA, CPEA, and P.E. credentials. He is on the Board of the Institute of Internal Auditors (Los Angeles Chapter) and a global IIA committee that writes professional guidance.

#### **Financing Photonics Businesses**

Tuesday 16 February • 3:30 to 5:00 PM Location: South Exhibit Level, Room 103

This seminar will address early to late stage venture capital and private equity, strategic corporate investing, licensing, venture debt, and crowd sourcing. Learn about financing and exit strategies, as well as micro and macro trends influencing competition for capital and valuations.

MODERATOR:



**Linda Smith** Ceres Technology Advisors

PANELISTS:



Jim Haack SVP Technology Banking Citibank, Citi Commercial Bank



Faz Bashi Chair, Digital Health & Sciences Committee Life Science Angels



**Jeremy R. Salesin** VP of Acquisitions Intellectual Ventures



## WEDNESDAY\_

# **Industry Panel on 3D Printing: Outlook and Opportunities**

Wednesday 17 February • 8:00 to 10:00 AM Location: South Exhibit Level, Room 103

Kick off the 3D conference with this informative business session.

Market analysts valued the global 3D printing market at \$2.3B in 2013 and are projecting global revenues of \$8.6B by 2020—an impressive compound annual growth rate of more than 20% over seven years! At the same time, Siemens estimates that 3D printing will become 50% less expensive and 400% faster over the next five years.

However, 3D printing can only reach its economic potential and fulfill its promise of revolutionizing manufacturing across multiple industries if a number of significant real-world structural challenges are addressed. Hurdles to widespread implementation of 3D printing include implementation of a proper regulatory framework, provisions to protect intellectual property, and establishment of appropriate standards and certification. to name a few.

Join us for a panel discussion about these hurdles and how they might be overcome. Hear expert perspectives on 3D printing technology, cyber security, intellectual property, and other key elements to be addressed before the widespread adoption of 3D printing. Find out how industry leaders view the outlook for 3D printing and learn what they think needs to happen for digital manufacturing to go mainstream and fulfill its promise to create a broad range of new opportunities.

# **Industry Panel on 3D Printing: Outlook and Opportunities** CHAIR:



**Bo Gu**Bos Photonics

PANEL MODERATOR:



**Stephen G. Anderson**Director, Industry Development, SPIE

# SPEAKERS/PANELISTS: 8:00 to 8:15 AM



**3D Printing Will Rock the World John F. Hornick**Partner Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P.

8:15 to 8:25 AM



Smart Additive Manufacturing Systems (S-AMS)

Jyoti Mazumder

University of Michigan

8:25 to 8:35 AM



**3D Printing and the Future of Manufacturing John D. Murray**Concept Laser Inc.

8:35 to 8:45 AM



Cyber Security Concerns in 3D Printing Rebecca R. Taylor Sr. VP for the National Center for Manufacturing Sciences (NCMS)

8:45 to 8:55 AM

Panel Discussion with Q&A to follow

#### **Great Workplaces in Optics and Photonics**

Wednesday 17 February • 8:00 to 10:00 AM Location: South Exhibit Level. Room 102

What makes for a great optics and photonics workplace? What do employees want? What environment should managers strive to create? What are the key elements that make a workplace enjoyable, productive, and innovative?

Young leaders from the optics and photonics community will share their insights in a lively round table discussion. Provocative data from the SPIE Global Salary Survey Report will inform the conversation.

Coffee and breakfast starting at 8:00 am. Program begins 8:30 am. Free and open to all registered attendees.

#### MODERATOR:



**Adam Resnick** Marketing Analyst, SPIE

#### PANELISTS:



Nishant Mohan Director of Product Management and Marketing, Systems Division, Wasatch Photonics



Aaron Weinroth Vice President, Technology Commercialization, Tornado Spectral Systems



**Christina Willis** Laser Scientist, Fibertek, Inc.

## WEDNESDAY

#### Job Fair

Wednesday 17 February • 10:00 AM to 5:00 PM Location: South Exhibit Hall

Top employers are coming together to interview and hire candidates at Photonics West 2016

Whether you are looking for employees or looking for a job, this is your chance to connect with the best.

Meet over 30 recruiters on the exhibition floor Including Apple, Daylight Solutions, DSI, II-VI, KLA Tencor, Lumentum, Microsoft, ACT, Newport, Rockley, Thorlabs, and more.

#### **Executive Perspectives on the World** of Optics and Photonics

Wednesday 17 February • 1:30 to 2:30 PM Location: South Exhibit Level, Room 103 MODERATOR:



Stephen G. Anderson

Director, Industry Development, SPIE

Join us as industry leaders share their unique views of the current and future state of the optics and photonics business. From the challenges of ever-changing business landscapes to the uncertainties created by new compet-

itive forces and technical innovation, the operating environment for photonics businesses continues to evolve rapidly. You will hear informed commentary on emerging opportunities and new challenges from around the world. Leaders representing different aspects of the photonics marketplace provide a personal perspective of this fast-paced industry with observations about technology and market trends based on high-level business insight. Listening to and asking guestions of these photonics industry executives will help you better understand the current industry environment and set priorities for your business.

#### PANELISTS:



Gloria Hoefler Director, Optical Integrated Components Group. Infinera



**Christof Lehner** General Manager, North America, **TRUMPF** 



**Dirk Rothweiler** Executive VP, Optical Systems, Jenoptik



Sam Sadoulet President and CEO. **Edmund Optics** 



Alex Schoenfelder VP Commercial Lasers, Lumentum

#### **Getting Hired Panel**

Wednesday 17 February • 1:30 to 3:00 PM Location: South Exhibit Level, Room 102

Join us for a panel discussion on careers in optics and photonics outside the academic world. Learn about the process of getting hired at techbased companies and non-academic jobs directly from professionals in the optics and photonics sector.

#### **Conflict Minerals Workshop:** For Wherever You Are in the Supply Chain

Wednesday 17 February • 3:00 to 4:30 PM Location: South Exhibit Level. Room 102

Many publicly-traded companies are busy preparing their third annual SEC filings to comply with the SEC's conflict minerals rule. Companies in their supply chain must provide them with information, and answers to a dizzying array of additional questions. What began as a social issue is now a regulatory requirement, a contractual requirement with customers, and subject to audit in periodic business reviews with customers.

NGOs, the Social Responsible Investment community and others have used conflict minerals to promote their views, and to drive companies to change. This session will provide insights on trends, drivers, and good practices for companies affected by this rule. It is a repeat from a well-received session at the 2015 SPIE Photonics West. The presenters represent a leading global law firm; a leading auditor and consultant in the field; an industry perspective; and a leader in facilitating industry sector meetings on this topic.

INTENDED AUDIENCE: Procurement and supply chain managers, sales executives, compliance officers and in-house counsel who want to maintain and grow their companies' customer relationships and comply with the US rule on conflict minerals.

#### MODERATOR:



Lydia Hultquist Founder and Moderator; Silicon Valley Conflict Minerals Forum Responsibility

PANELISTS:



Charlie Brown Director, Global Supply Chain Management, **Newport Corporation** 



**Douglas Hileman** Douglas Hileman Consulting. Compliance Expert



**Dynda Thomas** Partner, Squire Patton Boggs Law Firm, Legal knowledge of SEC Conflict Minerals Rule

STARTUP challenge

SPIE.

Λ

6 FINALISTS, 5 MINUTES

\$10,000

WEDNESDAY

CONVENTION CTR.

SIX PRE-REVENUE PHOTONICS ENTREPRENEURS HAVE 5 MINUTES TO PITCH THEIR BUSINESS IDEAS AND A CHANCE TO WIN

over \$85,000 IN CASH, PRIZES, PROMOTION, AND MORE.

WWW.SPIE.ORG/STARTUP

SUPPORTING SPONSORS







LEAD SPONSORS





FOUNDING PARTNER



## WEDNESDAY\_\_\_

#### **SPIE Startup Challenge**

Wednesday 17 February • 3:30 to 6:00 PM Location: South Exhibit Level, Room 103

#### PITCH IT! @ PHOTONICS WEST | WIN IT! \$10,000

See and hear pitches for the "best of the best" new photonics businesses. This pitch competition is a lively, interactive event showcasing the power of entrepreneurs to move photonics technology to the global market-place. New entrepreneurs in photonics will have just 5 minutes each to pitch their businesses to a team of expert judges.

The top pitch presenter will go home with \$10,000 in cash from JENOP-TIK and \$5,000 of equipment from Edmund Optics. Join fellow business development, investment, and product managers to scout new talent and see what the future of entrepreneurship in photonics looks like.

The event will conclude with a networking reception from 5-6:00pm where you can meet the presenters and fellow attendees involved in photonics entrepreneurship. See the Startup Challenge webpage for more details on presenters, logistics, prizes, and sponsors: http://spie.org/startup

FOUNDING PARTNER:

LEAD SPONSOR:







SUPPORTING SPONSORS:









# PRISM Awards Ceremony and Banquet

Wednesday 17 February • 6:00 to 10:00 PM Location: Marriott Marquis Hotel, Yerba Buena Ballroom

#### Seating is limited. Tickets are required in advance.

Join this gala event in which the most innovative photonic products on the market are recognized. 27 companies (finalists) from nine categories will share the room with industry leaders and visionaries. The event has become one of the largest gatherings of CEOs and VIPs in the photonics industry. The evening begins with a reception, followed by an elegant dinner and award ceremony. Dress is business and formal attire.

 ${\tt Questions?\ Email\ innovation@spie.org\ or\ visit\ www.prismawards.org.}$ 

PRESENTED BY: MEDIA SPONSOR:

SPIE

Photonics Media

## THURSDAY\_

#### The Basics of Laser Material Processing

Thursday 18 February • 8:00 to 10:00 AM Location: South Exhibit Level, Room 102

INSTRUCTOR: **Jean-Philippe Lavoie**, Coherent

Learn the basics of lasers and laser applications.

#### **Photonics Industry Update**

Thursday 18 February • 9:15 to 9:45 AM Location: South Exhibit Level, Room 103

KEYNOTE SPEAKER:



#### Stephen G. Anderson

Director, Industry Development, SPIE

In a unique analysis of the global optics and photonics industry, Stephen G. Anderson presents an updated comparative profile of the industry (2012 vs 2014) that highlights the importance of photonics to the world economy. The profile is based on a continuing SPIE review

of industry trends and also includes a first-look at key end-use market segments. Don't miss this valuable presentation after the Photonics West Exhibitor Breakfast. Free and open to all attendees.

# Introduction to Silicon PM Performance and How to Characterize It

Thursday 18 February • 10:00 AM to Noon Location: South Exhibit Level, Room 102

INSTRUCTOR: **Slawomir Piatek**, Rutgers Univ. and Hamamatsu Corp.

Silicon photomultiplier users can expand on basic operating principles by understanding methods that experimentally determine key parameters of this detector such as gain, photon detection efficiency, and prevalence of noise.

# Startup Alley: Commercialization and Prototype Showcase

Thursday 18 February • 11:00 AM to 1:00 PM

Location: North Exhibit Hall

Meet with the entrepreneurs featured in the Startup Challenge as they pitch their new photonics businesses. See the prototypes and talk with the entrepreneurs to explore potential partnerships, investment, or sales.

# Use Supply Chain Transparency to Beat the Competition

Thursday 18 February • 1:30 to 3:00 PM Location: South Exhibit Level, Room 102

SPEAKER:



#### **Dynda Thomas**

Partner, Squire Patton Boggs Law Firm

How can supply chain transparency help you win customers? What's involved in a robust supply chain compliance plan? How do you get started?

A growing number of government regulations require you to know (and disclose) detailed information about your supply chains. And more of your customers are demanding to know where your products come from and that every company in your supply chain treats its employees and workers with dignity and respect. Suppliers to US Government contractors are required to have compliance programs. If you cannot keep up, you will not be a qualified supplier. Suppliers with strategies to deal with these requirements will be successful.

SPIE. PHOTONICS WEST

# **JOB FAIR**

Sponsored by SPIE Career Center

# GET A JO

Visit the Job Fair in the South Exhibition Hall.

FREE ADMISSION

Tuesday 16 February, 10:00 am to 5:00 pm Wednesday 17 February, 10:00 am to 5:00 pm

Participating Companies:





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# Congratulations to the 2016 finalists.

Category of	
<b>Biomedical</b>	Instrumentation

Avotec

**Biodesy** 

**Convergent Dental** 

Category of Detectors and Sensors

Alakai Defense Systems

Hamamatsu

**Spectral Engines** 

Category of Displays and Lighting

Crystal IS

Dolby, Christie, Necsel

**QD** Laser

#### Category of Imaging + Cameras

First Light Imaging
Rochester Precision
Optics
Stream Technologies

Category of Industrial Laser

Coherent

LightFab

Onefive

Category of Materials and Coatings

**Element Six** 

Nanoco

**Shasta Crystals** 

#### Category of Optics and Optical Components

Boulder Nonlinear Systems

**GLOphotonics** 

**OZ Optics** 

Category of Optical Metrology Instrumentation

4D Technology

neaspec

PI (Physik Instrumente)

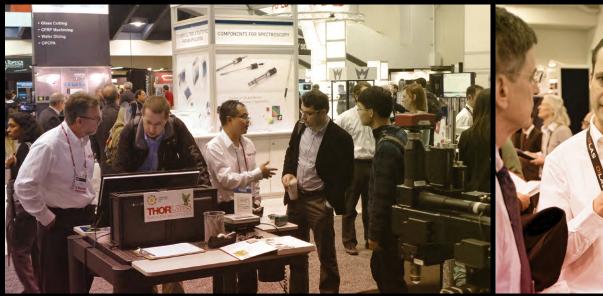
Category of Scientific Lasers

**KMLabs** 

Lasertel

Lytid











# The world's largest biomedical optics and biophotonics exhibition

# **BIOS EXPO**

#### 13-14 FEBRUARY

The Moscone Center San Francisco, California, USA

#### **MOSCONE WEST HALL**

Saturday 13 February · Noon to 5:00 pm Sunday 14 February · 10:00 am to 5:00 pm

**SPIE Photonics West Exhibition Directory Listing,** See page 73.

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Floor Plan/Booth Map	36
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Companies by Product Category 6	7-71

# Bios Expo

#### **Exhibiting Companies featuring new products**

#### **AdValue Photonics, Inc.**

Booth #8728



1.5 mJ Pulse Energy Single-Frequency 1030nm Fiber Laser.

# Advanced Microoptic Systems GmbH

Booth #8649



Refractive microlens array with variable pitch.

#### Altos Photonics, Inc.

Booth #8424



EKSPLA LightWire ultrafast robust 4W fiber lasers.

#### **Analog Modules, Inc.**

Booth #8937



Low ripple 120A, 14V CW and Pulsed Laser Diode Driver.

# Applied Physics & Electronics, Inc.

Booth #8522



Levante<sup>NSP</sup> OPO - Fully Automated, Ultrafast, High Power IR Light Source.

#### **AXSUN Technologies Inc.**

Booth #8723



Axsun WIDEBAND 140nm 100kHz 1310nm SS-OCT Integrated Laser Engine.

#### BaySpec, Inc.

Booth #8506



OEM multi- and hyperspectral images.

#### BioPhotonics, a Photonics Media Publication

Booth #8515



Photonics ProdSpec - New search tool to find photonics products.

#### **Boston Micromachines Corp.**

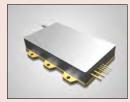
Booth #8830



Broadband Optical Modulator for DC-200kHz high throughput free-space optics.

#### **BWT Beijing Ltd.**

Booth #8720



976nm / 100W /105  $\mu \rm m$  wavelength-stabilized for Fiber Laser Pump.

#### **Cobolt AB**

Booth #8524



Cobolt NLT™ 785nm – Ultra-compact CW narrow-linewidth perfect for Raman spectroscopy.

#### **CODIXX AG**

Booth #8939



colorPOL® VIS 600 BC5 - Wider, Higher and better.

#### Coherent, Inc.

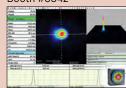
Booth #8908



New Multi-KW Fiber Laser Platform. HighLight FL-Series. Industrial Versatile Reliable.

#### DataRay Inc.

Booth #8842



DataRay will introduce our new high resolution Terahertz camera.

#### **EKSPLA**

Booth #8424



UltraFlux OPCPA-based compact tunable femtosecond laser.

#### Electro Optical Components, Inc.

Booth #8918



FEMTO OE-300 Low-noise, Highspeed (200MHz) Photoreceiver, Variable Gain to 10<sup>8</sup> A/V.

# Electro-Optics Technology, Inc.

Booth #8826



ET-2070 Silicon UV-enhanced Photodetector with fast response, large active area.

#### **EPIGAP Optronic GmbH**

Booth #8943



Infrared Multichip -LED-Array in TO-39 package with InGaAs chips.

#### **ESPROS Photonics AG**

Booth #8645



DME500 TOF Distance Measuring Engine 10m range, 980 measurements/second.

#### Etaluma Inc.

Booth #8617



Etaluma low cost, fluorescence microscope imaging engine for OEM applications.

#### **FISBA AG**

Booth #8640



Customizable high resolution micro camera (Ø,2mm) with integrated illumination.

#### **Gooch & Housego (Orlando)**

Booth #8816



OL 455-6SA Automated Variable Integrating Sphere Calibration Standard.

#### **GPD Optoelectronics Corp.**

Booth #8831



10 mm square Ge photodiode in BNC package.

#### Hellma USA, Inc.

Booth #8651



Large cylindrical optics up to 1,050mm. Illumination optics up to 3,000mm.

#### **HOLOEYE Photonics AG**

Booth #8844



New PLUTO phase only modulator version for 1300nm range (1100-1400nm).

#### **Ibsen Photonics A/S**

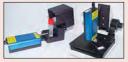
Booth #8922



EAGLE Raman-S, high performance, low f-number, compact and robust spectrometer.

# **Innovative Photonic Solutions**

Booth #8531



Accessories for high throughput integrated Raman probe.

#### InPhenix, Inc.

Booth #8536



850nm/1050nm/1300nm Swept Light Source; wavelength repetition rate 100KHz over 100nm.

# Laser Components USA, Inc.

Booth #8939



COUNT T - Single photon counting module with highest quantum efficiency for timing applications.

#### Laser Quantum USA

Booth #8822



The infallible heart of dependable products: Laser Quantum's >100,000 hour gem.

#### **Laser-Compact Co. Ltd.**

Booth #8951



0.2 mJ nanosecond TiSon laser with 700-900 nm automatic tuning.

#### Lasertel, Inc.

Booth #8845



8kW Direct Diode Laser Line Generator for laser cladding applications.

#### **Laservision USA**

Booth #8426



Laservision F29 Laser Safety Eyewear, Lightweight, Adjustable, Many Filters Available.

#### **Light Conversion**

Booth #8424



Industrial femtosecond laser – stable output within 630-2600nm (e.g. 800nm, 1550nm ...).

#### Lincoln Laser Co.

Booth #8932



POLYtek high speed polygon scan head for high power applications.

#### **Litron Lasers Ltd.**

Booth #8916



TRLi850 - Intelligent laser head, auto-tuning plug and play harmonics.

#### **Lumics GmbH**

Booth #8939



Ultra-compact LuOcean™ Mini4 diode laser module up to 70W.

# **BIOS EXPO**

#### **M Squared Lasers Ltd**

Booth #8837



SolsTiS TS (TeraScan) - rapid, automatic, mode-hop-free scans over many nanometers.

#### **Meadowlark Optics, Inc.**

Booth #8443



1-Photon SLM Microscopy Kit for Single Photon 3D Calcium Imaging & Photostimulation.

#### Micro Laser Systems, Inc.

Booth #8810



Tiny Fiber Collimators from 405nm to 1600nm for biophotonic applications.

#### **MPA Crystal Corp.**

Booth #8520



Custom made optics of Sapphire, Fused Silica, Glass Silicon and more.

#### **MPB Communications Inc.**

Booth #8717



631-nm subnanosecond externally triggered red pulsed fiber laser for STED etc.

#### **Navitar Inc.**

Booth #8518



Ideal optical solution for OEM and research imaging/measurement applications.

#### Ondax, Inc.

Booth #8550



THz-Raman\* Optical Probe: In-situ Real-time Monitoring of Molecular Structure, Polymorphs, Crystallization, and Phase.

#### **Optores GmbH**

Booth #8425



OMES – the world's first 4D MHz-OCT system.

#### **OZ Optics Ltd.**

Booth #8406



World's Largest Online Fiber Optic Catalog by OZ Optics (shop.ozoptics. com).

#### PCO-TECH Inc.

Booth #8929



pco.edge with up to 82% quantum efficiency and CameraLinkHS interface.

#### PD-LD, Inc.

Booth #8801



PLM-Series Power Stabilized Blue & Green Laser Diode Modules.

#### **Pixelteg**

Booth #8547



PixelSensor™ Customizable spectral sensing for in-vitro diagnostics, biochemical assays, imaging & colorimetry.

#### **PreXion Corporation**

Booth #8441



PreXionLED Driver, Epoch-making new technology for Photoacoustic systems!

#### **Radiantis**

Booth #8838



PowerSense - Mid-IR (1-5microns) highly sensitive (>1nW) photodiode power meter.

#### **Raptor Photonics Ltd.**

Booth #8741



Kite HD: 2.1MP HD Interline EMCCD cooled camera – exceptional low light imaging.

#### **RGB Lasersysteme GmbH**

Booth #8949



Qued miniature NIR spectrometer with InGaAS sensor for portable applications.

#### **Semrock**

Booth #8832



VersaChrome® Edge™ Unlocks Unlimited Center Wavelength and Bandwidth Spectral Tuning.

#### Superlum

Booth #8431



Ultrahigh power MOPA type superluminescent diode light source

#### **TechnoSpex Pte Ltd.**

Booth #8544



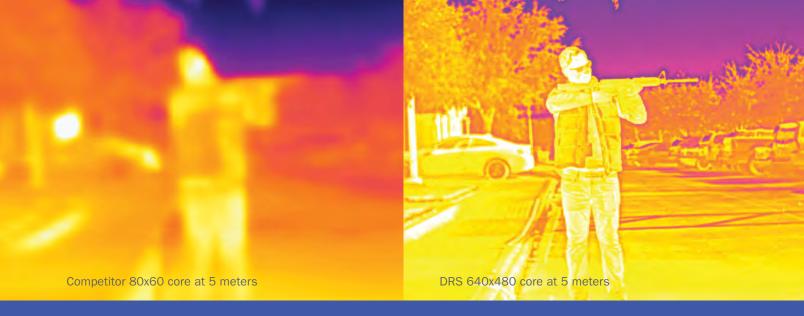
New UV-VIS-NIR microSpectroscopy system with measurement accuracy at <1/m.

#### Thorlabs Inc.

Booth #8609



Tiberius: Tunable, high-power, femtosecond laser for non-linear imaging applications.



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Our customers are serious about thermal imaging—they know you get what you pay for and they refuse to skimp on quality. Our Tamarisk® family of Vanadium Oxide (VOx) uncooled thermal imaging camera modules offer superior resolution (640x480) and sensitivity (<50 mK). Featuring our patented advanced-absorber microbolometer superstructure, the compact Tamarisk® produces crystal-clear imagery regardless of lighting conditions and delivers thermal imaging performance for serious applications.

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# **BIOS EXPO**

### 13-14 FEBRUARY

The Moscone Center San Francisco, California, USA

### **HALL WEST**

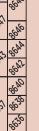
Saturday 13 February · Noon to 5:00 pm Sunday 14 February · 10:00 am to 5:00 pm Demo Area

Coffee Area



### **PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS**

Refer to page 39 for complete times, schedules, and locations.





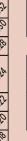


### **SPIE INDUSTRY EVENTS**

Explore the Business Side of **Photonics West** 

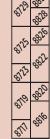
Free Seminars—open to all exhibitors, exhibition visitors, and conference attendees Refer to pages 20-29.

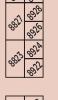
Service Area

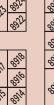






















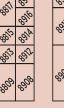


























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**BioOptics World** 

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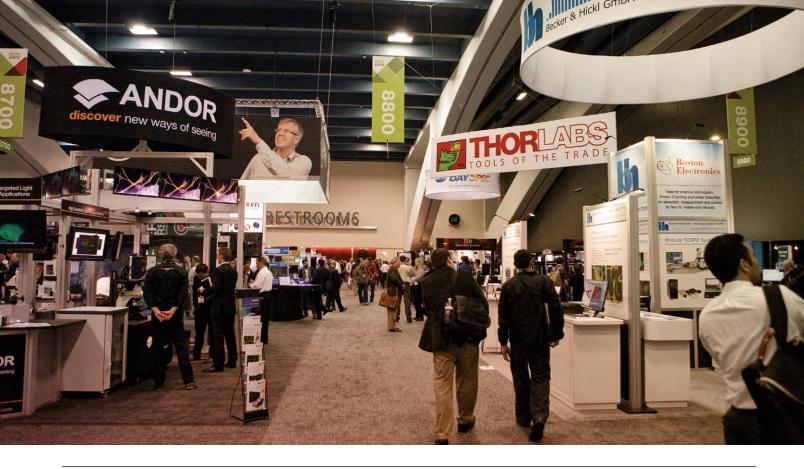
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### **PRODUCT DEMONSTRATIONS**

Product Demonstrations are open to all attendees. Exhibiting companies will be showcasing products in half-hour demonstrations.

	SATURDAY 13 FEBRUARY	SUNDAY 14 FEBRUARY
TIME	BIOS DEMO AREA / WEST HALL	BIOS DEMO AREA / WEST HALL
10:30 am	Except of function functional before the	Key Considerations When Setting Up Your Two-Photon Rig Phil Golding, Scientifica Be prepared before you buy: understand the different aspects you must consider before setting up a two-photon microscope in your lab. Such as; galvo vs. resonant, combining with full field optogenetic.
11:30 pm		The latest development in compact spectrometers Thomas Rasmussen, Ibsen Photonics The latest development in compact spectrometers from Ibsen Photonics.
12:30 pm	Linear Variable Filters for Hyperspectral Imaging Oliver Pust, Delta Optical Thin Film A/S Delta offers Linear Variable Bandpass Filters for mid-size and full-frame sensors. The filters offer high transmission, are fully blocked in the light sensitive wavelength range of silicon detectors.	VersaChrome® Edge™ Filter Prashant Prabhat, Semrock VersaChrome® Edge™ Unlocks Unlimited Center Wavelength and Bandwidth Spectral Tuning
1:30 pm	Low-Noise InGaAs Camera Accelerates Melanoma Diagnosis Herve Copin, Xenics A novel technique with Shortwave-infrared Raman spectroscopy has been developed for the examination of darkly pigmented human tissue, which will substantially accelerate the diagnosis of melanoma.	Focus-Tunable Lenses Enable 3-D Microscopy David Leuenberger, Optotune Focus-tunable lenses speed up and enhance three-dimensional imaging capabilities in a diverse set of modern microscopy methods including confocal, two-photon and light-sheet microscopy.
2:30 pm	Next generation fluorescence microscopy in the palm of your hand Dr. Chris Shumate, Etaluma, Inc. Etaluma announces the 3-color fluorescence LS620 Core for OEM and custom solutions. We are also debuting the LS720 fully automated 3-color fluorescence microscope for higher level integration.	
3:30 pm	Daybook, quality control software for your microscopes Gautier Papon, Argolight Test with Daybook the quality of your system on its most important aspects (homogeneity, distortion, intensity response) and learn in seconds if your microscope is ready to perform meaningful images.	



# **SPIE BIOS EXPO Exhibition Directory**

SPIE BiOS EXPO exhibitors are listed in alphabetical order with details about products or services each is exhibiting. Companies are additionally cross-indexed by technology areas. The address of each exhibitor is also listed, making this Exhibition Guide an excellent reference tool to take back to your office and share with your colleagues.

### AdValue Photonics, Inc.

SPIE Corporate Member

3440 E. Britannia Drive #190, Tucson, AZ, 85706 USA +1 520 790 5468; fax +1 520 790 1158

contact@advaluephotonics.com; www.advaluephotonics.com

Located in Tucson, Arizona, AdValue Photonics is focused on being the worldwide leading developer and manufacturer of high quality, innovative, cost-effective fiber lasers, fiber amplifiers, fiber-based broadband light sources, and optical fiber passive components. Our current products in the 2 micron wavelength region have provided new capabilities and opportunities to our customers for LIDAR, sensing, spectroscopy, mid-IR generation, material processing, and medical applications. Contact: sales@advaluephotonics.com; contact@advaluephotonics.com

### **Advanced Microoptic Systems GmbH**

#8649

SPIE Corporate Member

#8728

Lebacher Str 6a, Saarbrücken, 66113 Germany +49 681 40000 30; fax +49 681 40000 32 office@amus.de; www.amus.de

### Featured Product: Microlens array with a shifted pitch

Design, development, fabrication and sale of the high quality refractive microoptic components like microlens arrays, microlenses and microlens array based optical systems. Concave and convex profiles, hexagonal, orthogonal, rectagonal, cylindrical, irregular lenslet arrangements, spherical and aspherical surfaces, single side and monolithic double side microlens arrays in fused silica, BK7, STIH glass types, polymers. Photolithographical preciseness, Lambda/4 quality. Wafer based fabrication. Contact: Vladimir Leleko, sales manager, leleko@amus.de

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 39 for complete times, schedules, and locations.

AdvR, Inc.

#8637

**Altos Photonics, Inc.** 

#8424

SPIE Corporate Member

2310 University Way, Bldg 1-1, Bozeman, MT, 59715 USA +1 406 522 0388: fax +1 406 522 0387

info@advr-inc.com; www.advr-inc.com

Featured Product: OPO crystals for near IR generation (1.7 micron & other wavelengths), and OPO based lasers.

AdvR designs & builds custom wavelength locked (narrow-band) lasers, modulators, switches, beam deflectors, and UV-visible-near IR frequency converters. Uses in-house expertise in engineered nonlinear crystals (including doped & undoped versions of KTP, LiNbO, and SLT). Fabrication techniques include periodic poling, and ion exchange. AdvR also supplies stand alone and packaged SHG crystals, and integrates its products into subsystems and systems to meet customer need. Contact: Bob Tamosaitis, Sales Manager, info@advr-inc.com; David Walsh, Business Development Specialist, info@advr-inc.com

### Agilent Technologies, Inc. #8808

2850 Centerville Rd, Wilmington, DE, 19808-1610 USA +1 877 424 4536; fax +1 302 633 8916 contact us@agilent.com; www.agilent.com

Featured Product: GC, LC, MS and spectroscopy, consumables, support, services

Agilent Technologies is a leading provider of GC, LC, MS and spectroscopy instruments, technologies, related consumables, support, services, and workflow solutions that enable you to analyze, confirm and quantify substances of interest with confidence while maintaining the most stringent laboratory practices, from sample preparation to final report. Learn more www.agilent.com. Contact: agilent\_inquiries@agilent.com

### **AKELA Laser Corp.**

#8530

SPIE Corporate Member

1095 Cranbury S River Rd Ste 14, Jamesburg, NJ, 08831 USA +1 732 305 7105; fax +1 732 305 7057

info@akelalaser.com; www.akelalaser.com

Featured Product: Multi-wavelength high power diode laser modules

AKELA Laser Corporation is a leading high power laser diode manufacturer specializing in custom laser assemblies that offer a combination of any desired wavelength ranging from 375nm to 12 microns. Contact: Igor Trofimov, CTO

### ALPAO S.A.S.

#8933

SPIE Corporate Member

345 rue Lavoisier First 2, Montbonnot St Martin, 38330 France +33 4 76 890965; fax +33 4 76 514532 contact@alpao.fr; www.alpao.com

Featured Product: New options available for our DMs: High surface quality, larger stroke or higher speed!

ALPAO manufactures a complete range of adaptive optics products for use in research and industry, including very rapidly deformable mirrors with large strokes, wavefront sensors, and adaptive optics loops. These products are specially designed for astronomy, ophthalmology, microscopy, wireless optical communications, and laser applications. Our product's unrivalled performance allows users to recover very high-resolution images. Contact: Bertrand Charlet, Sales Engineer, bertrand.charlet@alpao.fr; Vincent Hardy, Sales Manager, vincent.hardy@alpao.fr

SPIE Corporate

201 S Wallace Ste B-2C, Bozeman, MT, 59715 USA +1 866 658 5404; fax +1 866 658 7357

sales@altosphotonics.com; www.altosphotonics.com

Featured Product: EKSPLA LightWire ultrafast fiber lasers for R&D and OEM applications in the NIR window.

Altos Photonics offers femtosecond, mode locked, and Q-switched lasers and tunable systems for research and industrial customers. Additional products include non-linear crystals (BBO, KTP, ZGP, KYW, KGW, etc.), optical mounts, USB-controlled stages, and other related products. Altos Photonics sells and services products from EKSPLA, EKSMA, Light Conversion & Standa. Contact: Lucian Hand, President, lucian@altosphotonics.com; Laurie Dewar, Tradeshow Coordinator, laurie@altosphotonics.com

### **Amplitude Systemes**

#8847

11 ave de Canteranne, Cité de la Photonique, Pessac, 33600 France +33 5 5646 4060; fax +33 5 5646 0694

info@amplitude-systemes.com; www.amplitude-systemes.com

Amplitude Systemes, a company of the Amplitude Laser Group, is a global leader in developing and manufacturing industrial ultrafast lasers. By combining high quality manufacturing and aggressive R and D, Amplitude Systemes brings new solutions to the most demanding industrial and scientific applications. Today, the company offers easy-to-use, 24/7 operation ultrafast lasers for a variety of markets, including ophthalmology, semi-conductor, microelectronics, and medical device manufacturing. Contact: Neal Montgomery, US Sales Manager, nmontgomery@amplitude-laser.com; Vincent Rouffiange, Vice President, Sales, vrouffiange@amplitude-systemes.com

### **Analog Modules, Inc.**

#8937

126 Baywood Ave, Longwood, FL, 32750-3426 USA +1 407 339 4355; fax +1 407 834 3806

ami@analogmodules.com; www.analogmodules.com

Featured Product: Model 785 Ultra Low Ripple 20A, 14V CW and Pulsed Laser Diode Driver

Founded in 1979, Analog Modules, Inc. designs & manufactures a wide range of analog electronic products primarily for laser & electro-optics industries. AMI's products serve in military, medical, scientific & industrial applications. Laser electronic products include laser diode drivers, pulsed flashlamp drivers, cap charging power supplies, simmer supplies, Pockels cell & CW arc lamp drivers. AMI also offers a line of sensors & amplifiers, including rangefinder receivers & laser spot trackers. Contact: Bruce Soileau, Product Manager, bsoileau@analogmodules.com; Tim Cable, Product Manager, tcable@analogmodules.com

Andor

#8543

300 Baker Ave Ste 150, Concord, MA, 01742 USA +1 860 290 9211; fax +1 860 290 9566 info@andor.com; www.andor.com

illo@andor.com, www.andor.com

Andor Technology is a global leader in the pioneering and manufacturing of high performance scientific imaging cameras, spectroscopy solutions, and microscopy systems for research and OEM markets. Andor continues to innovate ground-breaking products that improve the world in which we live. Andor Technology is part of Oxford Instruments plc, a leading provider of high technology tools and systems for industry and research.

### **Andover Corp.**

#8736

SPIE Corporate

4 Commercial Dr, Salem, NH, 03079-2800 USA +1 603 893 6888: fax +1 603 893 6508 info@andcorp.com; www.andcorp.com

Andover Corporation manufactures high-quality optical filters and coatings from 193nm-14µm, in sizes up to 300mm on a wide variety of substrate materials. Coating technologies include magnetron sputtering, ion-assisted electron beam deposition and thermal evaporation. In-house engineering assistance is available to ensure the success of your project. Over 1,500 in-stock products and a large selection of surplus filters available. AS9100 Certified. Contact: Rob Pursel, Senior Optical Coating Engineer, rpursel@andovercorp. com; Phil Clark, Technical Sales, pclark@andovercorp.com

### Applied Image, Inc.

#8542

#8522

SPIE Corporate Member

1653 E Main St, Rochester, NY, 14609-7090 USA +1 585 482 0300; fax +1 585 288 5989 info@appliedimage.com; www.appliedimage.com

"Your single source photonics solution provider" dedicated to innovative opto-imaging products & services. Providing "off the shelf" calibration tools; custom manufacturing services on a variety of substrate materials as well as assembly services, from simple mounting to complex components; imaging gauge analysis system that includes software & targets for image/camera evaluation plus custom spherical / ball lenses and mask making services. Applied Image, where image concepts become reality. Contact: Darren Dixon, Custom Sales & Support, Ddixon@appliedimage.com; Natalie Russo, Custom Sales & Support, Nrusso@appliedimage.com

### **Applied Physics & Electronics, Inc.**

SPIE Corporate

45401 Research Ave Stel41, Fremont, CA, 94539 USA +1 510 378 9067; fax +1 510 240 5055 mail@ape-america.com; www.ape-america.com

### Featured Product: Mini USB TPA-UV New! a scanning autocorrelator for the UV-Blue 340 nm to 400 nm wavelength

APE is a manufacturer of ultrafast laser components and systems. Our portfolio includes, but is not limited to, ultrafast diagnostic instruments and wavelength tunable laser systems. APE products are used worldwide in research and industrial applications in markets such as medical imaging, semiconductor and biophotonics. Contact: Olaf Korth, CEO, mail@ape-america.com

### #8847 **Argolight**

351 Cours de la Libération, Bat C5/Domaine du Haut-Carré, Tallence Cedex Aguitaine, 33400 France +33 6 228 91069

contact@argolight.com; www.argolight.com

### Featured Product: Premium hardware & software for quality management of fluorescent-based systems

Argolight is specialized in fluorescence quality management. Pharmaceutical, diagnostics and biotech companies use our tools to make their fluorescence-based measurements more reliable. We invented a patented technology that enables our clients to compare results performed on different systems and compare data on a large scale. As OEM, we provide manufacturers with solution to monitor their fleets enabling cross-systems data mining. Contact: Gautier Papon, CEO, contact@argolight.com; Arnaud Royon, CTO, contact@ argolight.com

### art photonics GmbH

#8420

Rudower Chaussee 46. Berlin, 12489 Germany +49 3067798870; fax +49 30677987799

info@artphotonics.de; www.artphotonics.de

art photonics GmbH, founded in 1998, develops and manufactures special fiber optic products for the broad spectral range from 180nm to 16µm. Our innovative design of FlexiRay High Power laser cables, metal coated silica fibers, FlexiSpec spectroscopy probes, multispectral bundles and FlexiSens fiber spectral sensors provide broad spectra fiber solutions. Contact: Renate Arenknecht, Chief Sales

# ASI/Applied Scientific Instrumentation,

#8936

29391 W Enid Rd, Eugene, OR, 97402-9533 USA +1 541 461 8181; fax +1 541 461 4018

info@asiimaging.com; www.asiimaging.com

### Featured Product: Dual Inverted Selective Plane Illumination Microscope (diSPIM) Biological Light Sheet Microscope

Applied Scientific Instrumentation, Inc. (ASI) manufactures topof-the-line products for super-resolution, and light microscopy including ultra precise motion control, LED based focus feedback systems for maintaining focus stability, and our rapid automated modular microscope (RAMM) system that provides a rock solid, fully configurable microscope platform. Our new Dual Inverted Selective Plane Microscopy system (diSPIM) offers many advantages over other light sheet microscopes. Contact: John Zemek, Ex Dir., john@ asiimaging.com; Gary Rondeau, Tech Dir., Gary@asiimaging.com

### asphericon, Inc.

#8445

SPIE Corporate Member

411 N Main St Ste 2-A, Gainesville, FL, 32601 USA +1 941 564 0890

sales@aspericon.com: www.asphericon.com

### Featured Product: Aspheric components, optical design, optical coating, optical systems

As an independent specialist, asphericon is among the technological leaders in asphere manufacture. The basis for manufacture is a patented technology to control CNC grinding and polishing machines. Small runs right through to large series can be manufactured with high precision. asphericon assists its customers from the initial optic design, via manufacturing, coating, full-surface interferometric measuring, through to the assembly of optical modules and their optical characterization. Contact: Sabrina Matthias, President, s.matthias@asphericon.com; Steffen Schneider, Vice President, s.schneider@asphericon.com

### Auxora (Shenzhen), Inc.

#8743

W Keyuan Ave, C-201 Huahan Bldg Northern Hi-Tech Industrial Zone, Shenzhen, Guangdong, 518057 China +86 75586016770; fax +86 75586016750 saleschina@auxora.cn; www.auxora.com

### Featured Product: Filter for communication, CATV, biotechnology, high power lasers, instruments

Auxora is well-known as a leading manufacturer and solution supplier of optic wavelength management & control applications including optical thin film filter coating. Auxora has developed proprietary deposition technology for optical thin film filter coating, which can be widely used in optical telecommunication, data communication, CATV, bio-technology, high power lasers, instruments and other different markets. Contact: Grant Watkins, Sales, gwatkins@auxora.com

Avantes, Inc.

#8739

SPIE Corporate

BaySpec, Inc.

#8506

SPIE Corporate Member

9769 W 119th Dr Ste 4, Broomfield, CO, 80021 USA +1 303 410 8668; fax +1 303 410 8669

infousa@avantes.com; www.avantes.com

Featured Product: AvaSpec NIRline spectrometers, AvaSpec-EVO spectrometer platform

Avantes is a global leader in the field of fiber optic spectroscopy providing spectrometers, light sources, and fiber optics in the 190-2500 nm spectrum. Drawing upon over 20 years of experience and innovative achievement in fiber optic spectroscopy in hundreds of applications, Avantes is equipped to tailor a solution to your needs. Avantes will showcase the AvaSpec-NIR512-2.5-HSC near infrared spectrometer and the AvaSpec-ULS2048L-EVO USB3 and native gigabit Ethernet spectrometer.

abit Ethernet spectrometer.

SPIE Corporate Member

**Avo Photonics, Inc.** 

700 Business Center Dr Ste 125, Horsham, PA, 19044-3433 USA +1 215 441 0107

sales@avophotonics.com; www.avophotonics.com

Avo Photonics designs, develops, and manufactures confidential, client-owned opto-electronic solutions for medical, industrial, communications, military, and aerospace markets. We provide our customers innovative product design, prototyping, and volume production contract services all within USA-based, ISO certified, high-quality operations. Avo works as an extension of your team to help your company during any stage of your product's life cycle.

**Axsun Technologies** 

#8723

#8620

#8729

1 Fortune Dr, Billerica, MA, 01821-3923 USA +1 978 262 0049; fax +1 978 262 0035 info@axsun.com; www.axsun.com

# Featured Product: 1060nm and 1310nm swept source OCT imaging engines with integrated data acquisition

Axsun Technologies, the leading provider of healthcare OCT Imaging Subsystems, offers the industry's most advanced OCT imaging products. Axsun's Swept Laser Engines and high speed Data Acquisition products enable ultrafast, portable, high-resolution imaging with outstanding depth range across a variety of biomedical and industrial applications. Axsun will demonstrate its next generation Swept Laser Engines and Data Acquisition products at BiOS 2016, booth 8723. Contact: Kathleen Mooney, Sales Administrator, info@axsun.com

Meterboard Sponsor

B&W Tek, Inc.

SPIE Corporate Member

19 Shea Way, Newark, DE, 19713-3452 USA +1 302 368 7824; fax +1 302 368 7830 marketing@bwtek.com; www.bwtek.com

# Featured Product: Exemplar Plus LS utilizes an aberration corrected concave holographic grating to minimize straylight

B&W Tek is an advanced instrumentation company producing UV/VIS, NIR and LIBS spectroscopy, laser instrumentation and laboratory, portable and handheld Raman systems. As a leading OEM supplier, we offer much more than hardware by providing application specific design, custom product development/manufacturing as well as regulatory and applications support. B&W Tek provides solutions for the pharmaceutical, biomedical, physical, chemical, and research communities. Contact: Sam Panariello, Application Sales Specialist, samp@bwtek.com; Parag Borgaonkar, Application Sales Manager, paragb@bwtek.com

1101 McKay Dr, San Jose, CA, 95131-1706 USA +1 408 512 5928; fax +1 408 512 5929 sales@bayspec.com; www.bayspec.com

Featured Product: BaySpec Introduces Extended Range OCI™ ("All Seeing Eye") Hyperspectral Imager.

BaySpec, Inc., located in San Jose, CA, is a vertically integrated spectral sensing company. BaySpec manufactures and markets advanced spectral instruments, including UV-VIS-NIR-SWIR spectrometers, benchtop and portable NIR/SWIR and Raman analyzers, confocal Raman microscopes, hyperspectral imagers, mass spectrometers, and OEM spectral engines and components, for the R&D, biomedical, pharmaceuticals, chemical, food, semiconductor, health monitoring, human & animal medical devices. Contact: Eric Bergles, VP Sales & Marketing, sales@bayspec.com; Lynn Chandler, Sales, sales@bayspec.com

### **Becker & Hickl GmbH**

#8701

Nahmitzer Damm 30, Berlin, 12277 Germany +49 30 212 80020; fax +49 30 212 800213 info@becker-hickl.com; www.becker-hickl.com

# Berliner Glas KGaA Herbert Kubatz GmbH & Co.

#8551

SPIE Corporate Member

Waldkraiburger Str. 5, Berlin, 12347 Germany +49 30 609050; fax +49 30 60905100 medical@berlinerglas.de; www.berlinerglas.com

# $\label{thm:concept} \textbf{Featured Product: OEM medical optical solutions - from concept} \\ \textbf{to volume production}$

Berliner Glas is one of the world's leading providers of optical key components, assemblies and systems as well as high-quality refined technical glass and touch systems. Berliner Glas develops, produces and integrates optics, mechanics and electronics into innovative system solutions for its customers. As OEM partners from concept to volume production, Berliner Glas supplies innovative companies from the medical technology & life science market. Contact: Kevin Liddane, Director of Sales - North America, kliddane@berlinerglasus.com

### **Biophotonic Solutions, Inc.**

#8912

SPIE Corporate Member

1401 E Lansing Dr Ste 112, East Lansing, MI, 48823-2992 USA +1 517 580 4075; fax +1 517 579 8571

info@bsifemto.com; www.biophotonicsolutions.com

# Featured Product: femtoJock-D, budget-sensitive solution for adaptive pulse compression&shaping with >200 P&A channels

Biophotonic Solutions, Inc. (BSI) is the world leader in adaptive femtosecond laser pulse compression and shaping. BSI's mission is to make ultrafast laser applications practical by eliminating the need for manual adjustment of fixed optics, thus minimizing downtime spent fine-tuning the laser system output. BSI's products, based on state-of-the-art MIIPS technology, unlock the latent power of ultrafast lasers for nonlinear microscopy, micromachining, attosecond science and other applications. Contact: Bingwei Xu, Director of Production and Distribution, bxu@bsifemto.com

**Promotional Partner** 

# BioPhotonics, a Photonics Media Publication

#8515

SPIE Corporate Member

100 W St, Pittsfield, MA, 01202-4949 USA +1 413 499 0514; fax +1 413 443 0472 info@photonics.com; www.photonics.com

# Featured Product: BioPhotonics magazine: Bringing Light to the Life Sciences

BioPhotonics is the global resource for research, business and product news and information for the growing biophotonics community. Stay current with our continual coverage of light and the life sciences, or expand your knowledge through our extensive, industry-specific archives. Stop by our booth to pick up the recent issues and subscribe for free or visit www.Photonics.com/ Subscriptions. Contact: Ryan Laurin, Vice President, advertising@ photonics.com; Karen Newman, Group Publisher, editorial@ photonics.com

### **Bordeaux Route des Lasers**

#8847

rue François Mitterrand, Institut d'Optique d'Aquitaine, Talence, 33400 France

+33 5 57 01 74 50

contact@routedeslasers.com; www.routedeslasers.com

# Featured Product: Services for photonics companies located near Bordeaux, France. Business partnerships with clusters.

Bordeaux Route des Lasers is a French photonics cluster. It gathers research & training centers, technology transfer platforms and innovative companies to facilitate optics and laser technology to penetrate markets in, for instance, laser sources, biophotonics, energy, aerospace and instrumentation. It collaborates with clusters in order to facilitate contacts, partnerships and business opportunities between companies. It helps companies that want to open French subsidiaries near Bordeaux. Contact: Hervé FLOCH, General Manager, contact@routedeslasers.com

### **Boston Electronics Corp.**

#8701

SPIE Corporate

91 Boylston St, Brookline, MA, 02445-7602 USA +1 617 566 3821; fax +1 617 731 0935 boselec@boselec.com; www.boselec.com

# Featured Product: Confocal fluorescence lifetime imaging microscopes for direct visualization of FRET

We are agents for Becker & Hickl GmbH of Berlin, whose line of time correlated single photon counting (TCSPC) modules are used for fluorescence lifetime imaging microscopy (FLIM), single molecule detection, and other tasks where extreme sensitivity and picosecond time resolution are required, especially in the biological sciences. Contact: Frederick Perry, President

### **SPIE INDUSTRY EVENTS**

Explore the Business Side of Photonics West
Free Seminars—open to all exhibitors, exhibition visitors, and conference attendees
Refer to pages 20-29.

### **Boston Micromachines Corp.**

#8830

SPIE Corporate Member

30 Spinelli Pl, Cambridge, MA, 02138-1070 USA +1 617 868 4178; fax +1 617 868 7996 moreinfo@bostonmicromachines.com; www.bostonmicromachines.com

### **Featured Product: MEMS Deformable Mirrors**

### **Broadband Optical Modulator.**

Provider of MEMS deformable mirrors for adaptive optics, broadband optical modulator components and advanced imaging systems. BMC devices can be used in a variety of applications which include microscopy, astronomy, vision science, beam shaping and laser comm. BMC offers standard components, instruments and custom research products. Our latest product, the Broadband Optical Modulator, offers an alternative to traditional Acousto-optic and Electro-Optic modulator. Contact: Michael Feinberg, Vice President of Marketing and Sales, mrf@bostonmicromachines.com

### **Boulder Nonlinear Systems**

#8439

SPIE Corporate Member

450 Courtney Way, Lafayette, CO, 80026-8878 USA +1 303 604 0077

info@bnonlinear.com; www.bnonlinear.com

# Featured Product: Specializing in fast non-mechanical beam steering and spatial light modulation.

Boulder Nonlinear Systems is a leader in research and development of custom light control solutions, with more than 25 years of experience in delivering practical devices and systems to government, academic and commercial partners. Our core technologies include non-mechanical beam steering and modulation devices based on next-generation liquid crystal on silicon (LCOS) spatial light modulators and liquid crystal polarization gratings, with applications in biomedical, defense, and basic research. Contact: Christopher Hoy, Research Scientist, info@bnonlinear.com

### Meterboard Sponsor

### **BWT Beijing Ltd.**

#8720

SPIE Corporate Member

No 4A Hangfeng Rd Fengtai District, 2nd Fl, Beijing, 100070 China +86 10 83681053; fax +86 10 83682949 sales@bwt-bi.com; www.bwt-bi.com

# Featured Product: Multi-Wavelength Diode Laser Series for Medical Use.

BWT Beijing Ltd. was founded in 2003, we specialize in developing and manufacturing of high performance diode laser components and subsystems. As a leading supplier of fiber coupled diode lasers, BWT provides lasers in a wide range of wavelengths and output powers. BWT has won wide recognition and trust from both our domestic and international customers in the areas of fiber laser pumping, CTP, medical use, illumination, industry and more. Contact: Hellen Wang, Sales Director, hellen@bwt-bj.com; Akihiro Yamada, Sales Manager, aki.yamada@bwt-bj.com

### Cambridge Technology

#8930

CODIXX AG
Steinfeldstr 3 Barlehen 39179 Germany

SPIE Corporate

125 Middlesex Turnpike, Bedford, MA, 01730 USA +1 781 266 5800: fax +1 781 266 5123

scanners@camtech.com; www.cambridgetechnology.com

Featured Product: Galvanometer-based optical scanning components, scan heads, subsystems, control hardware & software

Cambridge Technology designs, develops, and manufactures state-of-the-art beam steering solutions including galvanometer-based optical scanning components, 2-axis and 3-axis scan heads, scanning subsystems, high-power scanning heads, and controlling hardware and software. Our engineers excel in collaborating with key OEM partners to develop optimized solutions that meet the needs of their advanced industrial and medical applications requiring reliable precision laser beam steering. Contact: US Sales Team, scanners@cambridgetechnology.com

### Changchun New Industries Optoelectronics Technology Co., Ltd. #841

SPIE Corporate

No 888 Jinhu Road, High-Tech Zone, Changchun, Jilin, 130103 China

+86 431 87034313; fax +86 431 87033597 cni@cnilaser.com; www.cnilaser.com

# Featured Product: Single mode spatial beam profile, excellent long term power stability, easy operation, long lifetime

Changchun New Industries Optoelectronics Tech. Co., Ltd., (CNI) was founded in 1996. Our products include green, blue, yellow, red lasers, RGB, infrared, UV, single longitudinal mode, low noise, and Q-switched laser systems. CNI is the largest DPSS and diode laser manufacturer in China. Each year CNI produces 20,000 sets of laser modules, which are exported to more than 120 countries. Contact: Ayuki GAO, Sales manager, amer@cnilaser.com; Wanda WANG, Sales, trade@cnilaser.com

### **Chroma Technology Corp.**

#8716

SPIE Corporate Member

10 Imtec Ln, Bellows Falls, VT, 05101 USA +1 802 428 2500; fax +1 802 428 2525 sales@chroma.com; www.chroma.com

Chroma Technology designs and manufactures optical interference filters using advanced sputtering technologies. Our high performance filters are intended for imaging applications ranging from widefield and confocal fluorescence microscopy, TIRF and super-resolution techniques to flow cytometry, high content screening, multi-photon and Raman spectroscopy. Chroma also provides comprehensive technical and applications support. Contact: Christopher Conca, OEM Sales, cconca@chroma.com; Alex Gao, Sales, agao@chroma.com

Cobolt AB #8524

Vretenvägen 13, Solna, 171 54 Sweden +46 8 5459 1230; fax +46 8 5459 1231

info@cobolt.se; www.cobolt.se

Cobolt is a leading manufacturer of in-house developed high performance lasers for advanced analytical instrumentation and high-end research. We offer a wide range of innovative compact laser solutions in the UV-visible-NIR-mid IR spectrum, including powerful ultra low noise SLM CW DPSS lasers, Q-switched DPSS lasers, mid-IR OPOs and high performance diode laser modules. The lasers are manufactured with our unique and proprietary HTCure technology, yielding unrivaled robustness and reliability. Contact: info@cobolt.se

Steinfeldstr 3, Barleben, 39179 Germany +49 39203 9630; fax +49 39203 96333

info@laser-components.com; www.laser-components.com

# Featured Product: colorPol VIS 600 BC5 - Wider, Higher, and Better.

CODIXX produces dichroic glass polarizers for the UV, visible, and IR range (340 nm up to 5,000 nm), well known under the brand name colorPol. The products have outstanding characteristics, like high acceptance angle of 0 degrees ± 20 degrees, transmittance up to 98%, high contrast ratios of 70dB and a wide operating temperature range from -50 degrees C to +400 degrees C; also available with low wavefront distortion. Contact: Michael Tuohy, Sales, tuohy@ laser-components.com; Carol Howard, Sales Engineer, howard@ laser-components.com

### Coherent, Inc.

#8908

#8939

SPIE Corporate

5100 Patrick Henry Dr, Santa Clara, CA, 95054-1112 USA +1 408 764 4000; fax +1 408 764 4800 tech.sales@coherent.com; www.coherent.com Contact: Charissa Ikan, Charissa.lkan@coherent.com

### DataRay Inc.

#8842

SPIE Corporate Member

176 Market Street, Redding, CA, 96001 USA +1530 776 0843; fax +1530 255 9062 sales@dataray.com; www.dataray.com

### Featured Product: WinCamD-THz New Terahertz Camera.

DataRay designs and manufactures innovative laser beam intensity profiling instruments for wavelengths from UV to THz. Camera based and scanning slit based instruments are all USB port-powered with Windows based software, and interfacing options to LabVIEW, Python, MATLAB etc. Standard and custom systems available. Unique systems include XYZOF measurement for focused laser assembly alignment with real-time M2, and high resolution THz camera systems. Contact: John Wilson, VP Sales and Marketing, jwilson@dataray.com; Andrew MacGregor, VP Support, amacgregor@dataray.com

### Delta Optical Thin Film A/S

#8737

Venlighedsvej 4, Hørsholm, 2970 Denmark +45 70 70 71 46

in fo@delta optical thin film.com; www.delta optical thin film.com

### Featured Product: Linear Variable Bandpass Filters for Hyperspectral Imaging.

Delta Optical Thin Film is the leading supplier of the most advanced dielectric filters. For 50 years Delta has enabled customers to offer the highest performing analytical & diagnostic instruments by applying the latest design and process control technologies. Delta offers a wide range of high efficiency durable hard coated filters that have set standards in the marketplace. With its unique design tools, Delta is able to tailor filters to any application with competitive pricing at high volume. Contact: Oliver Pust, Director, Sales and Marketing, opu@deltaopticalthinfilm.com; Poul Svensgaard, CEO, psv@deltaopticalthinfilm.com

### **Deposition Sciences, Inc.**

#8525

3300 Coffey Ln, Santa Rosa, CA, 95403-1917 USA +1 707 573 6700; fax +1 707 573 6748 solutions@depsci.com; www.depsci.com

DSI offers a wide variety of coated products ranging from high Laser Damage Threshold (LDT) antireflection (AR) coatings on complex shapes, to visible and infrared bandpass filters, as well as solderable metallization coatings on active devices. Additionally, DSI's photolithography capability enables the deposition of multispectral coatings on filters as well as directly on active detectors. DSI can deposit an extensive range of materials on most rigid and flexible substrates. Contact: Tatiana Atkinson, Inside Sales Manager, atkinsontn@depsci.com

### **DIAS Infrared Corp.**

#8414

SPIE Corporate

6 Barbara Dr, Warwick, NY, 10990 USA +1 845 544 7055; fax +1 845 544 7054 sales@dias-infrared.com; www.dias-infrared.com

# Featured Product: DIAS Infrared PYROSENS infrared detectors. Single & multi-element IR detectors with custom filters.

DIAS Infrared is a leading supplier of infrared technology. We specialize in design, development and production of pyroelectric infrared detectors, fixed-mount & handheld digital pyrometers, and IR cameras, made specifically for industrial process monitoring and control. DIAS Infrared is your premier source for any infrared detection requirements and radiometric non-contact temperature measurement systems from –40 degrees C to 3000 degrees C. Contact: Philip Gregor, VP, COO, p.gregor@dias-infrared.com

### **DiCon Fiberoptics, Inc.**

#8836

SPIE Corporate Member

1689 Regatta Blvd, Richmond, CA, 94804-7438 USA +1 510 620 5000; fax +1 510 620 4102 sales@diconfiber.com; www.diconfiberoptics.com

# Featured Product: B190/210 Bright Field Illuminator for microscopes, 10% brighter and includes new virtual COM port.

ScopeLED, a division of DiCon Fiberoptics, manufactures high intensity tunable LED illuminators for microscopy. Based upon our Dense Matrix LED Array, we offer illuminators for fluorescence and bright-field microscopy along with illuminators for fiber optic light guides. Our products retrofit to virtually all microscope models. In addition, DiCon Fiberoptics offers high quality MEMS fiber optic switches and variable attenuators for biomedical, defense, sensing & other applications. Contact: James Paladino, Global Brand Manager - ScopeLED, jpaladino@scopeled.com; Kirk Lussier, Director of Sales - DiCon Fiberoptics, klussier@diconfiberoptics.com

### **Diode Laser Concepts, Inc**

#8516

2027 Commerce Dr, Medford, OR, 97504-9744 USA +1 541 773 5321; fax +1 541 773 1705

sales@diodelaserconcepts.com; www.diodelaserconcepts.com

# Featured Product: World-class laser solutions: OEM applications for medical, machine vision, measurement and alignment

Diode Laser Concepts: Custom. Integrated. Solutions. We leverage your engineering capabilities with our proven laser and optical design expertise. We solve manufacturing challenges by providing turnkey, high-quality optoelectronic and mechanical solutions. We deliver your production capacity needs from prototypes to full-scale OEM volume, with DLC-owned domestic and offshore manufacturing options. Our relationship-based business has been developing successful long-term partnerships since 1991. Contact: Adam Bylund, Marketing, adam.b@diodelaserconcepts.com; Mike Robinson, President, mike.r@diodelaserconcepts.com

### **Ealing Catalog Inc.**

#8914

340 El Pueblo Rd Ste E, Scotts Valley, CA, 95066 USA +1 831 461 1930; fax +1 831 461 1936 sales@ealingcatalog.com; www.ealingcatalog.com

### Featured Product: Motorized 3 axis stage

The Ealing Catalog offers a wide variety of research and industrial grade products that will help you design and build a better optomechanical system. We offer high precision optical components, including bandpass filters, laser mirrors, fused silica lenses, as well as a selection of polarizing elements such as waveplates, beam splitters and sheet polarizers. Contact: Philip Crowley, Sales, phil@markettechinc.net

### **Edmund Optics Inc.**

#8833

SPIE Corporate

101 E Gloucester Pike, Barrington, NJ, 08007-1380 USA +1 856 547 3488; fax +1 856 573 6272 sales@edmundoptics.com; www.edmundoptics.com

# Featured Product: TECHSPEC Imaging Filters optimized for use with popular LEDs

Edmund Optics is a leading supplier of optics and optical components, designing and manufacturing a wide array of multi-element lenses, lens coatings, imaging systems, and opto-mechanical equipment. EO's state of the art manufacturing capabilities combined with its global distribution network has earned it the position of the world's largest supplier of off-the-shelf optical components. Customers can purchase items by calling 1-800-363-1992, via the catalog or the website at www.edmundoptics.com Contact: Birgit Heinz, Director of Global Trade Shows

### **EKSPLA**

#8424

Savanoriu Ave 237, Vilnius, Vilniaus, 02300 Lithuania +370 5 264 9629; fax +370 5 264 1809 sales@ekspla.com; www.ekspla.com

# Featured Product: UltraFlux compact high-energy femtosecond laser, tunable 235 nm – 2200 nm, including the NIR window.

Innovative manufacturer of solid state and fiber lasers, systems and components, from unique custom systems for basic research to small OEM series. Our in-house R&D team and more than 20 years' experience enable us to tailor products for specific applications and/or according to specific requirements. Our main products include: femtosecond, picosecond and nanosecond lasers, tunable wavelength systems, ultrafast fiber lasers, spectroscopy systems and laser electronics. Contact: Lucian Hand, President, Altos Photonics, sales@altosphotonics.com; Laurie Dewar, Customer Support, laurie@altosphotonics.com

### **Electro Optical Components, Inc.**

#8918

SPIE Corporate Member

5464 Skylane Blvd Ste D, Santa Rosa, CA, 95403 USA +1 707 568 1642; fax +1 707 568 1652 info@eoc-inc.com; www.eoc-inc.com

# Featured Product: Wavelength Stabilized lasers for BioMed; Gas Detectors; UV Detectors; Body Core Temp Measurement.

Electro Optical Components (EOC) - Technologically advanced systems and components for laser and optoelectronic systems from the UV to the far IR. Signal recovery amplifiers & photoreceivers; thermopile and pyroelectric detectors; MID IR photodiodes; UV detectors; IR and visible laser diode modules; broadband & LED mid-IR sources; optics and coatings including low refractive index coatings; IR interference filters; E-O modulators; beam shapers; spectral imaging systems; Body Core Temp. Contact: Andriko Zavadell, Sales, andrikoz@eoc-inc.com; Bill Bolster, President, billbolster@eoc-inc.com

### Featured Exhibitor Sponsor

### **Electro-Optics Technology, Inc.**

#8826

SPIE Corporate

3340 Parkland Ct., Traverse City, MI, 49686 USA +1 231 935 4044; fax +1 231 935 4046 sales@eotech.com; www.eotech.com

### Featured Product: Faraday Rotators & Optical Isolators.

Electro-Optics Technology has been supplying enabling components & diagnostic equipment for manufacturers & users of high power laser systems since 1987. Current products include Faraday rotators, optical isolators, & fiber collimators for use with laser diodes, fiber lasers, and solid-state lasers, with an emphasis on high average power & peak power applications. EOT also stocks a complete line of photodetectors for monitoring the output of pulsed, mode-lock and externally modulated CW lasers. Contact: Mike Torrance, VP Business Development, sales@eotech.com; Haily Papes, Customer Service Representative, hpapes@eotech.com

### **Elforlight Ltd.**

#8637

4B Brunel Cl Drayton Fields, Daventry Northants, NN11 8RB United Kingdom

+44 1327 300069; fax +44 1327 300076 info@elforlight.com; www.elforlight.com

# Featured Product: Visible/Infrared OPOs. Short ns pulses at up to 5 kHz repetition rates with $\mu J$ and mJ energies.

Elforlight offers pulsed tunable visible through IR OPOs with nanosecond pulse durations. Elforlight has pioneered short nanosecond (<2ns) pulses for photoacoustic microscopy, at standard 1064/532 wavelengths, and now offers tunable OPOs to facilitate spectroscopic studies. Absorptions can now be targeted across the visible, in particular blood absorptions in the yellow/orange region. Near IR versions around 1700nm target lipid (plaque) absorptions at up to 5kHz. 2940 nm output also available. Contact: Keith Oakes, Director, info@elforlight.com

### Elite Optoelectronics Co., Ltd.

#8423

SPIE Corporate

3-10502 modern business center, Zhangba 5th Road,, Sales department, Xi'an Shaanxi, Shaanxi, 710077 China +86 29 68590 616; fax +86 29 685907 28 sales@s-laser.com; www.s-laser.com

# Featured Product: Laser diode modules, RGB laser module, Fiber Coupled Laser Module. DPSS laser modules.

Elite is a professional designer and manufacturer of laser diode modules, RGB laser modules, RGB fiber coupled laser modules, fiber coupled laser modules, DPSS laser modules and related laser instruments. Through our experienced R&D team and large-scaled production capacity, Elite has become one of the world-class laser diode module suppliers. Our facilities and products are in full compliance with ISO 9001:2008, FDA, and IEC.GB standards. Contact: Yanlin Wu, Vice President, woo@s-laser.com; Li Li, sales, vicky.lee@s-laser.com

### **Energetiq Technology, Inc.**

#8644

SPIE Corporate

7 Constitution Way, Woburn, MA, 01801-1024 USA +1 781 939 0763; fax +1 781 939 0769

info@energetig.com; www.energetig.com

Energetiq Technology is the world's leading developer and manufacturer of ultra-bright broadband light sources for a wide variety of advanced applications in life and materials sciences, semiconductor manufacturing, and R&D. Energetiq's Laser-Driven Light Sources (LDLS) are based on a revolutionary technology that generates high brightness across the spectrum, with high reliability and long life. Contact: Peter Dwyer, VP of Sales, info@energetiq.com

### **EPIGAP Optronic GmbH**

#8943

Köpenicker Str 325, Berlin, 12555 Germany +49 30 6576 3760; fax +49 30 6576 3770 sales@epigap-optronic.de; www.epigap-optronic.de

# Featured Product: High efficient LEDs, LED chip and multicolor CoB module from UV to NIR (250nm - 1720nm), photodiodes

EPIGAP Optronic GmbH is an industrial leader in LED technology for state-of-the-art optoelectronics, which plays a key role in many industries. Our clients work in fields for industrial sensors, automation, security and safety technology, diagnostics, biotechnology and medical imaging. EPIGAP offers a fully integrated service from design and development to production for LED chips, LEDs customized modules and photodiodes in a range from 150nm in the ultraviolet up to 2600nm in the near infrared. Contact: Antig Thamm, Manager Marketing & Sales, thamm@epigap-optronic.de; Matthias Gamp, General Manager, gamp@epigap-optronic.de

### **ESPROS Photonics AG**

#8645

St Gallerstrasse 135, Sargans, 7320 Switzerland +41 584110300; fax +41 584110301 info@espros.com; www.espros.com

# Featured Product: epc901 High-Performance CCD Line Sensor, 1024x1 Pixels, 50 kfps / burst-mode 500kfps for four images.

epc is the foundry, product, and technology solution provider for optoelectronics manufacturers, imager designers, and researchers. We serve our customers with the only non-captive high performance CMOS process with optical front end worldwide. The open-access ESPROS Photonics technology is available for everyone with the need to design photonics chips with outstanding optoelectronic performance. We serve biomedical, robotics, life science, automotive, space, automation and many more. Contact: Steven Freedman, Managing Director, steven.freedman@espros.com; Beat DeCoi, CEO, beat.decoi@espros.com

### **Etaluma Inc.**

#8617

3129 Tiger Run Ct Ste 112, Carlsbad, CA, 92010 USA +1 760 298 2355

info@etaluma.com; www.etaluma.com

# Featured Product: High resolution digital fluorescence microscopes

Etaluma's Lumascopes constitute a dramatic new concept in digital fluorescence microscopy that combines high resolution, XYZ automation, and greater versatility, including the capability for time-lapse and videos. Providing true next-gen microscopy, the compact design allows live cell imaging in incubators, hoods, and other challenging locations. For more information about Etaluma, visit www.etaluma.com. Contact: Dr. Mary Harper, VP of Business Development, mharper@etaluma.com; Christina Smith, Director of Sales, North America, christina@etaluma.com

### **Everix Optical Filters**

#8945

SPIE Corporate

2372 N Forsyth Rd, Orlando, FL, 32807 USA +1 407 637 2987

info@everix.co; www.everix.co

EVERIX launches unique, flexible, ultra-thin optical filters with scratch-resistant layers and easy custom-shaping for OEM customers requiring volume consistency. Contact: Hooman Banaei, CEO, hooman@everix.co

### **Exalos AG**

#8447

SPIE Corporate

Wagistr 21, Schlieren, 8952 Switzerland +41 43 444 6090; fax +41 43 444 6099 sales@exalos.com; www.exalos.com

EXALOS is a technology driven company which focuses on the design, development and sale of advanced light source solutions based on superluminescent light emitting diodes (SLEDs) and external cavity tunable lasers (swept sources). We also offer balanced receivers to complement our existing products. EXALOS products are used in medical and industrial imaging, navigation, sensing, metrology, and scientific applications. EXALOS is ISO 9001:2008 certified. Contact: Gene Covell, VP of Sales, covell@ exalos.com; Bernd Nestmeier, European Sales Manager, nestmeier@ exalos.com

### **FBGS International NV**

#8927

Bell Telephonelaan 2H, Geel, 2440 Belgium +32 14 58 11 91; fax +32 14 59 15 14 info@fbgs.com; www.fbgs.com

Contact: Nadhir Kosa, Business Development Manager, nkosa@fbgs.com

### **FEMTOprint SA**

#8924

Via Industria 3, Muzzano Ticino, 6933 Switzerland +41 9 1960 10 70; fax +41 9 1960 00 48 info@femtoprint.ch; www.femtoprint.ch

# Featured Product: 3D printing for micro devices out of glass and other transparent materials

FEMTOprint is an innovation for the production of 3D micro devices, integrating optical, fluidic, mechanical features down to the nanoscale in a single substrate. It uses a femtosecond laser to directly create a large variety of 3D micro devices out of glass or other transparent substrates like fused silica, borofloat, sapphire, and some polycarbonates. Contact: Nicoletta Casanova, CEO, nicoletta. casanova@femtoprint.ch

### Fianium Inc.

#8600

SPIE Corporate Member

858 W Park St, Eugene, OR, 97401 USA +1 541 343 6767; fax +1 541 610 1825 sales@fianium.com; www.fianium.com

# Featured Product: Fianium manufactures the most extensive range of optical supercontinuum lasers

Fianium manufactures the most extensive range of optical supercontinuum lasers, with an output that spans from 400-2400 nm and delivers up to 20W of power in a collimated white laser beam. These unique laser sources enable multiple applications in biosciences, imaging instruments, and spectroscopic characterization. Fianium also specializes in high power and high energy, picosecond and femtosecond fiber lasers that enable applications in metrology and materials processing. Contact: Ted Naugler, Sales Manager North America, ted.naugler@fianium.com; Ross Hodder, Sales Manager Europe, info@fianium.com

### **Fiberguide Industries**

#8926

SPIE Corporate Member

1 Bay St, Stirling, NJ, 07980-1529 USA +1 908 647 6601; fax +1 908 647 8464 info@fiberguide.com; www.fiberguide.com

### Fibertech Optica Inc.

#8813

SPIE Corporate Member

330 Gage Ave Ste 1, Kitchener, ON, N2M 5C6 Canada +1 519 745 2763; fax +1 519 342 0128 info@fto.ca; www.fto.ca

### Featured Product: Specialty fiber optic assemblies

From prototype through production quantities, Fibertech Optica (FTO) is a leader in the manufacture of specialty fiber optic solutions. Offering fiber bundles, assemblies, spot to line converters, low FRD cables, reflectance probes, v-groove arrays, micro-lens assemblies, process control cables to 500 meters and high power laser cables with multimode, singlemode and borosilicate fibers. FTO also produces fiber coupled LED multi-emitter light sources and vacuum feedthroughs. Contact: Jeff Dupuis, Vice-President Sales & Marketing, jeffdup@fto.ca; Cheryl Provost, Sales Engineer, cprovost@fto.ca

### **FISBA AG**

#8640

SPIE Corporate Member

Rorschacher Str 268, St Gallen, 9016 Switzerland +41 71 282 3131; fax +41 71 282 3130 info@fisba.com; www.fisba.com

# Featured Product: FISBA RGBeam - Ultra Small Laser Module, Precision Molded Lenses, Optics for Laser Diodes.

FISBA is a world leader in customized microsystems, optical components and systems. The company designs and manufactures scalable products for medical applications and biophotonics, as well as the laser, sensor, machine and industrial image processing industries. 350 highly qualified employees work at facilities in Switzerland, Germany and the Unites States. Contact: Thomas Goundry, Sales Manager, thomas.goundry@fisba.com; Jan Fehse, Sales Manager, jan.fehse@fisba.com

### Flexible Optical B.V.

#8947

SPIE Corporate Member

Polakweg 10-11, Rijswijk, 2288 GG Netherlands +070 2629420 oko@okotech.com; www.okotech.com

### Fresnel Technologies Inc.

#8404

SPIE Corporate

101 W Morningside Dr, Ft Worth, TX, 76110-2708 USA +1 817 926 7474; fax +1 817 926 7146 info@fresneltech.com: www.fresneltech.com

Fresnel Technologies, Inc. manufactures molded plastics, Fresnel lenses and related optical components, as well as infrared-transmitting materials and optics. Specialties include lens arrays for passive infrared applications, diffusers and microlens arrays for illumination, and optics for environmental monitoring at 3.4 micrometers. Design assistance, tooling and production services, diamond machining for prototyping, and four-axis diamond machining of freeform optical surfaces are available. Contact: Linda Claytor, Vice President, Iclaytor@fresneltech.com; Nelson Claytor, President, nclaytor@fresneltech.com

### **General Photonics Corp.**

#8724

5228 Edison Ave, Chino, CA, 91710-5719 USA +1 909 590 5473; fax +1 909 902 5536

info@generalphotonics.com; www.generalphotonics.com

# Featured Product: Optical delay lines - manual and motorized types available in standard and custom versions.

General Photonics is the industry leader in polarization management and delay/timing control. We apply that expertise to develop standard and custom components, modules, and test & measurement instruments for optical coherence tomography and other medical imaging applications. Products include balanced detectors, wavelength-swept lasers, polarization controllers, automatic polarization tracking modules, variable delay lines, and passive components. Contact: Febian Bahari, Sales, sales@generalphotonics.com; Wajih Daab, Sales, sales@generalphotonics.com

Go!Foton #8642

28 Worlds Fair Dr, Somerset, NJ, 08873-1346 USA +1 732 469 9659 www.gofoton.com

### **Gooch & Housego (Orlando)**

#8816

4632 36th St, Orlando, FL, 32811 USA +1 407 422 3171: fax +1 407 648 5412

orlandosales@goochandhousego.com; www.GHinstruments.com

As a world leader in light measurement solutions, Gooch & Housego's instruments & systems provide accurate, repeatable, research-grade measurements in the UV-VIS-NIR-IR wavelength ranges. Used in research, academia, industry, and the military, our light measurement systems are designed to provide consistent, precise, and repeatable measurements. Contact: Alex Fong, Senior VP, afong@goochandhousego.com; Maureen Knowles, SIs/Mktg Coordinator, mknowles@goochandhousego.com

### Gooch & Housego plc

#8816

SPIE Corporate Member

Dowlish Ford, Ilminster Somerset, TA19 OPF United Kingdom +44 1460 256440

sales@goochandhousego.com; goochandhousego.com

# Featured Product: Barle 25 mm SWIR lens for industrial and security applications

Gooch & Housego designs and manufactures photonic systems and components for the aerospace, defense, industrial, life science and scientific research sectors. With operations in the USA and UK, the company is a global leader in engineering and manufacturing for harsh environments: terrestrial, marine, space and aerospace. Contact: Adrian Chance, Marketing & Communications Manager, saless@goochandhousego

### **GPD Optoelectronics Corp.**

#8831

SPIE Corporate Member

7 Manor Pkwy, Salem, NH, 03079-2842 USA +1 603 894 6865; fax +1 603 894 6866 sales@gpd-ir.com; www.gpd-ir.com

### **Grintech GmbH**

#8619

SPIE Corporate

Schillerstr. 1, Jena, 07745 Germany +49 3641 2276 0; fax +49 3641 2276 11 info@grintech.de; www.grintech.de

# Featured Product: Gradient index (GRIN) lenses and lens systems

Grintech manufactures gradient index (GRIN) lenses and lens systems for applications in sensor technology, fiber optics, biophotonics, medical imaging, telecommunication and laser diode beam shaping tailored to your specific requirements. Rod and cylindrical lenses are fabricated by a unique non-toxic silver ion-exchange technique in glass. Contact: Herbert Stuermer, Product Manager, info@grintech.de

### Hamamatsu Corp.

#8909

SPIE Corporate Member

360 Foothill Rd, Bridgewater, NJ, 08807-2932 USA +1 908 231 0960; fax +1 908 231 1539 usa@hamamatsu.com; www.hamamatsu.com

Hamamatsu Corporation is the North American subsidiary of Hamamatsu Photonics K.K. (Japan), a leading manufacturer of devices for the generation and measurement of infrared, visible, UV light and x-rays. These devices include photomultiplier tubes, photodiodes, image sensors, cameras, and light sources. Hamamatsu Photonics also offers specialized systems for select applications.

### Hellma USA, Inc.

#8651

SPIE Corporate Member

80 Skyline Drive, Plainview, NY, 11803 USA +1 516 939 0888; fax +1 516 939 0555 info@hellma.com; www.hellmausa.com

### Featured Product: Zeiss CGS Spectrometer Unit.

Manufacturer of Hellma Optics, Photometer Cells, Fiber Optic Immersion Probes, Photometric Calibration Standards, Quartz Microplates, Calcium Fluoride and more. Optics include Cylindrical/ Flat Optics, Beam Splitters and Mirrors for Lasers and other applications. All types of standard and custom Spectroscopy Cells and accessories. CaF<sub>2</sub> raw material for VUV/DUV/UV/Vis and IR applications. USA Supplier of Zeiss MMS/MCSPGS/CGS Spectrometers 190-2200nm and all types of Heraeus Light Sources. Contact: Dan Fields, Manager

### heracle GmbH

#8641

SPIE Corporate Member

Hans-Knöll-Str 6, Jena, Thüringen, 07745 Germany +49 36415277825; fax +49 32121415014 heracle@heracle.de; www.heracle.de

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 39 for complete times, schedules, and locations.

### **HOLOEYE Photonics AG**

#8844

SPIE Corporate Member

Albert-Einstein-Str 14, Berlin, 12489 Germany +49 30 6392 3660; fax +49 30 63 92 36 62 contact@holoeve.com; www.holoeve.com

HOLOEYE Photonics AG and its US-subsidiary, HOLOEYE Corp., provide customized design, fabrication, and replication services of diffractive optical elements (DOE), as well as a broad range of standard DOEs. HOLOEYE also offers spatial light modulators (SLM) for phase or amplitude modulation, which are based on high-resolution translucent or reflective microdisplays, a variety of high resolution LCOS microdisplay types, and products for monochrome or color field sequential operations. Contact: Klaus von Guenner, Marketing Manager

### **HÜBNER GmbH & Co KG**

#8748

Heinrich-Hertz Str. 2, Kassel, 34123 Germany +49 561 998 0; fax +49 561 998 1515

terahertz@hubner-germany.com; www.hubner-photonics.com

The HÜBNER Terahertz Technology and Photonics division operates as a dynamic start-up within the globally active HÜBNER Corporation. In collaboration with renowned research institutes, we develop and market products based on laser, terahertz and high-frequency technologies for applications in industry, research and science. Our tunable laser C-WAVE and our post-scanner T-COGNITION were both awarded a Prism Award, proving the keen interest in our products. Contact: Niklas Waasem, Sales Engineer, niklas.waasem@hubner-germany.com

### **Ibsen Photonics A/S**

#8922

SPIE Corporate

Ryttermarken 15-21, Farum, 3520 Denmark +45 4434 7000; fax +45 4434 7001 inquiry@ibsen.dk; www.ibsenphtonics.com

Featured Product: EAGLE Raman-S, our new high performance, low f-number, compact and robust spectrometer.

Ibsen Photonics is a global leader in transmission gratings and OEM spectrometer modules for a wide range of telecom., analytical, sensing, and laser markets. Their spectrometer products are: FREEDOM for ultra-compact size, ROCK for high throughput, EAGLE for high resolution, and I-MON interrogation monitors for FBG sensing. Their grating products include: phase masks for FBG writing, PCG for laser pulse compression, PING for telecom WSS, tunable filters, and OCM's, and spectrometer gratings. Contact: Pernille Kennedy, Sales & Marketing Coordinator, pernille.kennedy@ibsen.dk

### **ID Quantique SA**

#8701

Chemin de la Marbrerie 3, Carouge Geneva, 1227 Switzerland +41 22 301 83 71; fax +41 22 301 83 79 info@idquantique.com: www.idquantique.com

Featured Product: ID230: 200Hz dark count rate, infrared photon counter at 20% quantum efficiency

IDQ offers visible photon-counters based on avalanche photodiodes (Geiger mode) for the visible and infrared regions. In addition, we provide the best superconducting nanowires commercially available, with 50% quantum efficiency, 100Hz dark count rate, and 70ps timing jitter. Build your complete set-up using our ID350 single-photon source and our ID800 time to digital converter with 81ps bin size. Contact: Michael Desert, Head of photon couting division, michael.desert@idquantique.com

### **Imagine Optic Inc.**

#8847

50 Milk St, 16th Fl, Boston, MA, 02109 USA +1 617 803 5252

contact@imagine-optic.com; www.imagine-optic.com

# Featured Product: MICAO 3DSR, first of a kind adaptive optics in the box system dedicated to microscopy.

Imagine Optic is a lead manufacturer of wavefront sensors and adaptive optics systems for optical metrology, laser and microscopy. For almost 20 years, Imagine Optic has been innovating and providing cutting edge instruments and solutions to research and industry. Contact: Jerome Ballesta, US Sales Manager, jballesta@imagine-otic.com

### IMM Photonics GmbH

#8918

Ohmstr 4, Unterschleissheim, 85716 Germany +49 89 3214 120; fax +49 89 3214 1211

sales@imm-photonics; www.imm-photonics.de

IMM Photonics GmbH has evolved and established itself as a manufacturer, distributor and service provider in the fields of laser technology, optoelectronics, fiber optics and bio photonics. As a manufacturer and service provider, we develop and produce laser diode modules and collimators, fiber testers and fiber-optical components and LED light sources. As a distributor for selected companies, we sell laser diodes, optics, UV products, optoelectronic components, as well as fiber optic equipment. Contact: Christian Raith, Director Sales, sales@imm-photonics.de

### IMRA America, Inc.

#8521

SPIE Corporate Member

1044 Woodridge Ave, Ann Arbor, MI, 48105-9748 USA +1 734 930 2560; fax +1 734 930 9957 lasers@imra.com; www.imra.com

# Featured Product: Femtolite FD- Fiber delivered fs pulses at 1040 nm.

IMRA is the most experienced femtosecond fiber laser company, providing compact, reliable products since 1990. IMRA's pioneering technologies, rigorous quality control and high volume manufacturing operation make our lasers the sound choice for scientific, OEM and industrial use. Applications include processing of transparent materials, thin film ablation, waveguide writing, pulsed laser deposition, multiphoton microscopy, non-linear spectroscopy, terahertz generation, and refractive surgery. Contact: Jason Alexander, jalexand@imra.com; IMRA Laser, lasers@imra.com

### IMT Masken und Teilungen AG

#8742

Im Langacher, Greifensee, 8606 Switzerland +41 44 943 1900; fax +41 44 943 1901 info@imtag.ch; www.imtag.ch

# Featured Product: Flow Cells, Microchannels, Nano Wells, Reticles, Calibration Standards, Coated Optics.

IMT is a world leader in coating technology and microlithography. Contact us with your needs for flow cells, microchannels and nano wells for biomedical devices, reticles and calibration standards, and coated optics. With over 50 years' experience and highly automated semiconductor-grade equipment and processes, high quality and repeatability are guaranteed. We truly are "precision on and in glass." Come and see what we can do for you. Contact: Jürgen Rieck, Area Sales Manager, jrieck@imtag.ch; Markus Kleeb, Head of International Sales, mkleeb@imtag.ch

### Innovations in Optics, Inc.

#8422

SPIE Corporate

82 Cummings Park, Woburn, MA, 01801 USA +1 781 933 4477: fax +1 781 933 0007

sales@innovationsinoptics.com; www.innovationsinoptics.com

### Featured Product: Multi-wavelength LED illuminators for fluorescence microscopy and endoscopy

Innovations in Optics, Inc. offers high power LED light sources for science and industry that provide maximum photon delivery, illumination uniformity, and stable optical power. Products offer system-level advantages over lasers and arc lamps in OEM equipment for many applications. Available LED wavelengths range from UV 365 nm through the near-infrared, including broadband white and multiband options. System accessories include thermal management devices, wire harnesses and driver/ controllers. Contact: Kevin Carr, VP Business Development, kevinc@ innovationsinoptics.com; Margaret Johnson, Sr. Administrator, margaretj@innovationsinoptics.com

### **Innovative Photonic Solutions**

#8531

SPIE Corporate Member

4250 US Hwy 1 Ste 1, Monmouth Junction, NJ, 08852 USA +1 732 355 9300; fax +1 732 355 9302 sales@innovativephotonics.com; www.innovativephotonics.com

### Featured Product: High throughput integrated Raman probe with integral laser and filters offers 3X higher throughput.

IPS specializes in the manufacture of high performance wavelength stabilized lasers and custom systems for use in Raman spectroscopy, sensing, metrology, fiber laser seeding & other applications. Our technology enables us to lock the laser to any wavelength without complex feedback mechanisms. Products include multi-mode and single frequency lasers & span the 405 nm - 2400 nm range and are available in OEM packages or in turn-key modules with integral laser and temperature control electronics. Contact: Scott Rudder, VP Marketing & Sales, srudder@ipslasers. com; Tina Gong, Sales Associate, tgong@ipslasers.com

### InPhenix, Inc.

#8536

SPIE Corporate

250 N Mines Rd, Livermore, CA, 94551-2238 USA +1 925 606 8809: fax +1 925 606 8810 info@inphenix.com: www.inphenix.com

### Featured Product: 880nm-1550nm SOA, 700nm-1650nm SLD, Broadband Light Source, Swept Light Source, DFB Laser & FP

InPhenix, Inc. is a leading developer and manufacturer of indiumphosphide (InP) and gallium arsenide (GaAs) based active optoelectronic chips, devices and modules for the telecom, datacom, defense, biomedical and industrial markets. InPhenix's products include semiconductor optical amplifiers (SOAs), superluminescent diodes (SLDs), Fabry-Perot lasers and swept light sources. Contact: Wei-Wei Zhang, Sales Manager, wzhang@inphenix.com; Steve Vitkovsky, Sales Manager, svitkovsky@inphenix.com

### **Insight Photonic Solutions, Inc.**

SPIE Corporate

300 S Public Rd, Lafayette, CO, 80026 USA +1 303 605 5160: fax +1 720 890 5904 info@sweptlaser.com; www.sweptlaser.com

### Featured Product: Akinetic Swept Source Lasers.

Insight Photonic Solutions provides unique high-speed sweeping laser solutions for optical coherence tomography and other medical diagnostic and imaging applications. Insight's laser technology is also well suited for various fiber sensor applications. Insight's laser technology is akinetic and all semiconductor, providing unprecedented levels of linearity, deep PSFs, low noise, phase repeatability, high speed, programmability, and low cost. Contact: Simon Gray, Worldwide Sales Manager, sgray@sweptlaser.com

### Iridian Spectral Technologies Ltd.

#8815

#8538

2700 Swansea Crescent, Ottawa, ON, K1G 6R8 Canada +1 613 741 4513: fax +1 613 741 9986 sales@iridian.ca: www.iridian.ca

### Featured Product: Optical filters for spectroscopy, Raman, fluorescence, point-of-care, and endoscopy

Iridian offers industry leading optical filter solutions and coatings for a wide range of applications from the UV (300nm) to LWIR (10um). addressing needs in telecom, spectroscopy, sensing, entertainment evewear, display, and more. Our filter solutions can be tailored to address the most demanding technical needs: high in-band transmission (>90%); multiple transmission bands expertise; high contrast, low cross-talk; steep edges and deep blocking to provide "more signal with less background." Contact: Hongbai Lao, Sales Engineer, hongbai.lao@iridian.ca; Jason Palidwar, Account Manager, jason.palidwar@iridian.ca

### Iris AO, Inc.

#8738

SPIE Corporate

2680 Bancroft Way, Berkeley, CA, 94704-1717 USA +1 510 849 2375: fax +1 510 217 9646 info@irisao.com; www.irisao.com

Iris AO, Inc. manufactures small scale, micro-electro-mechanical (MEMS) based adaptive optics (AO) systems that offer radical advantages in cost, size, power consumption, durability, and flexibility. Iris AO systems make AO practical for a host of new applications, including retinal and biomedical imaging, portable laser communications, laser micromachining, and horizontal imaging. Contact: Michael Helmbrecht, CEO, Founder, info@irisao.com; Franck Marchis, Senior AO Application Scientist, info@irisao.com

### ISS, Inc.

#8744

1602 Newton Dr, Champaign, IL, 61826-6930 USA +1 217 359 8681; fax +1 217 359 7879 iss@iss.com: www.iss.com

### Featured Product: Q2 Laser Scanning Nanoscope, MetaOx Tissue Oxygen Consumption Monitor.

ISS activities include two product lines: the fluorescence analytical division manufactures and markets spectrofluorometers for timeresolved and steady-state fluorescence measurements and FLIM/ FCS confocal microscopes; and the medical division provides instruments for the absolute measurements of oxygen saturation in tissue (brain and muscle) as well as functional brain imaging. Contact: Beniamino Barbieri, Marketing, beniamino.barbieri@iss. com; Eugene Povrozin, Fluorescence Applications Manager, eugene. povrozin@iss.com

**JENOPTIK** 

#8730

SPIE Corporate

**Laser Quantum USA** 

#8822

SPIE Corporate

16450 Innovation Drive, Jupiter, FL, 33478 USA +1 561 881 7400: fax +1 561 881 1947 sales@jenoptik-inc.com; www.jenoptik.com

### Featured Product: Laser sources and optoelectronic systems to enable next-generation biomedical and diagnostic devices

Jenoptik is a global OEM photonics supplier in the healthcare & life science industries, including medical imaging, analytics, diagnostics, and laser therapy. We deliver complete solutions, subsystems, key optical assemblies such as optics, microoptics and optoelectronics. Our portfolio ranges from high power diode lasers, DPSS-lasers, like femtosecond lasers, to LED as well as digital cameras. They are used for sequencing, and in the areas of dermatology, ophthalmology, dentistry or surgery. Contact: Ying Zhao, Optics & Systems, ying.zhao@jenoptik-inc.com; Fred Kallweit, Lasers, fred.kallweit@jenoptik-inc.com

### **JENOPTIK | Lasers & Material Processing**

#8730

Göschwitzer Str 29, Jena, 07745 Germany +49 3641 65 3652; fax +49 3641 65 4399 info.lm@jenoptik.com; www.jenoptik.com/lm

### Kapteyn-Murnane Labs., Inc.

#8648

SPIE Corporate Member

1855 S 57th Ct, Boulder, CO, 80301-2811 USA +1 303 544 9068: fax +1 419 821 2284 sales@kmlabs.com: www.kmlabs.com

### Featured Product: The Y-Fi lasers are an industrial-class product line of ultrafast fiber lasers.

KMLabs is a manufacturer of high-performance, ultrafast femtosecond laser systems. Fiber lasers feature sub-150 femtosecond pulse widths and 0.5 microioules or 5 microioules pulse energy. Regenerative and multi-pass Ti:sapphire amplifiers include a single-stage series, systems capable of tunable repetition rates from 1 kHz to 1 MHz, and multistage systems up to 50 W or 30 mJ. We also produce the world's only production-grade test instrument for measuring group delay dispersion. Contact: sales@ kmlabs.com

### Laser Components USA, Inc.

#8939

SPIE Corporate

116 South River Rd, Building C, Bedford, NH, 03110 USA +1 603 821 7040: fax +1 603 821 7041 info@laser-components.com; www.laser-components.com

### Featured Product: COUNT T - single photon counting module with highest quantum efficiency for timing applications

Provides high power laser optics from 193nm to 10.6 µm, custommade lenses, Flexpoint miniature laser modules, glass polarizing filters, and fiberoptic assemblies. Photon counting modules, avalanche photodiodes (APD) and pulsed laser diodes (PLD), also drive electronics, hybrids, and complete modules. Laser power supplies and low cost laser diodes complete the product range. Contact: Gary Hayes, General Manager, hayes@laser-components. com; Valerie King, Sales/Marketing, king@laser-components.com

3083 Lawrence Expressway, Santa Clara, CA, CA 95051 USA +1 408 510 0079

sales@laserguantum.com; www.laserguantum.com

Laser Quantum is a world-class manufacturer of revolutionary solid-state and ultrafast lasers. Our products lead the industry in performance specifications, reliability, compactness and operational lifetime. You will find Laser Quantum lasers used in laboratories and integrated in systems and machines worldwide. Our lasers are helping scientists to break new ground in many applications ranging from attosecond physics to forensics and genomics. Visit www. laserquantum.com for more information. Contact: Barney Mitchell, Vice President of Sales and Marketing, bmitchell@laserquantum.com; Dan Jones, Sales and Service Engineer, djones@laserquantum.com

### Laser-Compact Co. Ltd.

#8951

SPIE Corporate Member

3 Vvedensky St, Moscow, 117342 Russian Federation +7 499 578 05 48: fax +7 499 578 05 49 ik@lcompact.msk.ru; www.laser-export.com

### Featured Product: TiSon GSB - compact 0.2 mJ nanosecond laser with automatic tuning in the range from 700 to 900 nm

Founded in 1992, Laser-compact specializes in R&D and manufacture of DPSS lasers. The company designs and manufactures UV, green and IR lasers for use in analytical, scientific and industrial applications including materials testing and micromachining, photoacoustics, various types of spectroscopy (including Raman and LIBS), lidar, mass-spectrometry and laser microdissection. Over 48,000 lasers have been produced and delivered to world-leading industrial companies and scientific organizations. Contact: Ekaterina Fedyna, Deputy Director, ik@ lcompact.msk.ru

### Lasertel, Inc.

#8845

SPIE Corporate

7775 N Casa Grande Hwy, Tucson, AZ, 85743-9317 USA +1 520 744 5700; fax +1 520 744 5766 sales@lasertel.com; www.lasertel.com

### Featured Product: Lasertel offers prototype development and design for volume manufacturing of laser medical systems.

In addition to offering "laser diode integrated solutions," Lasertel is also a vertically-integrated manufacturer of high-power semiconductor laser components and developer of custom laser solutions. Servicing the defense, medical, industrial and scientific industries, a wide range of chips, bars, array packages and fibercoupled devices are available with peak wavelengths from 770nm to 1050nm, and output powers from 0.5W to several kW. Contact: Craig Henry, Sales Account Manager, chenry@lasertel.com; John Goings, Sales Account Manager, jgoings@lasertel.com

**Laservision USA** 

#8426

SPIE Corporate

#8932

SPIE Corporate

595 Phalen Blvd, Saint Paul, MN, 55130-5303 USA +1 800 393 5565: fax +1 651 357 1830 info@lasersafety.com; www.lasersafety.com

Featured Product: LASER SAFETY - Evewear, Barriers (Curtains, Panels, and Enclosures), Windows, and Training.

With over 30 years of experience, Laservision is your laser safety expert. Creating cutting edge design, innovation, research development and manufacturing of laser protective technologies. Eyewear/filters: provide safety, comfort and style with over 2,000 filter options. Barriers: multiple curtains, panels and enclosures that are portable or mounted for large area protection. Windows: large selection of customized options. Training: online/classroom laser safety officer, awareness and audits. Contact: Cully Smutzler, Academy Director, c.smutzler@lasersafety.com

**LEUKOS** #8953

37 rue Henri Giffard, ZI Nord, Limoges, 87280 France +33 5 87 20 00 23; fax +33 5 55 38 17 39

contactus@leukos-systems.com; www.leukos-systems.com

Featured Product: Supercontinuum & white light lasers, like UV, visible, NIR, SWIR, mid-IR, & DPSS microchip lasers.

LEUKOS is a leading developer & manufacturer of supercontinuum lasers. Our portfolio includes solutions covering UV, visible, NIR, SWIR, & mid-IR, while also delivering high power or high energy at different modes of operation. With 10 years of experience, we offer a variety of standard & custom-made supercontinuum lasers, enabling various applications in spectroscopy, imaging & metrology. Our expert team will take your project from prototype to production with the highest level of support. Contact: Karine Weck, Sales and Marketing, contactus@leukos-systems.com

### **Light Conversion**

#8424

Keramiku 2B, Vilnius, Vilniaus, LT-10223 Lithuania +370 5 249 1830; fax +370 5 210 2785 sales@lightcon.com; www.lightcon.com

### Featured Product: Light conversion PHAROS femtosecond 15 W industrial laser system.

Light Conversion is the world-leader for tunable ultrafast OPA systems with the worldwide recognized TOPAS series products. Light conversion is also an established manufacturer of Ytterbium laser PHAROS (180 fs, up to 20w, 2mJ, 1MHz), harmonics generators, and parametric amplifier "ORPHEUS". Together the portfolio forms a 'best-in-class' set of devices for femtosecond applications in industry, medicine, and fundamental research. Contact: Lucian Hand, President, Altos Photonics, sales@ altosphotonics.com; Laurie Dewar, Customer Support, Altos Photonics, laurie@altosphotonics.com

### **SPIE INDUSTRY EVENTS**

Explore the Business Side of **Photonics West** Free Seminars—open to all exhibitors, exhibition visitors, and conference attendees Refer to pages 20-29.

Lincoln Laser Co.

234 E Mohave, Phoenix, AZ, 85004 USA +1 602 257 0407: fax +1 602 257 9022 info@lincolnlaser.com: www.lincolnlaser.com

Featured Product: High speed polygon scan heads, motors and mirrors, and custom laser systems and components

Lincoln Laser Company is an engineering and manufacturing company with expertise in precision laser beam delivery systems. The company specializes in high speed polygon scan heads, polygon mirrors and motors, as well as custom designed high precision laser systems and optical components. Based in Phoenix, Arizona, for 40 years Lincoln Laser is the ISO 9001:2008 certified supplier for many leading companies around the globe. For more information, call 602-257-0407 or visit www.lincolnlaser. com. Contact: Bill Kuypers, Marketing Sales Director, bkuypers@ lincolnlaser.com; Beverly McGrath, Corporate Accounts Manager, bmcgrath@lincolnlaser.com

### Litron Lasers Ltd.

#8916

SPIE Corporate Member

8 Consul Road, Rugby Warwickshire, CV21 1PB United Kingdom +44 1788 574444: fax +44 1788 574888 sales@litron.co.uk; www.litronlasers.com

Featured Product: TRLi high energy compact pulsed Nd:YAG lasers with auto tuning plug & play harmonic units to 213nm.

Lasers designed for research, engineered for industry. UK based manufacturer of compact ultra high energy pulsed Nd:YAG lasers, DPSS Nd:YAG & Nd:YLF lasers, including true TEMoo oscillators & tuneable Type II BBO OPO sources designed for scientific & industrial applications. Applications include PIV & visualisation, spectroscopy & LIBS, surface processing & ablation, scientific research, LCD & semiconductor processing, laser pump sources, photoacoustic imaging & remote sensing. BiOS 8916, PW 937 Contact: Hans Taylor, Commercial Director, sales@litron.co.uk; James McDowell, Sales Manager EMEA, sales@litron.co.uk

### Little Things Factory GmbH

#8846

Über der Bitz 3, c/o Plan Optik AG, Elsoff, 56479 Germany +49 2664 2399390 info@ltf-gmbh.com; www.ltf-gmbh.com

### **Lumics GmbH**

#8939

Carl-Scheele-Str 16, Berlin, 12489 Germany +49 30 678 06 76 0; fax +49 30 678 06 76 26 info@laser-components.com; www.laser-components.com

Featured Product: Ultra-compact LuOcean™ Mini4 diode laser module up to 70W, single/dual/triple wavelength 750-1940nm.

Lumics is a leading manufacturer of fiber-coupled SM and MM diode lasers, diode laser modules and turn key laser systems from 750nm to 1940nm, based on Lumics' state-of-the-art single emitter technology. The compelling LuOcean MM modules convince with very small form factors and output powers from 6W up to 800W. Additional features (sensors, fibers, cooling) allow for perfect adaptation to many applications including Medical & Health, Material Processing, Analytics & Sensing. Contact: Michael Tuohy, Sales, tuohy@laser-components.com; Carol Howard, Sales Engineer, howard@laser-components.com

### **M Squared Lasers Ltd**

#8837

SPIE Corporate Member

1 Kelvin Campus, West of Scotland Science Park, Glasgow, G20 OSP United Kingdom

+44 141 945 0500; fax +44 141 945 0505 mail@m2lasers.com; www.m2lasers.com

# Featured Product: Sprite XT - widely tunable, automated, ultrafast ti:sapphire laser

M Squared Lasers research, design and manufacture world-class lasers and advanced photonic systems for use in a myriad of academic, commercial and industrial applications. Founded in 2006 by laser experts Dr. Graeme Malcolm OBE and Dr. Gareth Maker, the company is considered a leader in its field. Contact: Julie Phinn, Marketing Executive, julie.phinn@m2lasers.com

### Mad City Labs., Inc.

#8437

SPIE Corporate

2524 Todd Dr, Madison, WI, 53713-2317 USA +1 608 298 0855 (USA); fax +1 608 298 9525 sales@madcitylabs.com; www.madcitylabs.com

# Featured Product: Nano-LPMW: Unique closed loop XYZ nanopositioning system designed to hold incubators for imaging.

Mad City Labs designs & manufactures high precision piezo nanopositioners, micropositioners, & microscopes suitable for inspection, metrology, microscopy, and astronomy applications. Our nanopositioners with proprietary PicoQ position sensors offer sub-nanometer precision and low noise performance. Our expertise in nanoscale measurement informs our instrument solutions for AFM/NSOM and optical microscopy. Products: RM21 microscope, SPM-M kit, Nano-MTA beam steering, Nano-METZ picopositioners. Contact: Mad City Labs (USA), Technical Sales, sales@madcitylabs.com; Mad City Labs (Europe), Technical Sales, sales@madcitylabs.eu

### Market Tech, Inc.

#8914

SPIE Corporate Member

340 El Pueblo Road Suite C, Scotts Valley, CA, 95066 USA +1 831 461 1101; fax +1 831 461 1136

info@markettechinc.net; www.markettechinc.net

Market Tech is a leading distributor of photonics products. Our product focus is lasers, LEDs and optical measurement instrumentation for life science, semiconductor and research applications. Products offered include solid state, diode and LEDs, including complete light engines; beam profilers, position sensors, laser beam stabilization systems, nanopositioning systems, optomechanical hardware, spectrophotometers and 2D colorimeters and high speed cameras. Contact: Phil Crowley, CEO, Market Tech, Inc., phil@markettechinc.net

### **Marktech Optoelectronics**

#8943

SPIE Corporate

3 Northway Ln N, Latham, NY, 12110-2281 USA +1 518 956 2980; fax +1 518 785 4725

info@marktechopto.com; www.marktechopto.com

Marktech works with any size company or project to deliver custom emission and detection solutions, optimizing performance and decreasing time to market. We offer a broad range of engineering services, packages, and materials to customize the perfect LED component for your application, as well as numerous standard assemblies and die. Our selection of materials ranges from deep ultra violet through the SWIR range. Marktech is also a Cree Solution Provider for high-brightness LEDs and materials.

### Max Levy Autograph, Inc.

#8527

SPIE Corporate Member

2710 Commerce Way, Philadelphia, PA, 19154 USA +1 215 842 3675; fax +1 215 842 3637

mla.custservice@ii-vi.com; www.maxlevy.com

MLA specializes in ultra-precision patterned components and 3D structures for the photonic, biomedical, mil-aerospace, semiconductor, and metrology industries. Substrate sizes range up to 6' x 10' for rigid substrates and up to 40' lengths for flexible materials. Applications extend from the x-ray out to infrared. Curved surfaces can also be processed. Major process capabilities include: photolithography, electroforming, laser ablation, and ISO 17025 certified calibration services. Contact: Thomas Cinque, Sales Manager, tom.cinque@ii-vi.com; Derek Rollins, Engineering Manager, derek.rollins@ii-vi.com

### Meadowlark Optics, Inc.

#8443

SPIE Corporate Member

5964 Iris Pkwy, Frederick, CO, 80530 USA +1 303 833 4333; fax +1 303 833 4335 sales@meadowlark.com; www.meadowlark.com

# Featured Product: 1-Photon SLM Microscopy Kit, Tri-Color Filter, Polarimeter w/ Eigenstate Calibration Set.

Meadowlark Optics designs, develops, and manufactures an extensive range of high quality polarization systems and components including liquid crystal devices from the UV to MWIR. Standard products include spatial light modulators, waveplates, shutters, rotators, tunable optical filters, tri-color filters, polarizers, polarimeters, pockels cells and more. We can also customize a solution to exactly fit your needs. Ask us about our fabrication services and custom capabilities. Contact: Kelly Gregorak, VP-Sales and Marketing, kelly@meadowlark.com; Paul Searcy, VP-Technical Operations, psearcy@meadowlark.com

### **Med Device Online**

#8940

2009 Mackenzie Way Ste 280, Cranberry Township, PA, 16066 USA +1 724 940 7555; fax +1 724 940 7707

info@photonicsonline.com; www.photonicsonline.com

### MegaWatt Lasers, Inc.

#8753

SPIE Corporate Member

PO Box 24190, Hilton Head Island, SC, 29925-4190 USA +1 843 342 7221

sales@megawattlasers.com; www.megawattlasers.com

# Featured Product: ER902 200uJ 1535 nm laser transmitter in a 9mm diameter package

MegaWatt Lasers manufactures Er:glass microlaser for various remote sensing applications. In addition to microlasers, MegaWatt Lasers manufactures a complete line of high-quality diffuse-reflector pump chambers for solid-state laser applications including medical, industrial, and military. Our pump chamber designs are well suited for both breadboard experimentation as well as OEM applications. Contact: Scott Hamlin, President, scott.hamlin@megawattlasers.com; Tracy Friedel, Administrative Assistant, tracy.friedel@megawattlasers.com

### Micro Laser Systems, Inc.

#8810

SPIE Corporate Member

12841 Western Ave Ste H, Garden Grove, CA, 92841-4025 USA +1 714 898 6001

sales@microlaser.com: www.microlaser.com

# Featured Product: Tiny Fiber Collimators and RGB Fiber Collimators for visible to NIR wavelengths.

Fiber coupled lasers from 375nm to 1550nm in turnkey or OEM versions are available using single-mode or multimode fibers. Fiber collimators, focusers, splitters and combiners all work perfectly together with the lasers for an integrated system. Free space laser assemblies also available for a simple solution. Applications in fluorescence excitation, cytometry, photodynamic therapy, Raman and confocal microscopy. Custom laser/optical assemblies are routinely manufactured for OEM users. Contact: Norma Adachi, Marketing/Sales Director, norma@microlaser.com

### **Micro Photon Devices**

#8612

Via Stradivari 4, Bolzano, 39100 Italy +39 0471 051212; fax +39 0471 501524

info@micro-photon-devices.com; www.micro-photon-devices.com

Micro Photon Devices' (MPD) in-depth know-how of SPAD device fabrication and active quenching electronics has led the company to develop and market a comprehensive family of Single Photon Avalanche Diodes (SPADs), silicon, and CMOS or InGaAs/InP technologies. MPD products are self-contained modules that have ultra-fast timing resolution, high photon detection efficiency, low power consumption, high robustness, and reliability, making them suitable for all low light level analytical detection. Contact: Nick Bertone, Nick.Bertone@optoecomponents.com; Natalie Raymond, Natalie.Raymond@optoecomponents.com

### microfluidic ChipShop GmbH

#8641

Stockholmer Str 20, Jena, 07747 Germany +49 3641 347 050; fax +49 3641 347 0590

sales@microfluidic-chipshop.com; www.microfluidic-chipshop.com

# Featured Product: The microfluidic toolbox - off-the-shelf modules for quick proof-of-concept microfluidic experiments

The lab on the chip - miniaturized solutions for faster and cheaper methods in the life sciences, diagnostics, analytics and chemistry are the core of microfluidic ChipShop's business. Specialists from microfluidics, mold making, polymer engineering, chemistry, biology and diagnostics form a multi-disciplinary team to develop and manufacture "lab-on-a-chip" systems. Using industrial manufacturing techniques allows a seamless transition from development stage through prototypes to mass production Contact: Holger Becker, Co-founder and CSO, hb@microfluidic-chipshop.com

### **Micron Optics**

#8928

1852 Century Place NE, Atlanta, GA, 30345-4305 USA +1 404 325 0005

info@micronoptics.com; www.micronoptics.com

### **MIKROP AG**

#8828

Industriestrasse 22, Wittenbach, 9301 Switzerland +41 71 292 1080; fax +41 71 292 1089 info@mikrop.ch; www.mikrop.ch

# Featured Product: Precision Micro Objectives, Micro Lenses & Assemblies, Opto-mechanical design, Prototypes, & Volumes.

MIKROP is a supplier of miniaturized quality optics for high-technology applications. As a worldwide leader in technology for 35 years with 110 employees in Switzerland, we offer high-precision optical systems in the fields of miniaturized medical & industrial devices. We are one of the only companies worldwide manufacturing serial high precision lenses & optic assemblies in diameters of 0.30mm & up to 15mm for endoscopy, medical engineering, micro sensors, automotive industry, & machine vision. Contact: Yves A. Gilliand, Manager Sales, yves.gilliand@mikrop.ch; Wolfgang Braxmaier, VP, Manager R&D, wolfgang.braxmaier@mikrop.ch

### **MPA Crystal Corp.**

#8520

SPIE Corporate Member

1702-L Meridian Ave #234, San Jose, CA, 95125 USA +1 408 300 0301; fax +1 408 300 0282 pmpa@mpa-crystal.com; www.mpa-crystal.com

# Featured Product: Optics of sapphire, fused silica, & optical glass windows, lenses, rods, waveguides, & micro-optics.

MPA Crystal is the US office of our manufacturer Nanjing Sapphire Electro-Optics Co. based in China. We specialize in crystal optics mainly made of sapphire, fused silica, glass, & silicon. Coating is also available as requested. Products include: windows, lenses (plano-convex, plano-concave, bio-convex, bio-concave), ball lenses, rods, tips, waveguides, lightguides, & micro-optics. Products are customized to your drawings & design. Contact us at pmpa@mpa-crystal.com or by phone at 408 300 0301. Contact: Pauline Liang, CEO/Sales Representative, pmpa@mpa-crystal.com

### Featured Exhibitor Sponsor

### **MPB Communications Inc.**

#8717

SPIE Corporate

147 Hymus Blvd, Pointe-Claire, QC, H9R 1E9 Canada +1 514 694 8751; fax +1 514 694 6869 info@mpbc.ca; www.mpbcommunications.com

# Featured Product: Near IR & visible, SF, ns & ps lasers: exceptional beam quality, reliability, wavelength & stability

Founded in 1977, MPB provides high reliability laser systems for the scientific, life sciences, medical, entertainment, commercial and military markets. MPB products include Raman fiber lasers & amplifiers; polarized fiber lasers in the IR and visible spectrum; CW ytterbium, and passively mode-locked lasers; high-power EFAs, erbium broadband sources, comb sources, etc. MPB's fiber and SF fiber lasers have allowed researchers to pioneer new areas of discovery in the biomedical field. Contact: Claudette Linton, Marketing, claudette.linton@mpbc.ca

### Nanjing Creator Optics Co., Ltd.

#8749

No 97 Luxiying, Changjiang Science Park, Nanjing, 210037 China + 86 25 8342 7907; fax + 86 25 8342 6285 sales@creatoroptics.com; www.creatoroptics.com

# Featured Product: Sapphire windows, sapphire lenses, sapphire rods, sapphire light guides, custom-made components

Custom-made various sapphire windows, sapphire lenses, sapphire rods, sapphire light guides, germanium, silicon, ZnSe, fused silica and quartz components. Prototypes and volume are available. High quality, competitive prices, and punctual delivery. Contact: Fred Xie, Sales Manager, market@creatoroptics.com; Dave Zhu, Project Manager, dave@creatoroptics.com

### **Nanoscribe GmbH**

#8740

Hermann-von-Helmholtz-Platz 1, Eggenstein-Leopoldshafen, 76344 Germany

+49 721 60828840; fax +49 721 60828848 info@nanoscribe.de; www.nanoscribe.de

# Featured Product: Photonic Professional GT: 3D laser lithography system

Photonic Professional GT is the world's highest resolution 3D-printer for nano- and microfabrication on the market. It provides additive manufacturing and maskless lithography in one device. Photonic Professional GT is the world's highest resolution 3D-printer for nano- and microfabrication on the market. It provides additive manufacturing and maskless lithography in one device. Empowered by its unprecedented 3D nano-/micro-fabrication capabilities, the two-photon polymerization driven turnkey system sets new standards in a multitude of applications like life sciences, tissue engineering, photonics, micro-optics, micro-fluidics, or micro rapid prototyping. Prism Award Winner 2014. Contact: Anke Werner, Marketing Manager, info@nanoscribe.de

### **Navitar Inc.**

#8518

SPIE Corporate Member

200 Commerce Dr, Rochester, NY, 14623-3506 USA +1 585 359 4000; fax +1 585 359 4999 info@navitar.com; www.navitar.com

### Featured Product: High quality Optical Solutions.

Navitar designs, develops and manufactures innovative optical solutions for clients and enterprises across the globe. Solutions include complete optomechanical and optoelectronic assembly and sub-assembly systems. Our products range from high magnification motorized zoom imaging systems to fisheye projection lenses used in a wide variety of industries including Life Sciences, Industrial Imaging, Microscopy and Projection. Contact: info@navitar.com

### **New Scale Technologies, Inc.**

#8429

SPIE Corporate Member

121 Victor Heights Pkwy, Victor, NY, 14564-8938 USA +1 585 924 4450; fax +1 585 924 4468 www.newscaletech.com

### Featured Product: M3-RS rotary smart stages: precise, point-topoint beam steering systems for smaller instruments

We help medical device makers transform large, expensive, complicated-to-use systems into small, affordable, easy-to-use instruments and devices. Our tiny beam steering systems and motion modules adjust micro optics or mechanical parts within your handheld, portable or mobile system. They have micrometer precision, work on battery power, perform at any orientation and resist shock, vibe and extreme temps. With all controls built in, they are your smallest, easiest-to-integrate motion solution. Contact: Heidi Quinlivan, Sales Manager, NSTsales@newscaletech.com; Jeff Kramer, VP Business Development, jkramer@newscaletech.com

### **Newport Corporation**

SPIE Corporate

1791 Deere Ave, Irvine, CA, 92606-4814 USA +1 949 863 3144; fax +1 949 253 1680 sales@newport.com; www.newport.com

Newport, the world's largest photonics company provides innovative solutions and industry leading product brands to multiple markets. Our combined broad product portfolio which includes: Corion, ILX Lightwave, New Focus, Ophir, Oriel Instruments, Richardson Gratings, and Spectra-Physics Lasers enables us to better partner with our customers to provide complete photonic solutions to make, manage and measure light. Contact: Darron Young, Sr. Director, Sales North America, darron.young@newport.com

### **NKT Photonics Inc.**

#8709

#8823

SPIE Corporate

Suite 1000, 4400 Route 9 South, Freehold, NJ, 07728 USA +1 732 395 1551; fax +1 732 414 4094

 $laser\_sales@nktphotonics.com; www.nktphotonics.com$ 

# Featured Product: SuperK Supercontinuum sources, Koheras single frequency fiber lasers, Crystal Fibre.

NKT Photonics manufactures the SuperK supercontinuum systems, Koheras ultra-precise fiber lasers, and a range of microstructured PCF fibers from its crystal fibre line. Applications include bioimaging, spectroscopy, sensing, pulsed high power lasers to nonlinear fibers, rod fiber amplifiers and hollow core fiber delivery for high power pulsed lasers. From photonic crystal fibers to volume production of OEM systems, we are committed to serving our customers with superior industrialized products. Contact: Husain Imam, Sales Manager

### **NoIR LaserShields**

#8408

6155 Pontiac Trl, South Lyon, MI, 48178-9647 USA +1 800 521 9746; fax +1 734 769 1708 noirsales@noirlaser.com; www.lasershields.com

# Featured Product: Clear, light and inexpensive poly filter HOY for 1900-2600nm: Light Grey poly YG5 for Nd:YAG 1064nm

NoIR LaserShields provide industry-defining protection and visibility for the world of laser applications. Made in the USA and CE-certified, LaserShields deliver performance and protection with an eye on comfort. With more than 125 filters - over 75 CE-certified - and a frame to fit any face, LaserShields are the point where form and function converge. Contact: David Bothner, Marketing Director, david.bothner@lasershields.com

### NTT Advanced Technology Corp.

#8548

1741 Technology Dr Ste 380, San Jose, CA, 95110-1379 USA +1 408 392 4280; fax +1 408 573 7721 ktn@ml.ntt-at.co.jp; www.ntt-at.com

Contact: Michael Reimers, Business Development

### **SPIE IN**DUSTRY EVENTS

Explore the Business Side of Photonics West Free Seminars—open to all exhibitors, exhibition visitors, and conference attendees Refer to pages 20-29.

Nufern

#8412

SPIE Corporate

Ondax, Inc.

#8550

SPIE Corporate Member

7 Airport Park Rd, East Granby, CT, 06026-9523 USA +1 860 408 5000; fax +1 860 844 0210

info@nufern.com; www.nufern.com

Nufern is a leading U.S. manufacturer of specialty optical fibers, precision wound optical fiber coils, fiber lasers and amplifiers. Our integrated team has the experience, resources, and facilities required to design, manufacture, test and qualify highly-engineered optical fibers and fiber-based products for diverse applications and industries. Contact: Fernando Martins, East Coast Sales Manager, fmartins@nufern.com; Jim Darchuk, West Coast Sales Manager, jdarchuck@nufern.com

Featured Product: Low-frequency THz-Raman® optical probe for in-situ monitoring of molecular structural properties

850 E Duarte Rd, Monrovia, CA, 91016-4275 USA

+1 626 357 9600: fax +1 626 357 9321

sales@ondax.com: www.ondax.com

Ondax is the world's largest manufacturer of high-performance volume holographic grating (VHG) filters, wavelength-stabilized diode laser sources, and high-performance low-frequency/THz-Raman spectroscopy systems for industrial, defense, and scientific applications. Our innovative designs, quality and reproducibility, collaborative and responsive culture, and high-volume capabilities have made us supplier of choice for the world's largest industrial, defense and research customers worldwide. Contact: Linda West, VP Sales and Marketing, lwest@ondax.com; Randy Heyler, President and CEO, rheyler@ondax.com

### Ocean Optics, Inc.

#8809

SPIE Corporate Member

830 Douglas Ave, Dunedin, FL, 34698-4942 USA +1 727 733 2447; fax +1 727 733 3962 info@oceanoptics.com; www.oceanoptics.com

### **Onefive GmbH**

#8514

SPIE Corporate Member

Althardstrasse 70, Regensdorf, CH - 8105 Switzerland +41 43 538 36 57; fax +41 43 538 36 86 contactus@onefive.com; www.onefive.com

# Featured Product: Spark - Ultra-compact spectral sensor for a range of applications and integration options.

Ocean Optics is the leader in spectroscopy applications knowledge. We provide modular optical sensing solutions for applications such as medical and biological research, environmental regulation, science education and process control. Our comprehensive range of complementary technologies includes light sources, chemical sensors, Raman instrumentation, optical fibers, probes, filters and other accessories. Our spectrometers and sensors are ideal for integration into OEM and custom instruments. Contact: Application Scientist, info@oceanoptics.com; OEM, oem@oceanoptisc.com

# Featured Product: Origami femtosecond laser, Genki, Katana, and PiLas picosecond lasers.

Onefive GmbH is the leading supplier of industrial-grade femtosecond, picosecond, & nanosecond lasers, having wavelengths of UV to infrared & pulse durations from sub-100 fs to 10 ns. They are experts in ultra-low noise, mode-locked lasers over a range of repetition rates, from pulse-on-demand up to 1.3 GHz. Their application areas are: laser surgery, microscopy and spectroscopy, micromachining, optical sampling, THz & supercontinuum generation, radar systems, optical clocks, & frequency combs. Contact: Alexander Lang, Head of Sales and Marketing, contactus@onefive.com; Laura Abrardi, Marketing Manager, contactus@onefive.com

### Featured Exhibitor Sponsor

### OFS

#8719

SPIE Corporate

55 Darling Dr, Avon, CT, 06001-4273 USA +1 860 678 0371; fax +1 860 674 8818 ofs@ofsoptics.com; www.ofsoptics.com

### OPOTEK, Inc.

#8638

2233 Faraday Ave Ste E, Carlsbad, CA, 92008-7214 USA +1 760 929 0770; fax +1 760 929 8782 opo@opotek.com; www.opotek.com

# Featured Product: Provide reliable, cost-effective solutions for a broad range of applications in the medical industry

OFS is a world-leading designer, manufacturer and provider of optical fiber, fiber optic cable, connectivity, fiber-to-the-subscriber (FTTX) and specialty photonics products. We provide reliable, cost-effective solutions for a broad range of applications including medicine, industrial automation, sensing, government, aerospace and defense. These products help our customers meet the needs of consumers and businesses, both today and in the future. Please visit www.ofsoptics.com. Contact: Jonathan Loft, Fields Sales Engineer, jloft@ofsoptics.com

### **Meterboard Sponsor**

### **Optics Balzers**

#8725

SPIE Corporate

11941 W 48th Ave, Wheat Ridge, CO, 80033-2166 USA +1 303 502 5401; fax +1 720 974 5901

info@opticsbalzers.com; www.opticsbalzers.com

Optics Balzers is a globally recognized leader in customized optical thin-film coatings and components for the photonics industry. The company possesses a broad and in-depth know-how in optical thin-film coating processes, complemented by sophisticated patterning, glass bonding/sealing, and further processing capabilities necessary for producing optical thin film coated components and optical sub-assemblies. Contact: Steffen Capello, Sales Manager, steffen. capello@opticsbalzers.com

# Omicron Laserage Laserprodukte GmbH

GmbH #8914
Raiffeisenstr 5e, Rodgau-Dudenhofen, 63110 Germany

+49 6106 8224 0; fax +49 6106 8224 10 mail@omicron-laser.de; www.omicron-laser.de

# Featured Product: LEDHub LED light engine with up to 6 wavelengths.

Omicron has been developing, designing and producing innovative laser systems since 1989. Since then its highly-qualified team has specialized in the development of solutions for medicine, research, biotechnology, digital imaging and optical data storage, as well as quality assurance and metrology. Products include high power laser diode and LED systems with high speed modulation capability. Contact: Philip Crowley, sales, phil@markettechinc.net

### **Optics Technology, Inc.**

#8941

SPIE Corporate

3800 Monroe Ave Ste 3, Pittsford, NY, 14534-1330 USA +1 585 586 0950; fax +1 585 478 4625

info@opticstechnology.com; www.opticstechnology.com

# Featured Product: NIR Physiology Objective: 14mm long x 6.5mm OD, 0.80 N.A. (water/saline), Diffraction Limited.

Manufacturer of miniature optical imaging systems offering in house optical and mechanical fabrication and assembly. Take advantage of our ability to manufacture optical components less than 1mm in diameter and/or our full service machine shop capable of manufacturing parts as small as .005" with no minimum order quantities. Optical design, micro optic manufacturing, full service machine shop, and assembly. Contact: Ben Piatt, Production/ Sales, ben@opticstechnology.com; John Warda, President, jwarda@ opticstechnology.com

### **Promotional Partner**

optics.org

#8537

Ffordd Pengam, 2 Alexandra Gate, Cardiff, CF24 2SA United Kingdom

+44 29 2089 4751

sales@optics.org; www.optics.org

Optics.org is the longest-running online resource targeted toward OEMs and system integrators in the core growth markets for photonics applications, and is your gateway to thousands of potential new customers looking to buy your products and services. From LEDs to industrial lasers and from sensing to microscopy, optics.org covers all the latest company, product and business news, as well as in-depth articles on product application and market analysis. Contact: Robert Fisher, Head of Sales & Marketing - optics. org, rob.fisher@optics.org; Henry Tipping, Business Executive, henry.tipping@optics.org

### **OptiGrate Corp.**

#8921

SPIE Corporate

562 S Econ Cir, Oviedo, FL, 32765 USA +1 407 542 7704; fax +1 407 542 7804 info@optigrate.com; www.optigrate.com

Featured Product: BragGrate™ Notch and Bandpass Filters for THz / Ultra-Low-Frequency Raman Spectroscopy.

OptiGrate is a pioneer of commercial volume Bragg gratings. We supply VBGs to more than 500 customers on 6 continents for laser line narrowing, spectroscopy, laser pulse stretching and compression, etc. We are located in Oviedo (Florida, USA), where we design, develop and make all of our products. Contact: Igor Ciapurin, Director, iciapurin@optigrate.com

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 39 for complete times, schedules, and locations.

### **Optikos Corporation**

#8627

SPIE Corporate Member

107 Audubon Rd, Bldg 3, Wakefield, MA, 01880-1245 USA +1 617 354 7557; fax +1 617 354 5946 sales@optikos.com; www.optikos.com

### Featured Product: Expert Optical Engineering from Optikos®.

"Anywhere light goes" - Optikos® optically-based solutions are found in applications that range from medical devices to automotive cameras to consumer electronics and defense. Organizations from small startups to Fortune 500 companies turn to us for standard products or services that will assess lens and camera system performance; and for engineering design & manufacturing of custom products or complete systems development. Learn more about our expert engineering team and solutions at optikos.com. Contact: Jim Scott, Key Account Manager, jscott@optikos.com; George Meyer, Key Account Manager, gmeyer@optikos.com

### **Optikron GmbH**

#8639

Loebstedter Str. 70, Jena, 07749 Germany +49 3641 384970; fax +49 3641 384978 info@optikron.de; www.optikron.de

# Featured Product: Micro-camera-modules and miniaturized vision systems

Optikron is a partner for the development and production of micro-optical components, thin-film optics, complex optical assemblies and micro-optical systems for both medical and technical applications, such as endoscopes, laser systems, sensor systems, measuring instruments and innovative applications for aerospace industry. Optikron also develops and manufactures miniaturized vision systems and high integrated micro-camera modules with sensor, optics and LED illumination in smallest dimensions. Contact: Gerrit Seyffert, Managing Director, seyffert@optikron.de; Thoralf Wassmann, Administration / Sales, wassmann@optikron.de

### **Optimax Systems, Inc.**

#8532

SPIE Corporate

6367 Dean Pkwy, Ontario, NY, 14519-8939 USA +1 585 265 1020; fax +1 585 265 1033 sales@optimaxsi.com; www.optimaxsi.com

# Featured Product: OTR -Protective coatings under the harshest conditions. Stain Resistant, Durable, and Increased Life.

For 25 years, customers have counted on Optimax for reliability, quality and technical expertise for high precision optics. During this time we've grown to be America's largest prototype optics manufacturer, producing aspheres, cylinders, prisms, spheres, and freeforms to customer specifications. We remain committed to small volume, high quality and quick delivery. Contact: Joseph Spilman, Sales Manager, sales@optimaxsi.com

### **Optores GmbH**

#8425

Gollierstr 70, Munich, 80339 Germany +49 89 927 78775; fax +49 89 122236 10 info@optores.com; www.optores.com

# Featured Product: OMES, the world's first MHz-OCT system for 4D-OCT (3D and time).

Optores GmbH develops, produces and markets solutions for ultrafast optical coherence tomography (OCT). The company is a spin-off from Lehrstuhl für BioMolekulare Optik at Ludwig Maximilians University (LMU) in Munich, Germany. Together with Prof. Robert Huber, directors and employees of Optores coined the term "MHz-OCT," indicating an orders of magnitude higher speed than previous (kHz-) OCT solutions. Optores' mission is to bring MHz speed to a wider audience. Contact: Thomas Klein, Managing Director, info@optores.com

### **Optotune Switzerland AG**

#8923

SPIE Corporate

Bernstr 388, Dietikon, 8953 Switzerland +41 58 856 3000; fax +41 58 856 3001 info@optotune.com; www.optotune.com

# Featured Product: Focus tunable lenses and laser speckle reducers

Optotune, Inc., develops and manufactures adaptive optical components based on elastic polymers. Optotune's focustunable lenses and laser speckle reducers offer new solutions for several industries, including machine vision, laser processing, ophthalmology and laser projection. www.optotune.com Contact: Joerg Wertli, Senior Sales Manager, joerg.wertli@optotune.com; Mark Ventura, VP Marketing & Sales, mark.ventura@optotune.com

**OSELA Inc.** 

#8513

SPIE Corporate Member

1860 32nd Ave, Lachine, QC, H8T 3J7 Canada +1 514 631 2227; fax +1 514 631 2462 info@oselainc.com; www.oselainc.com

**Oxxius SA** 

#8713

SPIE Corporate Member

4 rue Louis de Broglie, Lannion, 22300 France +33 2 96 48 70 28; fax +33 2 96 48 21 90 sales@oxxius.com; www.oxxius.com

# Featured Product: L5C - Beam combiner, up to 6 lasers. LCX series ultra compact DPSS up to 500mW at 532, 553 and 561nm

Since 2002, Oxxius develops advanced CW laser modules targeting numerous applications in biophotonics, metrology, spectroscopy, etc. The new LCX series, is the most compact "all-in-one" DPSS offering up to 500mW at 532, 553 and 561nm. The LBX laser diode modules from UV to IR with high beam quality. The LUV series, ultra compact "all-in-one" at 266 or 280nm. The L5C and L2C, ultra stable laser launchers from microscopy. Oxxius offers a world-class level of quality, customer care and services. Contact: Pascal Voluer, VP Sales & marketing, pvoluer@oxxius.com; Thierry Georges, President & CEO, tgeorges@oxxius.com

**OZ Optics Ltd.** 

#8406

SPIE Corporate Member

219 Westbrook Rd, Ottawa, ON, KOA 1LO Canada +1 613 831 0981; fax +1 613 836 5089 sales@ozoptics.com; www.ozoptics.com

### Featured Product: Online Catalog.

31 years of excellence in providing the world's largest online components and test equipment catalog, high power components/isolators/polarization/combiners/patchcords/CO<sub>2</sub> cleaner, mode field adaptor, fiber pigtailed lasers/laser diodes, directional taps, power monitors, collimators/focusers, PM/SM/MM fused fiber and PLCS couplers, PM patchcords/connectors/splitters/polarized sources, polarization rotators/controllers/analyzers, polarizers, PDL emulators, extinction ratio meters, & power meters. Contact: Chris Song, Marketing Manager, csong@ozoptics.com; Yesim Sezerman, Sales Manager, ysezerman@ozoptics.com

### **Pavilion Integration Corp.**

#8812

SPIE Corporate Member

2380 Qume Dr Ste F, San Jose, CA, 95131 USA +1 408 453 8801; fax +1 408 453 8802 sales@pavilionintegration.com; www.pavilionintegration.com

### Featured Product: Low noise and compact laser module system

Pavilion Integration Corporation (PIC) designs and manufactures lasers and laser modules covering the UV, visible and IR wavelength ranges for instrumentation applications, predominantly for biotechnology and inspection. PIC's WhisperIT lasers utilize a patented technology that creates a beam with excellent mode quality, low noise under all conditions, and low speckle, but at a substantially reduced cost, footprint, and power consumption compared to ion or DPSS lasers. Contact: Min Chen, Director of Business Development, min.chen@pavilionintegration.com

### **PCO-TECH Inc.**

#8929

SPIE Corporate Member

6930 Metroplex Dr, Romulus, MI, 48174 USA +1 248 276 8820; fax +1 248 276 8825 info@pco-tech.com; www.pco-tech.com

# Featured Product: pco.edge 4.2 (high QE > 82% peak QE) camera; pco.flim camera; pco.dimax CS compact high speed camera

PCO is the leading manufacturer of sCMOS, CCD, ICCD and CMOS cameras for scientific, OEM, industrial, and military applications. PCO offers specialized cameras with wide dynamic range, high resolution, high speed, and low noise performance used in a wide variety of challenging scientific applications. Contact: Barry Brandon, Operations Manager, barry.brandon@pco-tech.com

### PD-LD, Inc.

#8801

SPIE Corporate Member

30B Pennington Hopewell Rd, Pennington, NJ, 08534-3612 USA +1 609 564 7900; fax +1 609 564 7901 info@pd-ld.com; www.pd-ld.com

PD-LD, Inc. is a manufacturer of customized laser products, headquartered in Pennington, NJ. Since 1993, PD-LD, Inc. has been leveraging top-notch technical and manufacturing capabilities to create active and passive laser products that are high quality, cost-effective, tailored to customers' needs and delivered in a timely fashion. Furthermore, PD-LD continues to innovate on its patented volume Bragg grating (VBG) technology for which the company has been awarded 18 patents since 2003. Contact: Tom DeBerardine, VP of Sales, tomd@pd-ld.com; Robert Struthers, VP of Business Development, robert.struthers@pd-ld.com

### Pennwell/BioOptics World

#8417

98 Spit Brook Rd, Nashua, NH, 03062 USA +1 603 891 9204 www.bioopticsworld.com

### Peter Kaszian

#874!

Nettelkofen 1, Grafing b. Muenchen, Bavaria, 85567 Germany +49 151 72415401 peter.kaszian@gmx.de

### **PHASICS Corp.**

#8747

SPIE Corporate

169 11th St, San Francisco, CA, 94103 USA +1 415 610 9741

contact@phasics.com; www.phasicscorp.com

# Featured Product: Plug & play camera for quantitative phase imaging; label free single cell morphology & dry mass

In biology, Phasics offers an innovative camera for quantitative phase microscopy. It allows label-free cell imaging and provides valuable quantitative parameters at single cell level: morphology, dry mass, etc. It applies to many assays: cancer and stem cell research, drug screening, blood test, tissue biopsy. The instrument delivers instantaneous artifact-free images for robust automated analysis (segmentation, tracking). It simply plugs to any setup for easy multimodality or OEM integration. Contact: Yoann PRIOL, US Sales Manager, priol@phasics.fr; Arnaud REHEL, Sales Engineer – Biology applications, rehel@phasics.fr

### Photon etc. Inc.

#8820

SPIE Corporate

5795 De Gaspé Ave #222, Montreal, QC, H2S 2X3 Canada +1 514 385 9555; fax +1 514 279 5493 info@photonetc.com; www.photonetc.com

# Featured Product: Hyperspectral infrared imaging platform, widely tunable laser source, infrared camera

Photon etc. develops hyperspectral imaging and spectroscopic instruments that work from visible to infrared. Its main technology is based on volume Bragg gratings, which are used as filters for tunable lasers or global imaging. Their hyperspectral imaging systems provide solutions to industrial challenges, and give researchers access to the latest innovations in photonic instrumentation. Photon etc. has also developed unique, affordable near infrared cameras adapted to industrial application. Contact: Laura-Isabelle Dion-Bertrand, Application Scientist, lidion.bertrand@photonetc.com; Francesca Mangiarini, Application Scientist, fmangiarini@photonetc.com

### Photon Gear, Inc.

#8751

245 David Pkwy, Ontario, NY, 14519-8955 USA +1 585 265 3360; fax +1 585 265 3364 sales@photongear.com; www.photongear.com

Photon Gear specializes in the design, assembly and characterization of high-precision optical systems. Custom lens assemblies are verified with interferometric test capabilities from 266 nm to 1600 nm. Supported application areas include semiconductor inspection and processing, military, metrology, biomedical, laser scanning and polymer optics. We also provide contract optical engineering and optical design, as well as systems engineering support for custom software and optical hardware. Contact: Gary Blough, President, sales@photongear.com; John Bowen, Senior Optical Engineer, sales@photongear.com

### **Photonic Cleaning Technologies**

#8726

SPIE Corporate Member

1895 Short Ln, Platteville, WI, 53818-8977 USA +1 608 467 5396; fax +1 608 467 5397

sales@photoniccleaning.com; www.photoniccleaning.com

# Featured Product: First Contact Polymers™. Only no-residue strip coat available to clean & protect sensitive surfaces

Manufacturer of First Contact Polymers™: THE Cleaning and Protection System. Apply liquid polymer and peel the dried film, leaving the surface nearly atomically clean. Independent XPS/ESCA and Laser Damage Threshold testing shows no residue to the molecular level. Safe with high power laser optics. Remove dust & fingerprints. Reduce waste: non-toxic inert polymers. Clean nanostructures, gratings & phase masks. Protect and clean microscope objectives & CCD sensors. Safe. Low Adhesion. No residue. Contact: David Giesen, Sales & Marketing Manager, davidg@photoniccleaning.com; James Hamilton, CTO, hamiltonj@photoniccleaning.com

### PI (Physik Instrumente) L.P.

#8509

SPIE Corporate Member

16 Albert St, Auburn, MA, 01501-1304 USA +1 508 832 3456; fax +1 508 832 0506 info@pi-usa.us; www.pi-usa.us

# Featured Product: Ultra-stable microscope stages; long-travel nano-focus drives, high-speed / dynamics hexapod; mini

Leader in nanopositioning, hexapod Systems, ultra-precision motion control & piezo positioners for OEM and research. Piezo stages; high stability microscope stages; fast objective nanofocus; fast steering mirrors; nanopositioning systems; air bearing stages, 6-axis hexapod alignment systems, automated 3D to 6D fiber aligners; photonics alignment systems, long-life multilayer piezo actuators; piezo linear motors, piezo drivers & digital controllers; motorized actuators, stages motion controllers. Contact: Sales Dept, info@pi-usa.us

### **PicoQuant Photonics**

#8612

SPIE Corporate Member

9 Trinity Dr, West Springfield, MA, 01089 USA +1 413 562 6161; fax +1 413 562 6167

info@picoquant-usa.com; www.picoquant-usa.com

Product lines include pulsed diode lasers, time-correlated single photon counting (TCSPC) electronics and detectors, fluorescence lifetime spectrometers, time-resolved fluorescence microscopes and upgrade kits for laser scanning microscopes. Applications include single molecule spectroscopy, fluorescence lifetime imaging (FLIM), fluorescence resonance energy transfer (FRET), fluorescence correlation spectroscopy (FCS), optical tomography and quantum key distribution. Contact: Alain Bourdon, Vice President, bourdon@picoquant-usa.com

**Pixelteq** 

#8547

#8546

SPIE Corporate Member

8060 Bryan Dairy Rd Ste A, Largo, FL, 33777 USA +1 727 545 0741

info@pixelteq.com; www.pixelteq.com

# Featured Product: PixelSensor - Customizable spectral sensing for in vitro diagnostics, biochemical assays & imaging

PIXELTEQ provides OEM spectral sensing and imaging solutions, micro-patterned optical filters, and custom electro-optical devices for a variety of aerospace, biomedical, industrial, scientific, and security applications. At the heart of each multispectral device is an array of pixel-level spectral filters purpose-built for your application. Pixelteq specialists collaborate with your team to provide expert design assistance and custom-engineered solutions. Contact: Marco Snikkers, VP Sales & Marketing, info@pixelteq.com

### **PreXion Corporation**

#8441

14-11 Chome Kandasuda-cho, Chiyoda-ku Tokyo, Tokyo, 101-0041 Japan

+81 3 5297 7551; fax +81 3 5297 7552 info@prexion.co.jp; www.prexion.co.jp

# Featured Product: PreXionLED Driver, Epoch-making new technology for Photoacoustic systems.

PreXion Corporation is a specialized medical imaging research and development company in Japan. Since our company was founded in 2007 as a spin off from TeraRecon Inc., we have been developing and distributing dental cone beam CT equipment in the U.S. and other countries. With our excellent accumulated imaging technologies, we have succeeded in developing the world's first technology of photoacoustic imaging system using NIR-LED light source. Contact: Naoto Sato, R&D Dept. General Manager, saton@prexion.co.jp; Toshitaka Agano, President and CEO/CTO, agano@prexion.co.jp

### **Prior Scientific Inc.**

#8629

SPIE Corporate

80 Reservoir Park Dr, Rockland, MA, 02370-1062 USA +1 781 878 8442; fax +1 781 878 8736 info@prior.com; www.prior.com

# Featured Product: Microscope Automation Equipment & Accessories.

Prior Scientific is the leading manufacturer of microscope automation equipment. Prior specializes in the production of high precision motorized microscope stages, robotic sample loading systems, LED and metal halide high intensity fluorescence illumination systems, physiology stage platforms, nanopositioning piezo Z stages, motorized filter wheels, high speed shutters, laser autofocus systems, custom optical systems and a wide array of microscopy accessories and custom designed solutions. Contact: John Commesso

### **Quantel Laser**

SPIE Corporate

601 Haggerty Ln, Bozeman, MT, 59715-1738 USA +1 406 586 0131; fax +1 406 586 2924 sales@guantelusa.com; www.guantel-laser.com

# Featured Product: ELBA: 3W visible fiber laser in multiple wavelengths for biophotonics, ophthalmology, DNA sequencing

Quantel, founded in 1970, is a global leader in the design and manufacture of high-power, solid-state lasers. With design centers in France and the USA, Quantel lasers are used in applications ranging from spectroscopy to atom cooling; lidar to combustion research or biophotonics. Uniquely, Quantel offers customers highly flexible scientific lasers with user-configurable wavelengths and performance parameters as well as "designed for purpose" ruggedized lasers for industrial environments. Contact: Bruno Lefevre, Fiber Lasers Sales Director, quantel@quantel-laser.com; Alex Biasi, Fiber Lasers Product Line Manager, quantel@quantel-laser.com

### **Quantum Opus**

#8612

409 Burr Oak St, Albion, MI, 49224 USA +1 269 248 1004

www.quantumopus.com

# Featured Product: Single Photon Counting Detectors based on Superconducting Nanowires.

Quantum Opus supplies Single Photon Counting detectors based on superconducting nanowires. Efficiency is >80% at 1550nm, by tuning the resonate cavity they provide greater than 85% efficiency at target wavelengths between 700nm and 1300nm. Low dark counts, fast timing resolution and 20Mcps count rates. We provide complete turn-key solutions with a compact closed cycle cryocooler that can support up to 16 detector channels. Systems with more channels are also available as custom designs. Contact: Nick Bertone, Nick.Bertone@optoecomponents.com; Natalie Raymond, Natalie.Raymond@optoecomponents.com

### Radiantis

#8838

SPIE Corporate Member

Carrer Copèrnic 2-4, Polígono Camí Ral, Gavà Barcelona, ES08850 Spain

+34 936 38 97 63

info@radiantis.com; www.radiantis.com

# Featured Product: SeaWave, a compact IR spectrometer with excellent performance and user-friendly software interface

Radiantis' state-of-the-art instrumentation and broadly tunable laser systems provide compact and effective solutions for laboratory analysis as well as precise off-line and real-time process analytics in a broad range of industries, including the food and beverage, pharmaceutical, chemical, petrochemical and agricultural industries. Contact: Sara Otero, sara.otero@radiantis.com; Marie France Guillebot, mariefrance.guillebot@radiantis.com

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 39 for complete times, schedules, and locations.

### **Raptor Photonics Ltd.**

#8741

SPIE Corporate

Willowbank Business Park, Larne N Ireland, BT40 2SF United Kingdom

+44 2828 270141; fax +44 2828 275685 sales@raptorphotonics.com; www.raptorphotonics.com

# Featured Product: Ninox 640: the best in class visible-SWIR camera on the market & cooled to -30C to minimize noise.

Raptor Photonics, Ltd. is a leading developer and supplier of next generation, high performance digital camera solutions for global scientific, surveillance, and industrial markets. The company offers complete cameras and core engine solutions using CCD, EMCCD, scientific CMOS, and InGaAs sensors. In addition to its portfolio of commercial off the shelf (COTS) products, Raptor provides custom solutions to OEM and instrumentation companies throughout the world. Contact: Mark Donaghy, VP Sales & Marketing, md@ raptorphotonics.com

### Renishaw Inc. #8646

5277 Trillium Blvd, Hoffman Estates, IL, 60192-3602 USA +1 847 286 9953; fax +1 847 286 9974 usa@renishaw.com; www.renishaw.com

# Featured Product: ATOM incremental encoder system with RTLF linear scale.

Renishaw is a global company with core skills in measurement, motion control, spectroscopy, and precision machining. We create high performance encoders for industries' toughest applications. Renishaw offers a comprehensive range of encoders used by OEMs globally for exact positioning, reliability, and superior performance-to-cost value. Three encoder technologies, optical, magnetic and laser interferometer, provide designers with proven solutions to difficult applications. Contact: Annette Tures

### **RGB Lasersysteme GmbH**

#8949

SPIE Corporate Member

Donaupark 13, Kelheim, 93309 Germany +49 9441 1750330; fax +49 9441 17503391 marketing@rgb-laser.com; www.rgb-laser.com

# Featured Product: Laser systems, spectrometers, and customer solutions for different applications.

RGB Lasersysteme GmbH designs and manufactures highly integrated laser and spectroscopy systems for scientific and industrial applications. We specialize in very compact designs while maintaining high-end technical characteristics. We offer miniaturized laser modules with high output powers, a large selection of wavelengths, and excellent beam quality and stability. Our compact USB spectrometers feature high resolution, sensitivity, thermal stability, and application software. Contact: Carina Buechl, Head of sales, carina.buechl@rgb-laser.com; Christoph Eckert, Application engineer, christoph.eckert@rgb-laser.com

### Santec U.S.A. Corp.

#8624

433 Hackensack Ave, Hackensack, NJ, 07601 USA +1 201 488 5505; fax +1 201 488 7702 info@santec.com; www.santec.com

# Featured Product: New tunable VCSEL for SS-OCT (PW#2731): long coherence, variable-speed, wide scan, and efficient.

Santec, a leading manufacturer of tunable lasers, offers a complete line of high speed scanning lasers specifically developed for OCT applications. Santec's HSL scanning lasers and OCT systems feature high power, wide tuning, and fast scan rates to achieve high resolution 3D imaging and high resolution real time 2D imaging. Additionally, Santec's TSL series offers high resolution and high accuracy swept solutions for photonic device characterization. Contact: Jonathan Evans, Director, jonathan@santec.com; Michael Davala. Sales Engineer. michaeld@santec.com

### Scientifica #8427

1A Kingfisher Ct, Brambleside, Bellbrook Industrial Est, Uckfield East Sussex, TN22 1QQ United Kingdom

+44 1825 749920

info@scientifica.uk.com; www.scientifica.uk.com

Scientifica manufactures and distributes scientific instruments for university researchers, pharmaceutical companies and research laboratories working in the biomedical research fields of electrophysiology and imaging. By measuring the electrical properties of individual cells, these areas of research contribute to advances in the understanding of the nervous and cardiac systems, and in particular, degenerative diseases such as Alzheimers, Parkinsons and epilepsy. Contact: Chloe Emmerson, Events Organiser, Chloe.Emmerson@scientifica.uk.com; Catherine Chin, Marketing Assistant, Catherine.chin@scientifica.uk.com

### Semrock

#8832

SPIE Corporate Member

3625 Buffalo Road, Suite 6, Rochester, NY, 14624 USA +1 585 594 7050; fax +1 585 594 7095 semrock@idexcorp.com; www.semrock.com

### Featured Product: Versachrome Edge Filters.

Semrock manufactures optical filters that set the standard for use in biomedical and analytical instrumentation. These include LED bandpass sets, as well as sets for Brilliant dyes, other high-performance fluorescence and Raman spectroscopy filters. These innovative products are built on the latest in optical coating technology for end-users or high-volume delivery demands.

### Featured Exhibitor Sponsor

### **SmarAct Inc**

#8827

SPIE Corporate

2140 Shattuck Ave, STE 1103, Berkeley, CA, 94704 USA +1 415 766 9006

info@smaract.com; www.smaract.com

# Featured Product: New piezo stages with integrated PicoScale interferometer allow pico meter resolution on 0.5m travel

Since 2005 SmarAct has been developing, producing and distributing piezo-based high performance micro- and nanopositioners, advanced control systems and metrology solutions that provide an extremely high accuracy and can work under extreme conditions. Our product portfolio includes different types of positioners, parallel kinematics, microscope stages and a high resolution laser interferometer. All our products are robust yet and suited for industrial environments and cutting edge research. Contact: Marco Nordmann, info@smaract.com; Helge Huelsen, info@smaract.de

### Special Optics, Inc.

#8518

SPIE Corporate Member

315 Richard Mine Rd, Wharton, NJ, 07885-1659 USA +1 973 366 7289; fax +1 973 366 7407 sales@specialoptics.com: www.specialoptics.com

### Featured Product: Custom Optical Solutions.

Special Optics, a Navitar company, designs, develops and manufactures precision optical components from a state-of-the-art manufacturing facility in New Jersey. Since our beginning in 1965 we have developed and refined a wide range of optical fabrication and opto-mechanical assembly capabilities. As a result, we have evolved into a unique company, offering standard catalog optics along with custom designs, while continuing to focus on responding to customer needs. Contact: Craig Fitzgerald, VP Business Development, Craig.Fitzgerald@navitar.com

### Spectral Devices Inc.

#8938

SPIE Corporate Member

387 1/2 Wharncliffe Rd S, London, ON, N6J 2M2 Canada +1 519 630 5694 www.spectraldevices.com

### Spectra-Physics/A Newport Company #8823

3635 Peterson Way, Santa Clara, CA, 95054 USA +18007755273; fax +14089805537 Sales@spectra-physics.com; www.spectra-physics.com

# Featured Product: #1 in UV Lasers. #1 in Ultrafast Lasers. Highest Performance Fiber Lasers. Broadest Line of CW Lasers.

As the first laser company, Spectra-Physics is singularly focused on helping customers use precision laser technologies to advance science and propel industries forward. The company does so by offering groundbreaking technologies, deep applications expertise, disruptive cost-performance, and a commitment to a world-class customer experience. Our product portfolio spans CW to nanoseconds to femtosecond, UV to mid-infrared, and fiber to DPSS lasers. Contact: Spectra-Physics Sales, sales@spectra-physics.com

### Spectrogon US, Inc.

#8840

SPIE Corporate Member

115 Route 46 W Ste A2, Mountain Lakes, NJ, 07046 USA +1 973 331 1191; fax +1 973 331 1373 sales.us@spectrogon.com; www.spectrogon.com

# Featured Product: Optical Filters, Holographic Diffraction Gratings, Thin Film Optical Components.

Spectrogon specializes in the design and manufacture of optical filters, thin film coatings, and components for analytical, medical, and scientific applications. Spectrogon is the world leader in the design and manufacture of holographic diffraction gratings for laser compression/stretcher applications, tuning and spectroscopic instruments. Spectrogon offers a huge inventory of stock filters (www.spectrogon.com) that can ship within 2 weeks. Contact: Steve Finn, Sales Manager, sales.us@spectrogon.com; Kelly Neeb, Sales Coord., sales.us@spectrogon.com

### **SPIE Career Center**

#8537

1000 20th St, Bellingham, WA, 98225-6705 USA +1 360 685 5551; fax +1 360 647 1445 sales@spiecareercenter.org; www.spiecareercenter.org

# Featured Product: Online Job Board; Recruitment Advertising; Job Fairs.

The SPIE Career Center is the leading recruitment resource for companies and professionals in the optics and photonics community. Whether you're looking for a new job or searching for top candidates, our resources will help you find the perfect match for your needs. Job seekers can post their resumes, search our online job board and access additional resources for career advancement. Employers can advertise jobs online, access the SPIE searchable resume database and exhibit in SPIE job fairs. Contact: Lacey Barnett, Sales, Career Center Coordinator, lacey@spie.org

### SPIE Digital Library

#8428

1000 20th St., Bellingham, WA, 98225 USA +1 360 676 3290; fax +1 360 647 1445 spiedlhelp@spie.org; www.spiedigitallibrary.org

# Featured Product: The SPIE Digital Library features conference proceedings, peer-reviewed journal articles, and eBooks

The SPIE Digital Library includes conference proceedings, peer-reviewed journal articles, and eBooks from the areas of astronomy, biomedical optics, biophotonics, nanotechnology, sensors, lasers, electro-optics, communications, imaging, energy, and more. SPIE Digital Library papers have been cited in more than 50,000 patents. With more than 430,000 papers from must-attend industry events, the SPIE Digital Library publishes the latest breakthrough research-information not found anywhere else. Contact: Will Goodman, Sales, willg@spie.org; Patrick Franzen, Director of Sales, patrickf@spie.org

### Stanford Computer Optics, Inc.

#8940-A

SPIE Corporate Member

780 Cragmont Ave, Berkeley, CA, 94708 USA +1 510 527 3516; fax +1 510 558 9582 info@stanfordcomputeroptics.com; www.stanfordcomputeroptics.com

### Stanford Photonics, Inc.

#8919

1032 Elwell Ct Ste 104, Palo Alto, CA, 94303 USA +1 650 969 5991; fax +1 650 969 5993

info@stanfordphotonics.com; www.stanfordphotonics.com

# Featured Product: XR/MEGA-10Z™ "Zero" dark count image intensified CCD camera - megapixel resolution & high speed.

Developer of digital intensified CCD, intensified CMOS and specialized CCD cameras with megapixel resolution & high speeds up to 8000 fps. Wide range of integrated systems for ultra low-light, bioluminescence, Cerenkov, single molecule/single photon imaging. Piper Control™ software for real time acquisition with processing tools, ROI measurement, tracking & strip chart. ONYX™ Dark Box including support for internal macro and micro sequential X-Y-Z imaging. COTs & custom OEM products. Contact: David Callard, President, dcallard@stanfordphotonics.com; Jeff Stepkowski, Director of Advanced Applications, jstep@stanfordphotonics.com

Superlum

Fota Point Enterprise Park, B3, Carrigtwohill, Co. Cork,, Ireland +353 21 4533666; fax +353 21 4533026

sales@superlum.ie; www.superlumdiodes.com

# Featured Product: Fiber-coupled, polarization-maintain, broadband light sources in 770 - 1100 nm spectral range

Superlum is a developer and manufacturer of superluminescent diodes and SOA. For over 20 years we have delivered the highest quality products for use in for OCT, fiber-optic gyros, fiber-optic sensors, optical metrology and others. Our product line includes: SLD modules at 660 - 1630 nm; broadband light sources with output power of up to 25 mW in bench-top and OEM versions; broadband SOA and gain modules at 780 - 1060 nm; and swept wavelength tunable lasers at 785, 840, 930 and 1060 nm. Contact: Natalie Tuchapsky, Sales Executive, sales@superlum.ie; Dmitry Mamedov, QA&Tech Support Manager, mamedov@superlumdiodes.com

### Featured Exhibitor Sponsor

### **Sutter Instrument**

#8625

#8431

SPIE Corporate Member

One Digital Dr, Novato, CA, 94949-5703 USA +1 415 883 0128; fax +1 415 883 0572 info@sutter.com; www.sutter.com

# Featured Product: The VF-1 Edge - tunable highpass and lowpass filters with selectable center wavelength and bandwidth

Manufacturer of precision electromechanical devices for scientific research and industrial OEM for over 40 years. Introducing the Lambda VF-1 Edge that puts Semrock's VersaChrome Edge tunable high-pass and low-pass filters in series to define the bandpass and allow user selection of the center wavelength and band-width on command. Other imaging products include the Lambda HPX-L5 and TLED+ high-output LED light sources, the SOM simple microscope, optical filterwheels, and light sources. Contact: Alex Cooper, Director, Sales & Marketing, alex@sutter.com; Chris Ballard, Product Manager, chris@sutter.com

### Symphotic TII Corp.

#8839

SPIE Corporate

880 Calle Plano Ste K, Camarillo, CA, 93012 USA +1805 484 6639; fax +1805 484 9012 operations@symphotic.com; www.symphotic.com

# Featured Product: Lasers: Titanium Sapphire, Neodymium YAG, Optical Parametric Oscillators and other Laser products.

Symphotic TII Corporation supplies a large variety of standard and custom Nd:YAG lasers and accessories, including Ti:sapphire tunable lasers used in biomedical imaging applications. Contact: Eric Wu, Director, Laser Products, Eric.Wu@symphotic.com; Jack Roberts, Operations Manager, jack.roberts@symphotic.com

### **Syntec Optics**

SPIE Corporate Member

7100 Junction Rd, Pavilion, NY, 14525-9749 USA +1 585 768 2513; fax +1 585 768 0699 info@syntecoptics.com; www.syntecoptics.com

# Featured Product: Diamond turned & injection molded polymer optics, precision machined metal components & assemblies

Syntec Optics is North America's largest private manufacturer of custom plastic optics serving the medical, defense and biometric industries by producing "Precision Plastic Optics for Tomorrow's Technologies" from our location near Rochester, NY. We specialize in design for manufacturability, precision plastic optics, diamond turning, electro-optical assembly, opto-mechanical assembly, and metrology. Contact: Sara Hart, Business Development Manager, shart@syntecoptics.com; Steven Polvinen, VP Sales & General Manager, spolvinen@wordingham.com

### tec5USA, Inc.

#8636

#8925

SPIE Corporate Member

80 Skyline Dr, Plainview, NY, 11803-2518 USA +1 516 635 2000; fax +1 516 939 0555 info@tec5usa.com; www.tec5usa.com

### Featured Product: tecSaaS: Spectrometer as a Sensor

tec5USA offers high quality products for optical spectroscopy from complete systems to the individual components. All products are designed for reproducibility, low maintenance, and fast acquisition. Fiber-optic accessories include light guides and probes for a multitude of measurements. Software support ranges from programming tools to applications (incl. chemometrics). Customizations possible. Contact: Gert Noll, General Manager, Gert. Noll@tec5usa.com; Stacey Carrier, stacey.carrier@tec5usa.com

### Featured Exhibitor Sponsor

### TechnoSpex Pte Ltd.

#8544

1092 Lower Delta Road #04-01, Singapore, 169203 Singapore +65 6276 6928; fax +65 6276 1558 sales@technospex.com; www.technospex.com

# Featured Product: uSight-2000 for UV-Vis spectroscopy and uSight-X for laser induced spectroscopy.

TechnoSpex is a technology solution provider specializing in micro-spectroscopy for both scientific and industrial markets. Our flagship uRaman and newly released uSight series offer a comprehensive range of micro-spectroscopy solution for your research needs. The uRaman and uSight micro-spectroscopy system can also be equipped with other imaging techniques such as dark field, polarization, DIC, fluorescence microscopy to provide a multimodality microscopy solution. Contact: Tok Wee Lee, Managing Director, weelee@technospex.com; Tan Eddie, Chief Scientist, eddie@technospex.com

### Floor Plan Logo, General, Featured Exhibitor Sponsor

TESCAN #8647

Libusina trida 21, Brno, 623 00 Czech Republic + 420 530 353 486; fax + 420 547 130 415 marketing@tescan.cz; www.tescan.com

### **Texas Instruments DLP**

#8621

6550 Chase Oaks Blvd, Plano, TX, 75023 USA +1 972 995 2011

dlp\_alc\_mktg@list.ti.com; www.ti.com/dlp

### Featured Product: Digital Micromirror Device (DMD).

TI DLP technology has offered powerful, flexible, programmable optical chipsets designed to enable fast and accurate light steering solutions for optical sensing applications, including 3D printing, 3D scanning, lithography, and spectroscopy. All of today's DLP technology is based on award-winning, proven DLP Cinema technology. The digital micromirror device, or DLP chip, is a high speed, efficient MEMS device compatible with light sources in ultraviolet, visible, and infrared wavelengths.

### Thorlabs Inc.

#8609

SPIE Corporate Member

56 Sparta Ave, Newton, NJ, 07860-2402 USA +1 973 300 3000; fax +1 973 300 3600 sales@thorlabs.com; www.thorlabs.com

# Featured Product: Tiberius: Tuneable, high-power femtosecond laser for non-linear imaging applications

As a vertically integrated photonics manufacturer, Thorlabs continues to extend its competencies in an effort to play an increasing role serving the photonics industry, as well as the industrial, life science, and defense segments. The company's diverse manufacturing assets include semiconductor fabrication of Fabry-Perot, DFB, and VCSEL lasers, in-house drawing of glass optical fibers, MBE/MOCVD epitaxial wafer growth reactors, metal fabrication, advanced thin film deposition, & optomechanics. Contact: Jamie LaCouture, Trade Show Supervisor, JLaCouture@thorlabs.com

### **TOPTICA Photonics Inc.**

#8631

#8950

SPIE Corporate

1286 Blossom Dr, Victor, NY, 14564-1402 USA +1 585 657 6663

sales@toptica-usa.com; www.toptica.com

TOPTICA is the world leader in diode laser and ultrafast technology for industrial and scientific markets. We offer the widest range of single mode tunable light in the 190 to 2900nm and 0.1-2.7THz spectral region with various accessories to measure, characterize, stabilize and analyze light. With our passion for precision, TOPTICA delivers. Contact: office@toptica-usa.com; sales@toptica-usa.com

### Tucsen Photonics Co., Ltd.

6/F No 1 Bldg Cai mao Zone, #756 Qi'an, Fuzhou, Fujian, 350008 China

+86 591 881 94580 823; fax +86 591 88194580 814 jessicawu@tucsen.com; www.tucsen.com

# Featured Product: HDMI camera, scientific CMOS camera, cooled CCD camera

Since 2006, Tucsen has been developing and manufacturing progressively more sophisticated cameras for application in life science imaging. In mid-2015, Tucsen launched a range of sCMOS cameras, including a version featuring 90% quantum efficiency, establishing themselves as a technology leader in the life science imaging market. Contact: Jessica Wu, sales manager, jessicawu@tucsen.com; Mike Blake, Business development, mikeblake@tucsen.com

### **US Fiberoptec Technology, Inc.**

#8610

SPIE Corporate

175 Bernal Road, Suite # 15, San Jose, CA, 95119 USA +1 408 834 7420; fax +1 408 834 7430 kb@usfiberoptec.com: www.usfiberoptec.com

# Featured Product: Leader in silica and glass optical fibers, assemblies, bundles and hybrid photonics solutions

100% vertically integrated world leader in silica and glass optical fibers, assemblies, bundles and hybrid photonics solutions. Producing silica (quartz), silica/silica and hard polymer clad/silica (HPCS), glass and MIR (mid infrared) optical fibers and value added assemblies for a wide variety of industries and applications. We offer fibers from 40 microns to 2,000 microns in core sizes with N.A. range of 0.12 to 0.53 and wavelengths range from 193nm to 16 microns. sales@usfiberoptec.com Contact: Kevin Bakhshpour, V.P. of Sales & Marketing, kb@usfiberoptec.com

### **UTC Aerospace Systems**

#8817

SPIE Corporate

330 Carter Rd Ste 100, Princeton, NJ, 08540-7419 USA +1 609 333 8200; fax +1 609 333 8103 sui info@utas.utc.com; www.sensorsinc.com

# Featured Product: SWIR-InGaAs 2048-pixel linescan cameras for OCT: 2048R delivers >147 klps; 2048L delivers > 76 klps

Sensors Unlimited, Inc., a UTC Aerospace Systems company, develops innovative shortwave infrared (SWIR) sensing & imaging solutions based on indium gallium arsenide imaging technology. Products include InGaAs-SWIR cameras and systems, 1- & 2-D focal plane arrays & extended wavelength response InGaAs image sensors. Imaging applications include near-infrared spectroscopy, security/surveillance, line-scan inspection, process control, laser beam profiling, microscopy, OCT, art inspection, astronomy. Contact: Shannon Larbig, Sales Manager, sui\_info@utas.utc.com

### Vanderbilt University Center for Technology Transfer and Commercialization

#8416

1207 17th Ave S Ste 105, Ctr for Technology Transfer, Nashville, TN, 37212 USA +1 615 343 2430

cttc@vanderbilt.edu; www.vanderbilt.edu/cttc

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Xenics

#8528

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Ambachtenlaan 44, Leuven, BE-3001 Belgium +32 16 38 99 00: fax +32 16 38 99 00 sales@xenics.com: www.xenics.com

accelerates melanoma diagnosis

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Xenics is a pioneer of path-breaking infrared technology with a proven track record of fifteen years. Xenics designs and markets

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for the Vis-NIR, SWIR, MWIR and LWIR ranges. Contact: Hervé Copin, CEO Xenics USA, Inc., sales@xenics-usa.com; Francky

SPIE Corporate 1305 N 1000 W Ste 120, Logan, UT, 84321-6802 USA

info@wasatchphotonics.com; wasatchphotonics.com

**Featured Product: WP OCT** 

Wasatch Photonics, established in 2002, is the leading manufacturer of volume phase gratings with corporate offices located in Logan, Utah. WP also designs and manufactures spectroscopic and optical coherence tomography devices at our facility in Durham, North Carolina. Contact: Nishant Mohan, Director of Marketing & Product Management, nmohan@wasatchphotonics.com

### Wuhan Industrial Institute for **Optoelectronics Ltd.**

#8841

A4-GF District of the future Wuhan, No. 999 Gaoxin Ave, Wuhan Hubei, 430075 China

+86 278792 7068; fax +86 27 8792 7078 wijo@wijo.org.cn: www.wijo.com.cn

**WZW-Optic AG** 

#8848

SPIE Corporate

Wegenstr 18, Balgach, 9436 Switzerland +41 71 523 2300: fax +41 71 722 1240 optics@wzw.ch: www.wzw.ch

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## Demeester, CSMO, sales@xenics.com **Zuend Precision Optics Ltd.**

#8828

Prismastrasse 5. Diepoldsau, 9444 Switzerland +41 71 737 74 00; fax +41 71 737 74 10 info@zuendoptics.com; www.zuendoptics.com

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### **Zurich Instruments AG**

#8915

SPIE Corporate

Technoparkstrasse 1, Zurich, 8005 Switzerland +41 44 515 0410; fax +41 44 515 0419 info@zhinst.com; www.zhinst.com

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Edmund Optics Inc.

Fibertech Optica Inc.

FISBA AG

Grintech GmbH

Ibsen Photonics A/S

Innovations in Optics, Inc.

MegaWatt Lasers, Inc.

MIKROP AG

Nanjing Creator Optics Co., Ltd.

Navitar Inc.

Optics Technology, Inc.

**Optikos Corporation** 

Special Optics, Inc.

SPIE Digital Library

Stanford Photonics, Inc.

Sutter Instrument

WZW-Optic AG

#### **OPTICAL FABRICATION EQUIPMENT**

Optics Technology, Inc.

#### **OPTICS MANUFACTURING**

Andover Corp. asphericon, Inc. Auxora (Shenzhen), Inc. Avo Photonics, Inc. Axsun Technologies CODIXX AG Deposition Sciences, Inc. Edmund Optics Inc. Energetia Technology, Inc. FISBA AG Grintech GmbH Laser Components USA, Inc.

Max Levy Autograph, Inc.

MegaWatt Lasers, Inc. MIKROP AG Nanjing Creator Optics Co., Ltd. Optics Technology, Inc. **Optikos Corporation** Optikron GmbH PD-LD. Inc. Santec U.S.A. Corp. Spectrogon US, Inc.

Sutter Instrument Thorlabs Inc. WZW-Optic AG

#### **OPTOMECHANICAL COMPONENTS, DEVICES**

Applied Image, Inc. ASI/Applied Scientific Instrumentation, Inc. Berliner Glas KGaA Herbert Kubatz GmbH & Co. Ealing Catalog Inc.

New Scale Technologies, Inc. Optics Technology, Inc.

Thorlabs Inc.

#### **PHOTONIC** INTEGRATION

Innovative Photonic Solutions

#### **POSITIONING EQUIPMENT, MOTION CONTROL AND ACCESSORIES**

ASI/Applied Scientific Instrumentation, Inc. Ealing Catalog Inc. FBGS International NV Mad City Labs.. Inc. New Scale Technologies, Inc. Scientifica

#### PUBLISHERS, ASSOCIATIONS, **CLUSTERS, SOCIETIES**

BioPhotonics, a Photonics Media Publication Bordeaux Route des Lasers

#### **SEMICONDUCTOR DEFENSE SECURITY**

M Squared Lasers Ltd Optimax Systems, Inc. Raptor Photonics Ltd.

SPIE Digital Library

#### **SEMICONDUCTOR MANUFACTURING**

**Amplitude Systemes** Energetia Technology, Inc. **ESPROS Photonics AG** Laser-Compact Co. Ltd. NoIR LaserShields Optimax Systems, Inc.

Spectra-Physics/A Newport Company

Thorlabs Inc.

#### **SOFTWARE**

Argolight B&W Tek, Inc. ISS Inc Optores GmbH PCO-TECH Inc. PHASICS Corp. Scientifica Stanford Photonics, Inc.

#### **SOLAR & ALTERNATIVE ENERGY**

**Boulder Nonlinear Systems** 

#### **SPECTROSCOPY DEVICES AND EQUIPMENT**

Agilent Technologies, Inc. Andor

Avantes, Inc.

B&W Tek, Inc.

BaySpec, Inc.

BioPhotonics, a Photonics Media Publication

Changchun New Industries Optoelectronics Technology Co., Ltd.

Edmund Optics Inc.

**ESPROS Photonics AG** 

Gooch & Housego (Orlando)

Gooch & Housego plc

Hamamatsu Corp.

Ibsen Photonics A/S

Innovative Photonic Solutions

ISS Inc.

Laser Quantum USA

Laser-Compact Co. Ltd.

**LEUKOS** 

M Squared Lasers Ltd

Ocean Optics, Inc.

Ondax, Inc.

PD-LD, Inc.

Radiantis

Raptor Photonics Ltd.

Spectra-Physics/A Newport

Company

Symphotic TII Corp.

US Fiberoptec Technology, Inc.

Xenics

#### STRUCTURAL AND **INFRASTRUCTURE SENSING**

DiCon Fiberoptics, Inc. FBGS International NV Ibsen Photonics A/S InPhenix, Inc.

#### **TEST AND** MEASUREMENT, **METROLOGY**

Avantes, Inc. B&W Tek, Inc. DataRay Inc. DIAS Infrared Corp. DiCon Fiberoptics, Inc. **EPIGAP Optronic GmbH** FBGS International NV General Photonics Corp. Gooch & Housego (Orlando) Gooch & Housego plc Innovative Photonic Solutions Lumics GmbH Market Tech. Inc. microfluidic ChipShop GmbH **Optikos Corporation** Optimax Systems, Inc. Optores GmbH PHASICS Corp. Santec U.S.A. Corp. Zurich Instruments AG

#### **VACUUM, COOLING, GAS** HANDLING EQUIPMENT

Lumics GmbH

#### **VEHICLE SENSING AND** CONTROL

**ESPROS Photonics AG** MIKROP AG



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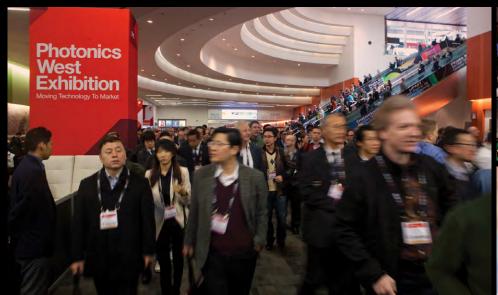
**Ties** 

**Posters** 

**Souvenirs** 

**Educational Toys** 

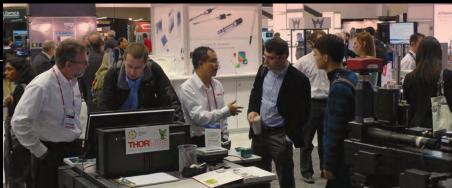
SPIE.











Visit the world's top companies and industry leaders in lasers and photonics at the global marketplace for light-driven technologies

# **PHOTONICS WEST**

#### 16-18 FEBRUARY

The Moscone Center San Francisco, California, USA

#### **SOUTH HALL ABC AND NORTH HALL D**

Tuesday 16 February  $\cdot$  10:00 am to 5:00 pm Wednesday 17 February  $\cdot$  10:00 am to 5:00 pm Thursday 18 February  $\cdot$  10:00 am to 4:00 pm

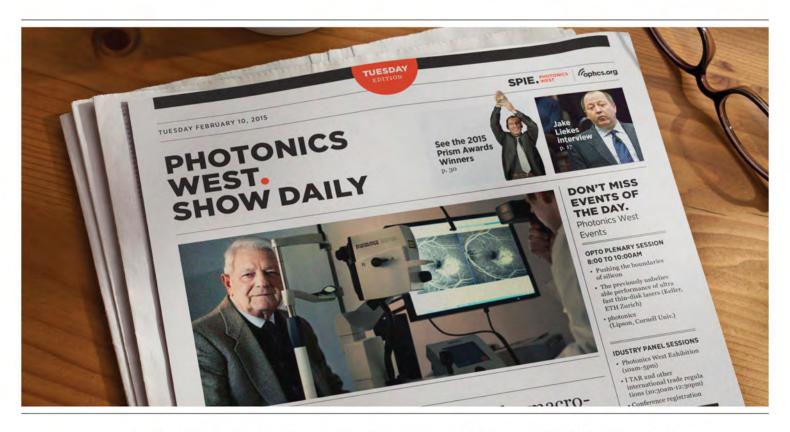
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Floor Plan/Booth Map92-95
Exhibitor Index96-107
Advertisers Index 107
Company List/Descriptions
Companies by Product Category

# FIND IT. GRAB IT. READ IT.

The Photonics West Show Daily.

The Only Official Newspaper of Photonics West.



# PHOTONICS WEST EXHIBITION 16-18 February 2016

#### New product launches at the industry's leading marketplace

#### **3SAE Technologies, Inc.**

Booth #4969



Combiner Manufacturing System – Production level repeatability for complex glass processing.

#### Acktar Ltd.

Booth #2710



MaxiBlack™- Acktar Super Black polymer film – thinner & blacker solution.

#### **Acton Optics & Coatings**

Booth #1811



UV-Enhanced Silver Coated Mirrors - broadband UV reflectivity, high reflectance mid-IR.

#### **AdValue Photonics, Inc.**

Booth #700



1.5 mJ Pulse Energy Single-Frequency 1030nm Fiber Laser.

# Advanced Cooling Technologies, Inc.

Booth #4960



Custom Phase Change Material (PCM)
Heat Sinks for Pulsed Lasers.

#### Advanced Microoptic Systems GmbH

Booth #2109



Refractive microlens array with variable pitch.

#### Altos Photonics, Inc.

Booth #1533; 1640



EKSPLA LightWire ultrafast robust 4W fiber lasers.

#### **American Photonics Co.**

Booth #2816



Check Out Our Copper Mirror Product Line.

#### **Analog Modules, Inc.**

Booth #2201



Low ripple 120A, 14V CW and Pulsed Laser Diode Driver.

#### **Andon Electronics Corp.**

Booth #5068



Heat Sink Sockets™ —Protect sensors from damage AND dissipate heat!

#### **Apollo Instruments, Inc.**

Booth #2609



250W 0.1mm fiber coupled diode for fiber laser. Extremely high brightness, 976 or 915nm.

# Applied Physics & Electronics, Inc.

Booth #735



Levante NSP OPO – Fully Automated, Ultrafast, High Power IR Light Source.

#### Archer OpTx, Inc.

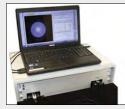
Booth #3058



Introducing the Newest Short Focal Length PerfectLens™ P5528.

#### **Arden Photonics Ltd.**

Booth #5543



FGC-1200 Optical Fiber and Coating Geometry Measurement is quick and accurate.

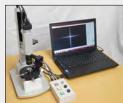
#### Ascentta, Inc.

Booth #5339



Mini TGG Circulator OD22x35mm 633 780 850 980 1060nm.

#### **ASO Corporation**



With US-A1000, you can measure the centering error of very small lens.

# **Photonics West Exhibition new product launches**

#### Asphera, Inc.

Booth #6031



Bi-Convex Aspherical lens for Ophthalmology.

#### **Axsun Technologies Inc.**

Booth #417



Axsun WIDEBAND 140nm 100kHz 1310nm SS-OCT Integrated Laser Engine.

#### BaySpec, Inc.

Booth #911



Custom range UV, visible, NIR, Raman spectrographs and spectrometers.

#### Beijing RealLight Technology Co., Ltd.

Booth #5158



Raman Narrow Linewidth Diode Laser Module.

# **Boston Micromachines Corp.**

Booth #936



Broadband Optical Modulator for DC-200kHz high throughput free-space optics.

#### **Bridger Photonics, Inc.**

Booth #4622



Non-Contact Thickness Metrology Station provides physical thickness and refractive index.

#### **Brimrose Corp. of America**

Booth #2105



5W CW fiber-coupled AOMs with <10 nsec rise time.

#### **Bristol Instruments, Inc.**

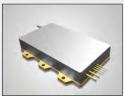
Booth #627



828B High-Speed (1 kHz) Optical Wavelength Meter.

#### **BWT Beijing Ltd.**

Booth #834



976nm/100W/105µm Wavelength-Stabilized for Fiber Laser Pump.

#### **Calmar Laser**

Booth #2536



A 1 W, 780 nm, ultrafast fiber laser for biomedical imaging and metrology applications.

#### **CEDRAT TECHNOLOGIES**

Booth #6015



Fast Amplified Piezo Shutter for X-Ray and Laser beams.

# Chongqing Zhaohong Technology Co., Ltd.

Booth #4672



The dimension and precision of sapphire step window are customized.

# ChuZhou First Imp & Exp Co. Ltd.

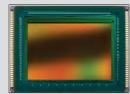
Booth #4312



Kovar lid with window for metric packages and TO cap

#### **CMOSIS International**

Booth #4241



CHR24M, 35MM 24Mpix image sensor for high-end scientific and industrial applications.

#### **CMOS Sensor Inc**

Booth #5637



C468 is 120 mm long, five band CMOS image sensor for Satellite imaging application.

#### **Cobolt AB**

Booth #2726



Cobolt NLD™ 785nm - Ultra-compact CW narrow-linewidth perfect for Raman Spectroscopy

#### **CODIXX AG**

Booth #2023



colorPOL® VIS 600 BC5 - Wider, Higher and better

#### Coherent, Inc.

Booth #1101



New Multi-KW Fiber Laser Platform. High Light FL-Series. Industrial Versatile Reliable.

#### **Critical Link, LLC**



sCMOS Smart Camera Platform with GigE Vision and CameraLink options.

#### **CRYSTECH Inc.**

Booth #2810



KD\*P Pockets Cell with integrated, pre-adjusted Brewster polarizer.

#### **Cybel LLC**

Booth #5436



The MISTRAL-2051-5W, 37dBm-PM amplifier at 2051nm.

#### Daheng New Epoch Technology, Inc.

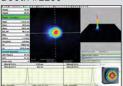
Booth #2036



Tereherz Time Domain Spectrometers.

#### DataRay Inc.

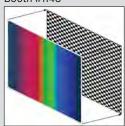
Booth #2239



DataRay will introduce our new high resolution Terahertz camera.

#### **Delta Optical Thin Film A/S**

Booth #1148



Linear Variable Bandpass Filter for Hyperspectral Imaging Applications.

#### **Diamond USA Inc.**

Booth #4568



E-2000™ INTERLOCK safe fiber optic high power laser connection.

#### **Diffractive Optics Ltd.**

Booth #3036



Endoscopic module with fully integrated working channel and illuminated camera.

#### **Donaldson Company, Inc.**

Booth #5533



Donaldson LithoGuard Point-of-Use-Filters, Acid, Base + Organic Removal.

#### eagleyard Photonics GmbH

Booth #932



Powerful 20W pulsed 808nm laser diode @  $10\mu$ s pulse width.

# EDT | Engineering Design Team, Inc.

Booth #6049



Fiber-optic extender for Camera Link plus auxiliary signals.

#### **EGIDE**

Booth #5345



High Temperature Co-Fired Ceramic now made in the USA.

#### **EKSMA Optics**

Booth #1533



E Ultrafast pulse picking system operating at up to 2MHz rate.

#### **EKSPLA**

Booth #1533



UltraFlux OPCPA-based compact tunable femtosecond laser.

# Electro Optical Components, Inc.

Booth #4859



FEMTO OE-300 Low-noise, Highspeed (200MHz) Photoreceiver, Variable Gain to 10<sup>8</sup>A/V.

# Electro Optical Industries, Inc.

Booth #6009



Multi-Camera White Balance Stitching System.

# Electro-Optics Technology, Inc.

Booth #2500



ET-2070 Silicon UV-enhanced Photodetector with fast response, large active area.

#### **Enable Inc.**

Booth #4415



1Mpixel videospcope with 1.3mm OD and HDMI or USB3 output

#### **EPIGAP Optronic GmbH**



Infrared Multichip-LED-Array in TO-39 package with InGaAs chips (1050nm - 1720nm).

# **Photonics West Exhibition new product launches**

#### **ESPROS Photonics AG**

Booth #839



DME500 TOF Distance Measuring Engine 10m range, 980 measurements/second.

#### Feinwerkoptik Zünd AG

Booth #5341



World's smallest miniaturized camera with high performance optics.

#### **Fiber Optic Center, Inc.**

Booth #5048



ÅngströmLap Ultimas-Pro Lapping Film, cost-effective protrusion producing meeting Telcordia spec.

# Finger Lakes Instrumentation

Booth #4124



Cobalt Deep Cooled Camera for Very Large Format CCDs.

#### First Sensor, Inc.

Booth #4749



Silicon photomultiplier module for ultra-low light detection from First Sensor.

#### **FISBA AG**

Booth #2429



Customizable high resolution micro camera (Ø,2mm) with integrated illumination.

#### **FLIR Systems, Inc.**

Booth #2632



X6900sc - High Speed 1000fpz 640x512 pixel MWIR Camera.

#### **FOCtek Photonics, Inc.**

Booth #4760



Dual Fisheye Lens Module, 720° full view, 8mp Resolution.

#### Frankfurt Laser Company

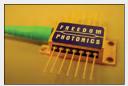
Booth #2501



HEML Series Blue 1W Line Laser Module.

#### **Freedom Photonics, LLC**

Booth #4249



1300nm Tunable Laser - Miniature monolithic InP based chip, no moving parts.

# Fuzhou Alpha Optics Co., Ltd.

Booth #5041



Optical lens with mid-high precision and new design solution.

#### **Gel-Pak**

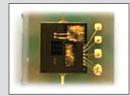
Booth #2107



Gel-Pak's ESD Membrane Box for storing three-dimensional devices.

#### Genicom Co., Ltd./ Sales Team

Booth #4859



Digital UV Sensor with High Accuracy for IoT & Mobile Applications.

#### **Gentec Electro-Optics Inc.**

Booth #1138



Pronto-Si Handheld Laser Power Meter for Low Powers with Touchscreen.

#### **Gooch & Housego (Orlando)**

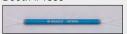
Booth #1831



OL 455-6SA Automated Variable Integrating Sphere Calibration Standard.

#### **Gould Fiber Optics**

Booth #4859



Gould's 2x2 and 2x1 high performance Fused Dual-Clad Fiber Coupler.

#### **GPD Optoelectronics Corp.**

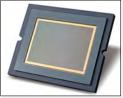
Booth #2630



10 mm square Ge photodiode in BNC package.

#### **Gpixel Inc.**

Booth #5443



20MP, 7.4 $\mu$ m pixel size CMOS Image Sensor for Professional Applications.

#### Han's TianCheng Semiconductor Co., Ltd.

Booth #4665



High Power Visible Laser Diode for 400-650nm.

#### **HC Photonics Corp.**

Booth #4432



OPO mixer-integrated cavity platform for 1.4 ~4.8  $\mu m$  generation.

#### **Headwall Photonics Inc.**

Booth #2606



High-Resolution Fluorescence Sensor for 754nm-775nm Spectral Range.

#### **HEIDSTAR CO., LTD.**

Booth #4372



Hybrid Microscope Stage: Perfect for scanning biological and material samples.

#### Hellma USA, Inc.

Booth #1907



Large cylindrical optics upto 1,050mm. Illumination optics upto 3.000mm.

#### Heraeus Noblelight America LLC

Booth #4130



HST-DB566 standalone bench top light source offering higher intensity, longer life and reduced noise.

#### **HOLOEYE Photonics AG**

Booth #2532



New PLUTO phase only modulator version for 1300nm range (1100-1400nm).

#### **Holographix LLC**

Booth #4220



We specialize in building custom Diffractive Waveguides for HUD and Head Worn Display applications.

#### **HORIBA Scientific**

Booth #1838; 1839



MacroRam low cost, compact bench-top macro Raman system for undergraduate teaching labs.

#### **Ibsen Photonics**

Booth #1043



EAGLE Raman-S, high performance, low f-number, compact and robust spectrometer.

#### **Imaging Solutions Group**

Booth #628



LightWise Allegro USB3 Camera Utilizing CMOSIS CMY 12000 Color/ Mono.

#### **Infratec Infrared LLC**

Booth #4455



Miniaturized pyroelectric detectors – 4 channels in TO39 housing for gas analysis.

#### **INGENERIC GmbH**

Booth #941



BeamPr with  $400\mu$ m-pitch for highest fiber coupling efficiency.

# Innovative Photonic Solutions

Booth #817



405 and 514 nm Single-Mode Stabilized and Isolated Lasers.

#### InPhenix, Inc.

Booth #506



850nm/1050nm/1300nm Swept Light Source; wavelength repetition rate 100KHz over 100nm.

#### Iradion Laser, Inc.

Booth #5346



Using Ceramic Core Technology, the Smallest RF-Driven 30W Laser Available.

#### **IRflex Corporation**

Booth #5146



3-to-1 Chalcogenide fiber combiner for amalgamation of Mid-IR Laser Sources.

#### IRTronix, Inc.

Booth #4619



UVB 305nm 6060 package. More power for your UV applications.

#### Jiangsu Yudi Optical Instrument Co., Ltd. Tongzhou Branch

Booth #4136



Optical glass, lens and IR glass, lens.

#### Kigre, Inc.

Booth #2031



JAM-82P: 2mj, 1-2Hz, 6ns, -35-+71C, 0.6"x0.8"x1.5".

# **Photonics West Exhibition new product launches**

#### Kopp Glass, Inc.

Booth #5332



UV Transmitting Molded Glass Optic for Improved UV LED Performance.

#### **Kreischer Optics, Ltd.**

Booth #1146



Aspheric Cylinders and Free-Form Capabilities.

#### **KrellTech**

Booth #4128



Flex Polishes Waveguides and Optical Chips at Variable Angles.

#### **Laser Components Canada**

Booth #2023



Pulsed lasers coupled with a square fiber for best beam profile.

#### Laser Components DG, Inc.

Booth #2023



Advanced PbS and PbSe detectors in both standard and custom configurations.

#### **Laser Components GmbH**

Booth #2023



Large optics up to 390 mm with demanding coatings for high-end applications.

# Laser Components Pyro Group, Inc.

Booth #2023



High-end DLaTGS-based pyroelectric detectors for best performance.

# Laser Components USA, Inc.

Booth #2023



COUNT T - Single photon counting module with highest quantum efficiency for timing applications.

#### **Laser Institute of America**

Booth #3068



Desktop Evaluator Software for your laser safety calculations!

#### **Laser Quantum USA**

Booth #1440



The infallible heart of dependable products: Laser Quantum's >100,000 hour gem.

#### Laser-Compact Co. Ltd.

Booth #512



0.2 mJ nanosecond TiSon laser with 700-900 nm automatic tuning.

#### **LaserPoint Srl**

Booth #4467



1200W Air-Cooled: We set new limits in power meters technology.

#### Lasertel, Inc.

Booth #706



8kW Direct Diode Laser Line Generator for laser cladding applications.

#### **Laservision USA**

Booth #803



Laservision F29 Laser Safety Eyewear, Lightweight, Adjustable, Many Filters Available.

# LASORB - A division of Pangolin Laser Systems, Inc.

Booth #2208



LASORB provides laser diode protection, against ESD and power surges.

#### **Lattice Electro Optics, Inc.**



Coating on fiber tips & bundles.

#### LC-TEC

Booth #5355



Introducing fast-switching polarization modulators/rotators for polarization imaging applications.

#### Ligentec

Booth #4056



SiN resonator chip: integrated platform for nonlinear optics and sensing.

#### **Light Conversion**

Booth #1533



Industrial femtosecond laser - stable output within 630-2600nm (e.g. 800nm, 1550nm ...)

#### Lincoln Laser Co.

Booth #1913



POLYtek high speed polygon scan head for high power applications.

#### Litron Lasers Ltd.

Booth #937



TRLi850 - Intelligent laser head, auto-tuning plug and play harmonics.

#### Luceo Co., Ltd.

Booth #4935



LSM-9000S can measure strain in glass or plastic with 6x Zoom Lens. LIDA: solid state, high speed, RGB illumination for monochrome cameras.

#### Lumencor, Inc.

Booth #305



LIDA: solid state, high speed, RGB illumination for monochrome cameras.

#### **Lumics GmbH**

Booth #2023; 4629



Ultra-compact LuOcean™ Mini4 diode laser module up to 70W.

#### Lumina Power, Inc.

Booth #5329



LDQCW-4000 Pulsed Diode Driver 350 Amps, 50V, 10us. Risetime.

#### **Luvantix SSCP**

Booth #2714



High-temperature Low-index polymers for High-power Fiber Lasers.

#### **Luxmux Technology Corp.**

Booth #4604



Broad Spectrum Tunable Superluminescent Diode Spectrometer.

#### M Squared Lasers Ltd.

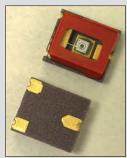
Booth #711



SolsTiS TS (TeraScan) - rapid, automatic, mode-hop-free scans over many nanometers.

#### **Marktech Optoelectronics**

Booth #638



Avalanche Photodiodes provide high speed with an internal gain mechanism.

#### Marubeni America Corp.

Booth #4958



High Power NIR SMDs (-1650nm) in 3.5mm Ceramic Package.

#### Marysol Technologies, Inc.

Booth #5649



CTH:YAG High Power/High Energy Resonator Module.

#### Meadowlark Optics, Inc.

Booth #2300



1-Photon SLM Microscopy Kit for Single Photon 3D Calcium Imaging & Photostimulation.

#### Mesa Photonics, LLC

Booth #5247



Affordable, USB powered digital lockin amplifier with optional compact chopper.

#### MeshTel

Booth #6003



Hybrid Laser: Free Space – MM Fiber Coupled Switchable.

#### MH GoPower Co., Ltd.

Booth #5548



Photovoltaic Power Converters customizable for any power over fiber application!

# **Photonics West Exhibition new product launches**

#### Micro Laser Systems, Inc.

Booth #902



SWIR Fiber Collimators, 1500nm to 2300nm, for gas sensing.

#### Micronor Inc.

Booth #5169



MR303 MRI Safe Fiber Optic Linear Encoder and OEM Controller

#### **Mikro-Tasarim**

Booth #4337



MT-CL-CAM-NIR12815: A 1280x1024 NIR camera using a hybrid Silicon FPA.

#### Minus K Technology Inc.

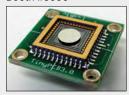
Booth #4437



Ultra Compact Negative-Stiffness Vibration Isolator - No Air or Electricity.

# Mirrorcle Technologies, Inc.

Booth #5660



Large-angle beam-steering MEMS mirrors 5mm and 6mm diameter.

#### **MPA Crystal Corp.**

Booth #726



Custom made optics of Sapphire, Fused Silica, Glass Silicon and more.

#### **MPB Communications Inc.**

Booth #2333



631-nm subnanosecond externally triggered red pulsed fiber laser for STED etc.

#### **MWTechnologies, Lda**

Booth #4534



Ultra Compact Pulsed Fiber Laser for LIDAR applications.

#### **MY Polymers Ltd.**

Booth #5653



MY-133-R2, Refractive Index 1.33, Optimized for High NA Re-Coating.

# Nanjing Co-Energy Optical Crystal Co., Ltd.

Booth #4360



Sapphire Optics Works from UV to Mid-Infrared & Chemical Resistance.

# Nantong Guoguang Optical Glass Co., Ltd.

Booth #2001-A



Optical glass, filters, lens, prism, ect.

#### **Navitar Inc.**

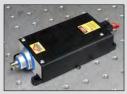
Booth #601



Ideal optical solution for OEM and research imaging/measurement applications.

#### **Necsel**

Booth #4670



Necsel RGB NovaLum 1200 - 1200 Lumens at D65, 400 µm 0.22NA.

#### NorPix Inc.

Booth #4355



Stream your machine vision HD resolution cameras to the web using Streamnix

#### **NOVAE**

Booth #5442



Coverage: ultra-bright and stable mid-infrared fiber laser for spectroscopy.

#### **NP Photonics, Inc.**

Booth #4508



POWER ROCK fiber laser is Wattslevel, kHz-linewidth, single frequency

#### nPoint, Inc.

Booth #5429



LC.300 series OEM controllers for economical closed-loop piezo stage operation

# NRD - Advanced Static Control

Booth #1748



Removes damaging electrostatic charge from lenses and other optical-grade materials.

#### NTKJ Co., Ltd. (Niohon Tokushu Kogaku Jushi)

Booth #4935



Precision Fresnel added to catalog for sensors and concentrating.

#### **Nutfield Technology**

Booth #2723



3XB Surface Profiler generates 3-axis correction file for laser marking.

#### O/E Land Inc.

Booth #3082



Tunable laser source at 2  $\mu$ m available for sale now.

#### **OEwaves, Inc.**

Booth #2825



Introducing 1 Micron Sub-kHz Ultra-Narrow Linewidth Laser Module.

#### **Olympus**

Booth #5154



New BX3M upright microscope and OLYMPUS Stream image analysis software.

#### **Omega Optical, Inc.**

Booth #2136



350-1800nm wide-angle broadband dielectric mirrors with ultra high-performance reflectivity.

#### Ondax, Inc.

Booth #740



THz-Raman\* Optical Probe: In-situ Real-time Monitoring of Molecular Structure, Polymorphs, Crystallization, and Phase.

#### Opt-E

Booth #3022



Phasor is an open-architecture LabVIEW tool for interference microscopy.

#### Optec S.p.A.

Booth #2213



New large format polychromatic Bitelecentric diffraction limited lens.

#### **OptiPro Systems**

Booth #616



PRO 160A: Deterministic CNC asphere polishing machine - revolutionizing asphere production.

#### **Opto Diode Corp.**

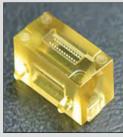
Booth #4522



IR Detectors/Visible-UV-XUV Silicon/ Photodiodes, Position Sensors, High Power LEDs, and Electro-Optical Modules/Assemblies

#### OrangeTek Corp.

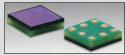
Booth #4157



We are engaging in ultra-precision mold and molding manufacturing.

#### **OSI Optoelectronics**

Booth #2117



OSI Optoelectronics' new high responsivity Back Illuminated SMT Silicon Photodiodes .

#### **OZ Optics Ltd.**

Booth #4529



World's Largest Online Fiber Optic Catalog by OZ Optics.

#### **Pantron Automation, Inc.**

Booth #4214



Fume / Particulate Extraction Machines Remove Emissions and Return Clean Air.

#### **Particle Measuring Systems**

Booth #3072



The Lasair\* III 110 Aerosol Particle Counter: Provides real-time measurement of yield-impacting particles.

#### **PCO-TECH Inc.**

Booth #1017



pco.edge with up to 82% quantum efficiency and CameraLinkHS interface.

#### PD-LD, Inc.

Booth #1029



PLM-Series Power Stabilized Blue & Green Laser Diode Modules.

#### PerkinElmer, Inc.

Booth #1242



Total Absolute Measurement System for Specular & Diffuse UV/VIS/NIR Measurements.

# Perkins Precision Developments, LLC



Adhesive-free, precision beam splitter cubes for high-energy laser applications.

# **Photonics West Exhibition new product launches**

#### **Photon Control Inc.**

Booth #4449



Photon Control Custom Spectrometer Builder web applicationspectrometer selection in 7 simple steps

#### **Photon Design**

Booth #2533



New high-accuracy OmniSim RCWA for modelling gratings and metamaterials.

#### **Photonic Science Ltd.**

Booth #4224



Mini sCMOS Camera, cooled (2048 x 2048) with low noise and high QE.

# Photonics Industries International, Inc.

Booth #1901



New highest pulse energy (TEM<sub>00</sub>) single polarization Nd:YLF green laser.

# Photonics Spectra, a Photonics Media Publication

Booth #904: 905



Photonics ProdSpec - New search tool to find photonics products.

#### Photron USA, Inc.

Booth #2406



FASTCAM Mini AX50/100/200 High-Speed Cameras/FASTCAM Multi-Head High-Speed Camera Systems.

#### **PicoLAS GmbH**

Booth #2023, 4629



High-Speed Seed-Driver, up to 400 MHz, pulse current up to 3A, pulse duration 1ns-CW

#### **PIKE Technologies**

Booth #5230



PIKE high numerical aperture 100x Schwarzschild Objective for broadband micro-imaging.

#### **PixeLINK**

Booth #4030



PL-D755U based on the SonyIMX250 sensor, provides superb image quality.

#### Pixelteg, Inc.

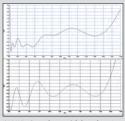
Booth #1717



PixelSensor™ Customizable spectral sensing for in-vitro diagnostics, biochemical assays, imaging & colorimetry.

#### **Plant for Optics**

Booth #5658



SWIR Coatings Objective Lens 400-1700nm, 600-1700nm.

#### **Point Grey**

Booth #2811



Chameleon3 - Flexible Form Factor, CCD + CMOS, Starting at \$295.

#### **Polaris Motion**

Booth #4662



Polaris CNC Motion Controller for high performance laser micromachining.

# Precision Glass & Optics (PG&O)

Booth #5462



PG&O Provides Precision Optics, Thin-Film Coatings, Glass Substrates & Fabrication Services.

#### **Precision Optical**

Booth #2040



Large (300mm-735mm) High Precision ( $<\lambda$ /20) Optical Flats for Semi-Conductor and Laser Applications.

#### **Princeton Instruments**

Booth #1811



NIRvana-LN LN2-cooled InGaAs camera provides unprecedented performance in NIR/SWIR range.

#### **Prizmatix Ltd.**

Booth #5072



365nm UV-LED 2W from Light Guide for Curing, Inspection & OEM.

#### QD Laser, Inc.

Booth #4946



Retinal Imaging Laser Eyewear: Focus-free image onto your retina.

# QPC Lasers/Laser Operations LLC

Booth #5328



BrightLase\* Ultra-SE Series, 9XXnm, 300+W,  $200\mu$ m fiber-coupled laser diode modules.

#### **Quantel Laser**

Booth #2123



Q-scan by Quantel: High resolution tunable nanosecond dye laser for accurate wavelengths scans.

#### **Quantum Composers, Inc.**

Booth #4620



MIR Laser delivers >1mJ, <10ns @ 1.5 to 4 microns.

#### **Radiantis**

Booth #4423



PowerSense - Mid-IR (1-5microns) highly sensitive (>1nW) photodiode power meter.

#### **Raptor Photonics Ltd.**

Booth #515



Kite HD: 2.1MP HD Interline EMCCD cooled camera – exceptional low light imaging.

#### Remtec, Inc.

Booth #4315



SMT electro optical leadless packages matching standard TO-style window lids.

#### Reynard Corp.

Booth #3048



CVND - Custom gradient Filters adjust light intensity of any source.

#### **RGB Lasersysteme GmbH**

Booth #4629



Qred miniature NIR spectrometer with InGaAs sensor for portable applications.

#### **Rubicon Technology Inc.**

Booth #2405



17" x 25" x 1" Polished or As Ground Sapphire Slab.

#### S.E.Technologies Ltd.

Booth #5040



Owlift USB 2.0 Micro Thermal Camera with mobile device capabilities.

#### **SCANLAB America, Inc.**

Booth #2317



excelliSCAN: premium scansystem brings more precision and productivity to micromachining.

#### **ScannerMAX**

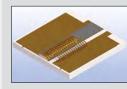
Booth #4520



Saturn-1: The world's fasted galvanometer based optical scanning system.

#### SemiNex Corp.

Booth #4761



SemiNex's new Chip on Carrier Submount for 1300-1700 nm lasers.

#### **Semrock**

Booth #1113



VersaChrome® Edge™ Unlocks Unlimited Center Wavelength and Bandwidth Spectral Tuning.

#### Servometer

Booth #5451



Lightweight, structurally rugged, precision custom electroforms for high performance applications.

#### Shimadzu Corp.

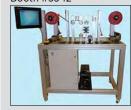
Booth #4049



Fiber-Coupled Blue Direct Laser for material processing application.

#### Showmark, LLC

Booth #5542



Showmark DigiSpooler Precision Bi-Directional Optical Fiber Winder.

# Sierra-Olympic Technologies, Inc.

Booth #5340



Vinden EX - Continuous-Zoom, Parfocal Lens w/3x Optical Zoom, 4x Digital Zoom.

#### Sinocera Photonics, Inc.

Booth #5536



ITO Coated on glass substrate for Liquid Crystal retarders.

#### SlicingTech

Booth #3020



Meyer Burger rebuilds and retrofits using all OEM parts.

#### Spectra Quest Lab. Inc.

Booth #5038



1μm-Band, 100mW ASE-Free Output, >100nm Tunable Diode Laser.

#### **SPI Lasers**

Booth #5138



NEW: Highly popular redENERGY\* G4 100W water-cooled Pulsed Fiber Laser.

# **Photonics West Exhibition new product launches**

#### **Stable Laser Systems**

Booth #3078



Fiber Noise Cancelation System: eliminate phase noise - distribute stable light.

#### **Standa**

Booth #1533



Direct drive positioning system for micro/nano fabrication and scanning.

#### StellarNet, Inc.

Booth #2041



Miniature Near-Infrared Analyzers, Spectrometer Ssytems, and OEM Sensors

#### **Stream Technologies Inc.**

Booth #6053



The Stream ColorFlow Lens turns any camera into a snapshot hyperspectral imaging device.

#### Sunex Inc.

Booth #5628



DSL239, one of a number of new 4K+HDR lenses from Sunex.

#### **Superlum**

Booth #523



Ultrahigh power MOPA type superluminescent diode light source at 850 nm.

#### TAG Optics, Inc.

Booth #5363



The DrvKit3.2 enables easy synchronization and continuous stable operation of TAG Lens.

#### **Tecnottica Consonni Srl**

Booth #2213



Standard and Customized Bi-Telecentric Lenses with Adjustable Iris and Focus.

#### **TelAztec LLC**

Booth #4313



Non-absorbing, high laser damage threshold, AR nano-texture in optical fiber facets.

#### **TEM Messtechnik GmbH**

Booth #4629



Extremely stable and tunable diode laser: New wavelengths available!

#### TFD, INC

Booth #4342



Wire Mesh, TCO & Barrier, Coating for Flexible Displays: Oled & OPV.

#### **Thales**

Booth #2812



The GAIA I combines Thales' renowned characteristics for industrial applications.

#### ThetaMetrisis S.A.

Booth #6035



FR-Scanner: Full 8-inch wafer mapping in 1 min.

#### Thorlabs Inc.

Booth #901; 1701



Tiberius: Tunable, high-power, femtosecond laser for non-linear imaging applications.

#### TJS, Inc.

Booth #5163



Endeavor J-Series Fiber Laser Marking Systems. Made in the USA!

#### **TMC**

Booth #2323



Everstill™, first patented bench-top vibration cancellation, offers superior low-frequency performance.

#### **Tomocube**

Booth #3086



3D quantitative phase microscope for imaging live cells.

#### **UAB Altechna**

Booth #5262



PowerXP - Compact motorized laser

#### **ULTRA TEC Mfg., Inc.**

Booth #4329



UltraSlice Compact precision automatic diamond slicing and dicing tool.

#### **Unice E-O Services Inc.**

Booth #5045



Measuring all types material surfaces, from 2D to 3D scans.

#### Uniforce Sales & Engineering

Booth #5472



Kaya Instruments Komodo CoaXPress Frame Grabber with PCIe interface.

#### **Unioriental Optics Co., Ltd.**

Booth #318



VUV MgF2: High purity, low fluorescence, long life-time.

#### **Universal Photonics Inc.**

Booth #1931



Somos TPM: Internally-cooled, temperature-controlled, double-sided polishing & lapping.

#### Valley Design Corp.

Booth #2143



Image Dimension measuring system which documents measurements instantly.

# Varioptic-A BU of Parrot SA

Booth #5446



25mm Autofocus C-Mount Lens with integrated Liquid Lens and Iris.

# Videology Imaging Solutions

Booth #5630



Videology Model: 24B5.0XUSB3: 5MP Monochrome USB3 UVC Compliant .Board Camera (optional AFZ / Flash)

#### **Vision Components GmbH**

Booth #2802



VCSBCnano Z022 embedded camera w. FPGA Power Linux Inside.

#### **Vortex Optical Coatings Ltd.**

Booth #6037



Infra Red Linear Variable Filters for 0.9-1.7 $\mu$ m, 1.2-2.5  $\mu$ m & 2.5-5.0  $\mu$ m.

#### VORTRAN Laser Technology, Inc.

Booth #428



New Strandus\* VersaLase with 8 combined lasers into single-mode fiber

# Wavelength Electronics, Inc.

Booth #4625



TC LAB 10 A, PID Autotune Touchscreen Thermoelectric Controller Instrument.

#### Wavelength Opto-Electronic (S) Pte. Ltd.

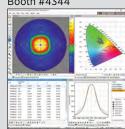
Booth #332



Focal Beam Shaper converts collimated Gaussian beam to collimated output beam.

#### **Westboro Photonics**

Booth #4344



Photometrica\* 7.0: Feature-rich, measurement & analysis software supporting imaging photometers, colorimeters & spectrometers.

#### **World Star Tech**

Booth #4954



Programmable Compact LCD Touch-Screen Laser System.

#### **Xenics**

Booth #4441



Low-cost Bobcat-320 SWIR camera for laser beam analysis and semiconductor.

#### **XIMEA**

Booth #4138



Thunderbolt enabled scientific cameras with Sony IMX174 and CMOSIS CMV20000.

#### **XUV Lasers**

Booth #3076



Compact EUV  $\lambda$ =46.9nm laser for applications in nanoscience and nanotechnology.

#### Zarbeco, LLC

Booth #6055



CALWEDGE: One-button calibration and measurement tool includes software and target.

#### **PRODUCT DEMONSTRATIONS**

Product Demonstrations are open to all attendees. Exhibiting companies will be showcasing products in half-hour demonstrations.

	TUESDAY 16 F	FEBRUARY			
TIME	Demo Area 1 / South Hall ABC	Demo Area 2 / North Hall D			
10:30 am	Scan Head For High Speed Lasers Glenn Stutz, Lincoln Laser Co. Demo and discussion of a new scan head for high speed scanning at 200 meters per second using Ultra short pulse high speed lasers. Both line and X-Y scanning will be discussed.	COFFEE BREAK			
11:30 pm	The Latest Development in Compact Spectrometers Thomas Rasmussen, Ibsen Photonics The latest development in compact spectrometers from Ibsen Photonics.	Advanced Thermal Management Solutions: Heat Pipes, Pumped Two Phase Cooling, Corrosion Resistant ANCER™ Coating  Peter Ritt, Advanced Cooling Technologies, Inc.  The presentation will provide an explanation of the principles of selected advanced thermal technologies, including heat pipes and other thermal solutions.			
12:30 pm	1 mJ Pulsed Energy Single Frequency Fiber Laser at 1030nm Dr. Shibin Jiang, AdValue Photonics Dr. Shibin Jiang will present a 1 mJ pulse energy single frequency fiber laser at 1030nm.	Best-sled Spectrometer Yonathan Dattner, Luxmux Technology Corporation First of its kind Broad Spectrum Tunable Superluminescent Diode Spectrometer will be presented. The miniature single mode fiber coupled solution integrated with a light source will be demonstrated.			
1:30 pm	SCHOTT LG-960 - New Laser Glass for Range Finding and Cosmetics Dr. Simi George, SCHOTT North America, Inc SCHOTT LG-960 - new laser glass for range finding and cosmetics.	Low-Cost, High Frequency SWIR Cameras Herve Copin, Xenics New low-cost SWIR cameras will revolutionize laser beam profiling and semiconductor applications.			
2:30 pm	The Asphere Myths – Facts and Fiction Sabrina Matthias, asphericon, Inc. There are (too) many myths relating to aspheres. We illustrate facts and fictions and present valuable insights into latest research and manufacturing results.	Varioptic Auto Focus Liquid Lenses Frédéric LAUNE, Varioptic BU of Parrot Varioptic will show how its Arctic and Caspian products bring ultrafast and robust auto focus to machine vision, barcode readers, biometrics, medical imaging.			
3:30 pm	Photonic Professional GT - Ultra-High Precision 3D-Printing Dr. Wanyin Cui, Nanoscribe GmbH Two-photon polymerization has emerged as highest precision additive manufacturing standard for microfabrication. Design freedom, resolution and writing speed enables a broad range of new applications.	COFFEE BREAK			
4:30 pm	50W Compact Fiber Isolator Array Dr. Shibin Jiang, AdValue Photonics Dr. Shibin Jiang (AdValue Photonics) will present a 50W compact fiber isolator array.	MR303 World's First MRI Safe Linear Encoder Enables New Medical Applications Robert Rickenbach, Micronor MR303 is the world's first commercially-available MRI Safe linear position sensor system for OEM motion control applications. Enables MRI system improvements and new medical devices.			

# **PRODUCT DEMONSTRATIONS**

	WEDNESDAY 17	FEBRUARY
TIME	Demo Area 1 / South Hall ABC	Demo Area 2 / North Hall D
10:30 am	SCHOTT - Optical Glass News Dr. Ralf Jedamzik, SCHOTT North America, Inc New "Optical Glass Pocket Catalog 2016" / optical glass developments/ optical glass with highest homogeneity in large dimensions.	COFFEE BREAK
11:30 pm	SCHOTT BOROFLOAT® - The World's First Floated Borosilicate Glass - Made in Germany with IQ Thomas Kloss, SCHOTT North America, Inc SCHOTT BOROFLOAT® at material that inspires engineers, scientists and product developers around the globe through quality and performance and its availability in customized sizes and thicknesses.	MLA Maskless Aligners for Rapid Prototyping and Microfabrication  Niels Wijnaendts van Resandt, Heidelberg Instruments Inc.  Heidelberg Instruments Introduces the MLA100 and MLA150 Massless Aligner system for direct write fabrication of microstructures. This demo will review unique features, usability and exposure results.
12:30 pm	SigFit:Interfacing Mechanical Analysis with Optical Analysis Gregory J. Michels, Sigmadyne, Inc. Using SigFit to easily flow the results from finite element analyses into optical analysis will be demonstrated in order to quantify optical performance degradation due to mechanical disturbances.	The Spectrum of Material Selection Mark Middleton, Crystran Ltd As a trusted provider of novel materials and high-spec optics, from DUV to the FIR, Crystran cuts through the minefield of choice when selecting or specifying the best component to meet your needs.
1:30 pm	Beam shaping with Aspheric Components Sabrina Matthias, asphericon, Inc. Employing aspheric lenses to reduce aberrations to improve focusing qualities is a well-known concept. Remarkable properties of robust beam shaping set-ups based on aspheric components will be shown.	Fast and Reliable Focusing with TunableLenses Mark Ventura, Optotune More imaging systems then ever can now benefit from focusing in milliseconds without mechanics thanks to Optotune's new electrically focus tunable lens with 16mm clear aperture.
2:30 pm	Linear Variable Filters for Fluorescence and Hyperspectral Imaging Oliver Pust, Delta Optical Thin Film A/S Delta offers Linear Variable Bandpass Filters for mid-size and full-frame sensors. The filters offer high transmission, are fully blocked in the light sensitive wavelength range of silicon detectors.	PowerXP Compact Motorized Attenuator Laimonas Jacunskas, UAB Altechna Device attenuates free space laser beam (or pulse) continuously without introducing additional energy fluctuations. Contrast better than 3000:1 (Tp:Ts) is achieved since attenuator is mounted with hig.
3:30 pm	The Illusion of the Laws of Nature Habakuk Tibatong (AKA Prof. Dr. René Beigang), HÜBNER GmbH & Co KG These days most people can no longer distinguish between advanced technology and magic: "Good Science is like Magic." (A. C. Clark, 1973). Come and find out yourself in an unusual lecture.	COFFEE BREAK
4:30 pm	Analyze Materials in the Palm of Your Hand Using the Latest TI DLP® Near-Infrared Spectroscopy Solution Trevor Dowd, Texas Instruments Experience the TI DLP® NIRscan™ Nano, a Bluetooth®-enabled design tool for high performance, affordable portable spectrometers in the food, pharmaceutical, mobile medical, and oil & gas industries.	Recent advances in fs-Written Fiber Bragg Grating Technology Dr. Margarethe Kampling, FemtoFiberTec GmbH Femtosecond-laser-written Fiber Bragg - Gratings for Smart Sensing Solution.

# **PRODUCT DEMONSTRATIONS**

	THURSDAY 18 I	FEBRUARY
TIME	Demo Area 1 / South Hall ABC	Demo Area 2 / North Hall D
10:30 am	Manipulating Visible and NIR Laser Light Using Photonic ICs Joost van Kerkhof, XiO Photonics Manipulating visible and NIR laser light by simple, compact, robust and cost -effective optical modules using photonic integrated circuits.	COFFEE BREAK
11:30 am	New LZM-110 Series Glass Processing and Splicing System Doug Duke, AFL Fujikura and AFL introduce a family of laser-based glass processing and splicing systems. This new LZM-110 Series will offer a broad range of capabilities from splicing to component fabrication.	11:00 am to 1:00 pm  Start Up Alley  Startup Challenge Semi-Finalists  Meet with the entrepreneurs featured in the Startup Challenge as they pitch their new photonics businesses. See the prototypes and talk with the entrepreneurs to explore potential partnerships,
12:30 pm	ASAP NextGen 2016 Mary G. Turner, Ph.D., Breault Research Organization, Inc. The ASAP NextGen 2016 interface represents a major paradigm shift in how engineers work in the ASAP environment with new features that greatly enhance speed and ease of use for optical system design.	investment, or sales.
1:30 pm	Cool Running Optics: Anti-Reflection Nano-Structures Bruce MacLeod, TelAztec LLC  Description: AR nono-textures introduce NO surface absorption, yielding pulsed and CW laser damage thresholds equivalent to the bulk. No Absorption=No Heating=Less Degradation=Longer Life HEL Optics & Fibers!	New Transmission Technologies For Vision Applications John Phillips, Pleora Technologies Inc. In this demonstration, we'll show how new video transmission, compression, and wireless technologies can help deliver performance advantages and cost-saving benefits for real-time imaging systems.
2:30 pm	Precision Optical Components Industry in Taiwan & Typical Products Jason Cheng, Taiwan External Trade Development Council, TAITRA This topic introduces the situation of photonics & optics industries in Taiwan. It covers overview of Taiwan photonics industry, precision optical component applications, analysis of Taiwan optics.	UV- A, B, and C Transmitting Glass Optic for UV LED Arrays Adam Willsey, Kopp Glass This demonstration will discuss the development of a proprietary UV transmitting glass composition and a secondary linear optic that offer significant improvements to UV LED systems.
3:30 pm	Integrated Solid State Illumination for Biophotonics lain Johnson, Lumencor, Inc. Lumencor's solid state light engines are now displacing incandescent lamp light sources in many bioanalytical applications. If you are considering investing in light source modernization for your laboratory, core facility or corporate product line, this presentation will show the wide range of economic and performance benefits delivered by solid state illumination technology.	COFFEE BREAK





3...2...1...go! happy anniversary optics.org

optics.org is celebrating 20 years of online media excellence in the optics and photonics industry. Join us on the booth to say happy anniversary and sample some of the best bourbons and whiskeys around.

booth #1100

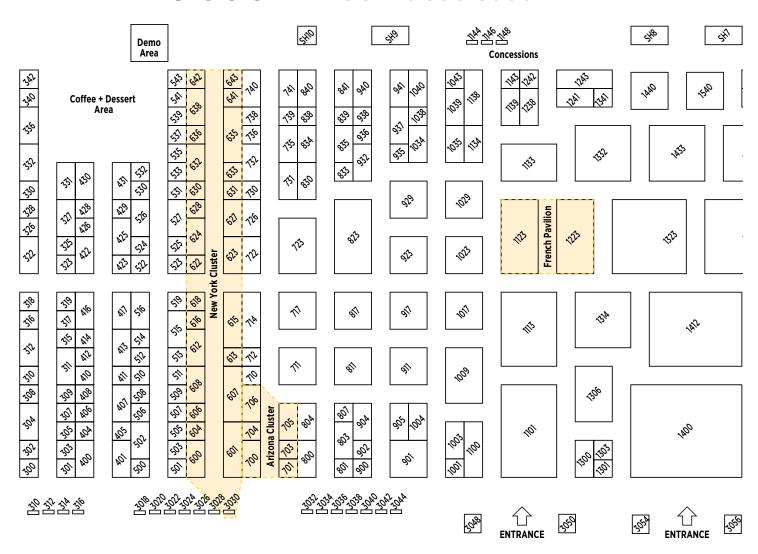




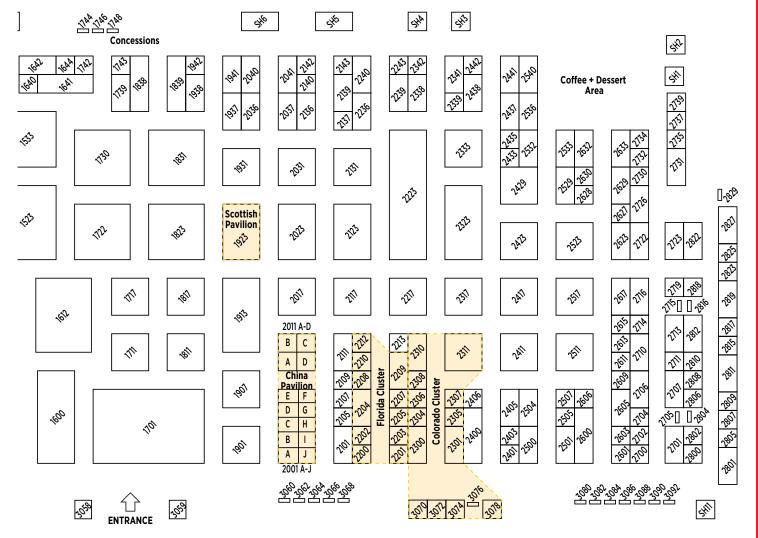
daily coverage of the optics and photonics industry and the markets that it serves

#### THE MOSCONE CENTER

# HALL ABC SOUTH BOOTHS 300-3000+







# GET A JOB.

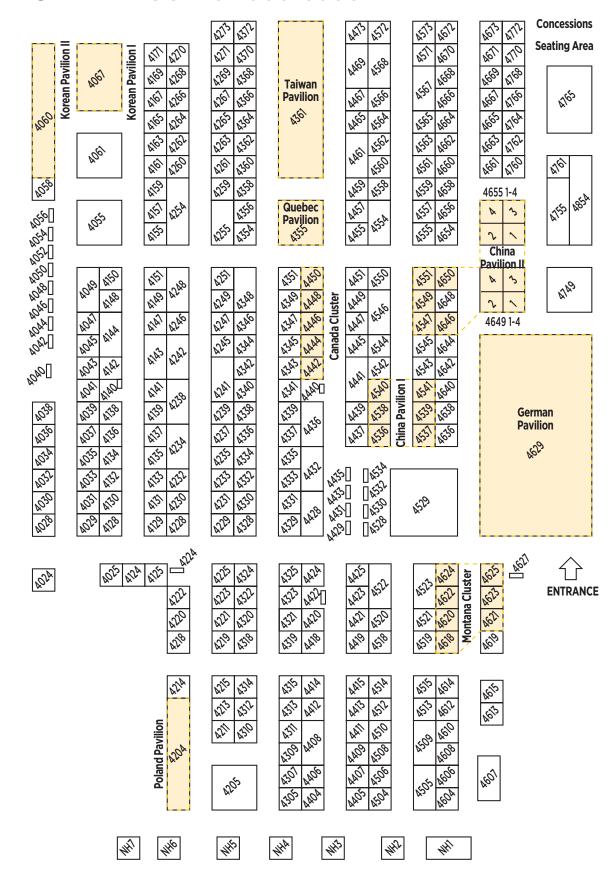
#### **SPIE Career Center Job Fair**

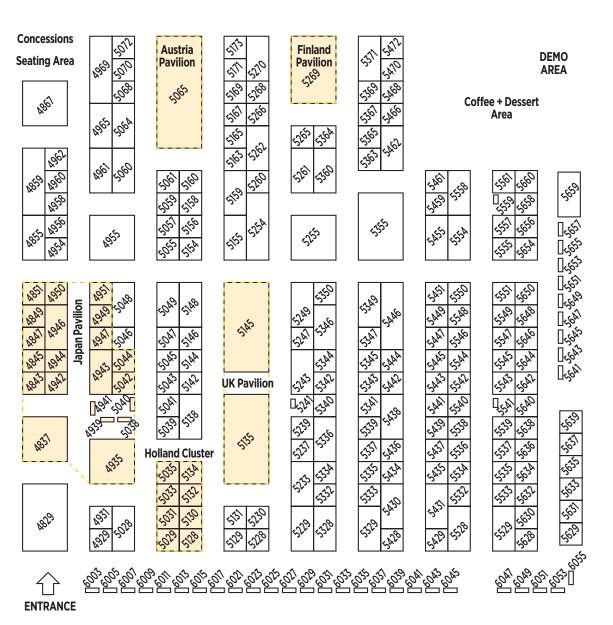
#### **TUESDAY AND WEDNESDAY, 10:00 AM TO 5:00 PM**

Talk with representatives from companies currently looking to hire Refer to page 27 for more information.

#### THE MOSCONE CENTER

# HALL D NORTH BOOTHS 4000-6000+





# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88-90 for complete times, schedules, and locations.

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Div.	300	OptiSource, LLC	410		524			·
Signar   Precision   Option	301	Photon Engineering		_				=
Inc.			411		525			,
303         Steinmeyer, Inc.         412         DCM Tech, Corp.         527         ARGES GmbH         641         Sigmadyne, Inc.           304         Optiforms         413         anapplus GmbH         530         Ferrotte (USA)         642         Glass Fab, Inc.           307         HOLO/OR Ltd.         416         Stemmerich, Inc.         531         Corp.         AdValue Photonics, Inc.           308         RAYLASE AG         417         Axsun Technologies GmbH (curamik)         422         Mindrum Precision, Inc.         533         Lattice Electro Optics, Inc.         107         Breault Research Optics Inc.         107         Porto Labs, Inc.         422         Mindrum Precision, Inc.         535         OPOTEK, Inc.         701         Breault Research Optics, Inc.         107         Porto Labs, Inc.         423         Sensor Electronic Technology, Inc.         425         Nano Serbicology, Inc.         425         Nano Serbicology, Inc.         426         Art photonics GmbH         430         Exalos AG         430	302		411		526	<del>-</del> •	638	
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<ul> <li>Wasatch Photonics, Inc.</li> <li>Advanced Photonix, Inc.</li> <li>Laser-Export Co. Ltd.</li> <li>Laser-Export Co. Ltd.</li> <li>MIKROP AG</li> <li>The Roditi International Corporation Ltd.</li> <li>Yamaju Ceramics Co., Ltd.</li> <li>QPhotonics, LLC</li> <li>QPhotonics, LLC</li> <li>Wasatch Photonics, Inc.</li> <li>Laser-Compact Co. Ltd.</li> <li>Bristol Instruments, Inc.</li> <li>Bristol Instruments, Inc.</li> <li>Bristol Instruments, Inc.</li> <li>G28 Imaging Solutions Group</li> <li>G30 Critical Link, LLC</li> <li>G31 Swift Glass, Inc.</li> <li>Wasatch Photonics</li> <li>G44 JML Optical Industries, LLC</li> <li>G45 Instruments, Inc.</li> <li>G46 Since Inc.</li> <li>G47 Bristol Instruments, Inc.</li> <li>G48 Imaging Solutions Group</li> <li>G50 Critical Link, LLC</li> <li>G51 Swift Glass, Inc.</li> <li>G51 Intlyac</li> <li>G51 Swift Glass, Inc.</li> <li>G52 Intlyac</li> <li>G53 Empire Precision Plastic</li> <li>G53 Empire Precision Plastic</li> <li>G54 Deposition Sciences, Inc.</li> <li>G55 ASE Optics</li> </ul>		•					723	Market Tech, Inc.
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401 Advanced Photonix, Inc.  404 Laser Materials Corp. 404 The Roditi International Corporation Ltd. 404 Yamaju Ceramics Co., Ltd. 405 QPhotonics, LLC 406 Kiyohara Optics USA  512 Laser-Export Co. Ltd. 513 MIKROP AG 514 Suend Precision Optics Ltd. 515 Raptor Photonics Ltd. 516 Prior Scientific Inc. 517 Bristol Instruments, Inc. 627 Bristol Instruments, Inc. 628 Imaging Solutions Group 630 Critical Link, LLC 631 Swift Glass, Inc. 632 Intlvac 633 Empire Precision Plastic 634 Photonics 635 ASE Optics 635 ASE Optics 636 WYAW Optic AG	400		312		624			•
Inc.	401	Advanced Photonix,	512	Laser-Export Co. Ltd.	627		723	
404 Laser Materials Corp. 404 The Roditi International Corporation Ltd. 404 Yamaju Ceramics Co., Ltd. 405 QPhotonics, LLC 406 Kiyohara Optics USA 404 Laser Materials Corp. 513 Zuend Precision Optics Ltd. 514 GAM Laser Inc. 630 Critical Link, LLC 631 Swift Glass, Inc. 632 Intlvac 633 Empire Precision Plastic 635 ASE Optics 636 Drior Sciences, Inc. 637 Teem Photonics 728 Xiton Photonics 638 Imaging Solutions Group 630 Critical Link, LLC 631 Swift Glass, Inc. 632 Intlvac 633 Empire Precision Plastic 635 ASE Optics 636 Ocritical Link, LLC 637 Swift Glass, Inc. 638 Imaging Solutions Group 630 Critical Link, LLC 631 Swift Glass, Inc. 632 Intlvac 633 Empire Precision Plastic 635 ASE Optics		Inc.	513	MIKROP AG				
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407 ML Optic Corp. 731 WZW-Optic AG	406	Kiyohara Optics USA	522		635		774	
	407	ML Optic Corp.				P	/31	vv∠vv-∪ptic AG

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739	VisiMax Technologies, Inc.	1023	Inc.	1133	TRIOPTICS	1332	Continuum
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811, 4854	PicoQuant Photonics	1009	OFS		PERFOS		Gratings/A Newport
817	Innovative Photonic	1017	PCO-TECH Inc.		Photonics Bretagne	1400	Company Spectra-Physics/A
017	Solutions	1029	PD-LD, Inc.	1223-D	New Imaging Technologies	1400	Newport Company
823	Texas Instruments	1034	Avo Photonics, Inc.	1223-E	<u> </u>	1412	Hamamatsu Corp.
	DLP	1035	Berliner Glas KGaA	1223-F	BORDEAUX ROUTE	1433	Zygo Corporation
830	Optics Balzers		Herbert Kubatz GmbH & Co.		DES LASERS	1440	Laser Quantum USA
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	USA, LLC		KG		NeTHIS	1533 1533	Light Conversion Standa
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840 841	Schneider Optics, Inc. New Source	1100 1100	optics.org SPIE Career Center	1238	LASOS Lasertechnik	1540	Beijing Scitlion
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900	Agilent Technologies		Sponsorship Sales	1241	Sill Optics GmbH & Co. KG	1540	Beijing TRANS Manufacture and
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904,	Photonics Spectra,	1113	IDEX Health & Science	1301	NoIR LaserShields	1641	Laser Focus World
905	a Photonics Media	1113	Melles Griot	1303	New England Photoconductor Corp.	1642	Foreal Spectrum, Inc.
011	Publication	1113	Semrock	1306	Northrop Grumman	1644	GAMDAN Optics
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923	Lee Laser, A Rofin	1223			Optronics	1717	Inc.
	Company	1123-A		1306	Northrop Grumman SYNOPTICS	1717	Pixelteq, Inc.
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923	ROFIN-Sinar, Inc.	1123-C	Bertin Technologies		America, Inc.		

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	Corporation	1938	Stanford Research	2031	Spica Technologies,	2209	Vitron GmbH
1739	Inrad Optics		Systems, Inc.		Inc.	2210	Quality Thin Films,
1742	Oxide Corporation	1941	Moore Nanotechnology	2031	TwinStar Optics & Coatings, Inc	2010	Inc.
1743	ICA Corp.		Systems, LLC	2036	Daheng New Epoch	2212	Tower Optical Corp.
1744 1746	Optics for Hire Pacific PAC	1942	Zeon Chemicals L.P.		Technology, Inc.	2213 2213	Optec S.p.A. Tecnottica Consonni
1/46	Technologies, Inc.	2001,	CIEC Overseas	2037	United Lens Co., Inc.	2213	Srl
1748	NRD - Advanced	2011	Exhibition Co., Ltd.	2040	Precision Optical	2217	IMRA America. Inc.
	Static Control	2001-A	Nantong Guoguang Optical Glass Co., Ltd.	2041	StellarNet, Inc.	2223	II-VI Incorporated
1811	Acton Optics &	2001-P	Filtech Photonics Co.,	2101	Veeco Instruments	2236	Siskiyou Corporation
	Coatings	2001-6	Ltd.		Inc.	2239	DataRay Inc.
1811	Princeton Instruments	2001-C	Beijing Jiepu Trend	2105	Brimrose Corp. of America	2240	Shanghai Optics Inc.
1817	Axiom Optics		Technology Co., Ltd.	2107	Gel-Pak	2243	Abrisa Technologies
1817	Cristal Laser S.A.	2001-D	HG Optronics, Inc.	2109	Advanced Microoptic	2300	Meadowlark Optics,
1817 1817	Fastlite Imagine Optic Inc.	2001-E	Beijing Golden Way		Systems GmbH		Inc.
1817	STIL	2001 5	Scientific Co., Ltd.	2111	Aerotech, Inc.	2301	Kapteyn-Murnane Labs., Inc.
1823	JENOPTIK I Optical		Innowit Co., Ltd.	2117	OSI Laser Diode, Inc.	2304	Tech-X Corp.
1023	Systems	2001-6	Crystrong Photoelectric	2117	OSI Optoelectronics	2305	Virtual Industries, Inc.
1823	JENOPTIK Laser		Technology Co., Ltd.	2123	Quantel Laser	2306	Colorado Photonics
	GmbH	2001-H	ChengDu JUKA	2131	Optikos Corporation	2300	Industry Association
1823	JENOPTIK Optical		Optical Component Factory	2136	Omega Optical, Inc.	2307	Perkins Precision
1071	Systems, LLC	2001-1	Lingbao Shenghe	2137	Molex - Polymicro		Developments, LLC
1831	Gooch & Housego (Orlando)	20011	Optical Glass Material	2139	Technologies™	2308	Paradigm Research Optics
1831	Gooch & Housego		Co., Ltd.	2139	Hinds Instruments, Inc.	2310	ALIO Industries
	PLC	2001-J	Shanghai Jingding	2140	OPCO Laboratory,	2310	Avantes, Inc.
1838,	HORIBA		O&E Technology Co., Ltd.		Inc.	2317	Next Scan Technology
1839	Scientific	2011-A	Dayoptics, Inc.	2142	Sinclair Manufacturing	2317	SCANLAB America,
1901	Photonics Industries International, Inc.		Sino-Galvo (Beijing)	2147	Co.		Inc.
1907	Hellma USA, Inc.		Technology Co., Ltd.	2143	Valley Design Corp.	2323	AMETEK Electronic
1913	Cambridge	2011-C	Shenyang Academy	2200 2201	Open Photonics, Inc. Analog Modules, Inc.		Packaging &
	Technology		of Instrumentation Science	2201	E.R. Precision Optical	2323	Components AMETEK, Inc.
1913	Lincoln Laser Co.	2011-D	Giai Photonics Co.,	2202	Corp.	2323	Precitech
1913	Synrad		Ltd.	2203	Tecport Optics, Inc.	2323	Signal Recovery
1923	Chromacity Ltd	2017	Lumentum	2204	CREOL/UCF	2323	Solartron Analytical
1923	Forth Dimension		Operations LLC	2204	Florida Photonics	2323	Taylor Hobson
1027	Displays Ltd.	2023	CODIXX AG		Cluster	2323	TMC
1923	Fraunhofer UK Research Ltd.	2023	Laser Components Canada	2204	ICAMR - International Consortium	2323	Vision Research
1923	Helia Photonics Ltd.	2023	Laser Components		for Advanced	2333	MPB Communications
1923	Kelvin		DG, Inc.		Manufacturing		Inc.
	Nanotechnology	2023	Laser Components		Research	2338	LEONI Fiber Optics,
1923	Optocap Ltd.		GmbH	2205	OptiGrate Corp.	2339	Inc. Thermo Scientific -
1923	Pyreos Ltd.	2023	Laser Components	2207	Infrared Systems Development Corp.	2339	CIDTEC
1923	Scottish Pavilion (SCS	2023	Pyro Group, Inc. Laser Components	2208	LASORB - A division	2341	ISP Optics Corp.
1923	Exhibition) Umicore Coating	2023	USA, Inc.	====	of Pangolin Laser	2342	Micron Optics, Inc.
1323	Services	2023,	Lumics GmbH		Systems, Inc.	2400	Heraeus Tenevo LLC
1923	Uniklasers Ltd.	4629		2209	Cimcoop	2401	Viavi Solutions Inc.

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2511,	RPMC Lasers,
2613 2517	Inc.
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	Photonics AG
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	Inc.	
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2633	Umicore Thin Film Products	
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2701	Leybold Optics USA, Inc.	
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2702 2704 2705 2706 2707 2710	Inc.  LASERTEC INC  Electro Optics  Hangzhou Freqcontrol Electronic Technology Ltd.  TeraXion Inc.  Hardin Optical Acktar Ltd.	
2702 2704 2705 2706 2707	Inc.  LASERTEC INC  Electro Optics  Hangzhou  Freqcontrol Electronic  Technology Ltd.  TeraXion Inc.  Hardin Optical	
2702 2704 2705 2706 2707 2710 2711	Inc.  LASERTEC INC  Electro Optics  Hangzhou Freqcontrol Electronic Technology Ltd.  TeraXion Inc.  Hardin Optical  Acktar Ltd.  SUSS MicroOptics SA	
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2702 2704 2705 2706 2707 2710 2711 2713 2714 2715	Inc.  LASERTEC INC  Electro Optics  Hangzhou Freqcontrol Electronic Technology Ltd.  TeraXion Inc.  Hardin Optical Acktar Ltd.  SUSS MicroOptics SA Fibercore Ltd.  Luvantix SSCP  MEMS & Nanotechnology Exchange	
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2702 2704 2705 2706 2707 2710 2711 2713 2714 2715 2716 2719	Inc.  LASERTEC INC  Electro Optics  Hangzhou Freqcontrol Electronic Technology Ltd.  TeraXion Inc.  Hardin Optical  Acktar Ltd.  SUSS MicroOptics SA Fibercore Ltd.  Luvantix SSCP  MEMS & Nanotechnology Exchange  CASIX, Inc.  Spectrum Scientific, Inc.  CorActive High-Tech	
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2702 2704 2705 2706 2707 2710 2711 2713 2714 2715 2716 2719 2722	Inc.  LASERTEC INC  Electro Optics  Hangzhou Freqcontrol Electronic Technology Ltd.  TeraXion Inc.  Hardin Optical Acktar Ltd.  SUSS MicroOptics SA Fibercore Ltd.  Luvantix SSCP  MEMS & Nanotechnology Exchange CASIX, Inc.  Spectrum Scientific, Inc.  CorActive High-Tech Inc.  Nutfield Technology	
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2804	Nanjing Creator	3038	Star Tech Instruments Inc	4035	Sensofar USA	4133	Fuzhou Hundreds
	Optics Co., Ltd.	3040	R. Mathews Optical	4036	Stettler Sapphire AG	417.4	Optics Inc.
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2806	AGM Container	3042	Epner Technology Inc.	4038	METROLOGY ATV Technologie	4135	Guild Optical Associates, Inc.
	Controls, Inc.	3044	Daco Instrument Co.	4036	GmbH	4136	Jiangsu Yudi Optical
2807	HJ3-W Inc.	3048	Reynard Corp.	4039	YY Labs., Inc.		Instrument Co., Ltd.
2808	Microtech Instruments, Inc.	3050	ThermoTek, Inc.	4040	Opto-Line		Tongzhou Branch
2809	Pantec Engineering	3054	Solid State Cooling		International, Inc.	4137	FIBERCRYST S.A.S.
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2815	M3 Measurement	3062	Anson Optical	4044	Pure Photonics Kugler of America	4141	Evatec NA Inc.
	Solutions	3002	Products Co., Ltd.	4045	Ltd.	4142	Metrue, Inc.
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2817	Yangtze Optical Fibre and Cable(YOFC)	3066	Kaufman & Robinson, Inc.	4047	SMC Corporation of America	4144 4147	IMEC
2818	Quartus Engineering	3068	Laser Institute of	4048	Allied Scientific Pro	4148	VI Systems Coining, Inc.
	Inc.	3000	America	4049	Shimadzu Corp.	4149	Intane Optics
2819	Nichia America Corp.	3070	Kimmon Koha USA,	4050	Simphotek Inc.	4150	Caeleste Image
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2017

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LASE—Lasers and Sources
OPTO—Optoelectronic Devices
Green Photonics
3D Printing
Industry Panels and Keynotes

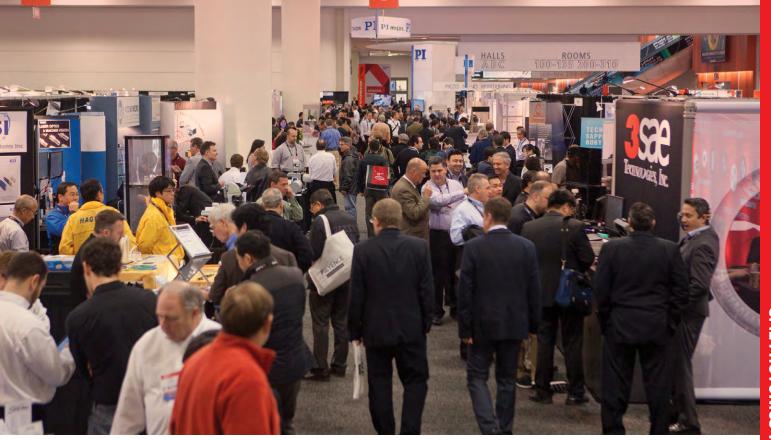
WWW.SPIE.ORG/PW2017

The Moscone Center San Francisco, California, USA

Conferences & Courses 28 January - 2 February 2017

Photonics West Exhibition 31 January-2 February 2017

BiOS EXPO 28-29 January 2017



### **SPIE Photonics West Exhibition Directory**

SPIE Photonics West exhibitors are listed in alphabetical order with details about products or services each is exhibiting. Companies are additionally cross-indexed by technology areas. The address of each exhibitor is also listed, making this Exhibition Guide an excellent reference tool to take back to your office and share with your colleagues.

#### **3SAE Technologies, Inc.**

SPIE Corporate

318 Seaboard Ln Ste 212, Franklin, TN, 37067-8289 USA +1 615 778 8812; fax +1 615 778 8816 sales@3sae.com; www.3sae.com

#### Featured Product: Combiner Manufacturing System - Production level repeatability for complex glass processing

3SAE Technologies Inc., headquartered in Franklin, Tennessee, is a company with a focus and expertise in developing new fiber optic tools and technologies for optical fiber fusion splicing, glass processing and related applications. Contact: Sam Barker, info@3sae.com

#### **4D Technology Corp.**

SPIE Corporate Member

#4969

#705

3280 E Hemisphere Loop Ste 146, Tucson, AZ, 85706-5024 USA +1 520 294 5600; fax +1 520 294 5601 info@4dtechnology.com; www.4dtechnology.com

#### Featured Product: NanoCam SQ Dynamic Surface Profiler for vibration-immune surface roughness measurement

4D Technology designs and manufactures dynamic laser interferometers, optical profilers and polarization cameras for non-contact metrology of optical quality surfaces, even in the presence of vibration and turbulence. 4D systems provide high resolution acquisition of phase data in as little as 1microsec, at wavelengths from DUV through NIR. Applications include: astronomy, aerospace, general optics, flexible electronics, displays and more. Contact: Jack Latchinian, West Coast Region Manager, jack.latchinian@4dtechnology.com; Stephen Martinek, Director of Worldwide Sales, steve.martinek@4dtechnology.com

#### PLAN TO ATTEND FREE EXHIBITOR **PRODUCT DEMONSTRATIONS**

Refer to page 88-90 for complete times, schedules, and locations.

**AASA** #1123-A

18 rue Nicolas Appert, Orsay Cedex, 91400 France +33 1 7691 5012; fax +33 1 7691 5031 sales@a-a.fr; www.aaoptoelectronic.com

#### Featured Product: Acoustic-optic devices and associated RF drivers

AA Opto-Electronic proposes one of the most complete range of standard acousto-optic components covering wavelengths from 180 nm to 11 µm. Associated RF drivers are based on fixed and variable frequency sources and powers are up to 120 Watts. Modulators, pulse pickers, frequency shifters, deflectors, tunable filters, fibre pigtailed devices, Q-switches, polychromatic modulators. Frequency sources: quartz, VCO, DDS. Power amplifiers. Custom designs. Contact: Franck DARDE, Sales Director, franck.darde@group-aa. com; Ricky BEEHAREE, Sales Engineer, ricky.beeharee@a-a.fr

#### abariscan GmbH

#4629

Parkring 37, Garching Muenchen, 85748 Germany +49 151 46122131; fax +49 892 00046899 info@abariscan.com; www.abariscan.com

#### Featured Product: Galvanometer Motors, 2D Scan Heads, Scanning Mirrors, Silicon Carbide Mirrors, 2D Scanning Mirror

abariscan manufactures and distributes laser scanning solutions for OEM integrators for applications in laser processing and biomedical instrumentation. abariscan has partnered with Citizen Chiba to develop a line high performance galvanometers and has developed their own hybrid drivers and SiC mirrors for the ultimate in performance and value. Services and customized products exactly optimized to customer specific applications are available. Contact us at either our German or U.S. offices. Contact: Steven Krusemark. President, s.krusemark@abariscan.com; Manfred Augustin, Managing Director, m.augustin@abairscan.com

#### **Abrisa Technologies**

#2243

SPIE Corporate

200 S Hallock Dr. Santa Paula, CA, 93060-9646 USA +1 877 622 7472: fax +1 805 525 8604

info@abrisatechnologies.com; abrisatechnologies.com

#### Featured Product: CleanVue™ PRO, abrasion resistant oleo/ hydrophobic coating repels dirt, dust, water, grease and oil.

Abrisa Technologies provides high quality flat optics for prototype and large scale OEM production quantities. Our capabilities include custom glass fabrication, precision thin film coating, fabrication, cutting, edging, machining, strengthening, screen printing, etching, grinding and more. Coatings: AR, ITO and IMITO, hot and cold mirrors, UV blocking filters, dichroics and colored filters, beam splitters, IR coatings, wavelength selection filters. Wide variety of glass substrates/thin glass. Contact: Lisa Tsufura, Product Manager, Itsufura@abrisatechnologies.com; Jacky Vel, VP Sales & Marketing, jvel@abrisatechnologies.com

#### AC Photonics, Inc.

#5549

2701 Northwestern Pkwy, Santa Clara, CA, 95051-0947 USA +1 408 986 9838: fax +1 408 986 0188 sales@acphotonics.com; www.acphotonics.com

#### Featured Product: Fiber Optic Components & Modules.

AC Photonics is an OEM for a wide variety of Fiber Optic Components and Integrated Modules. These products include: DWDM, CWDM, MWDM, FTTx, AWG, Hybrids, GFF, PM Products, Circulators, Isolators, WDM, Couplers/Splitters, PLC Splitters, Switches, Photodiodes, Tap-Photodiodes, VOAs, Modulators, Collimators, Patchcords, etc. AC Photonics' key advantages are high quality performance, excellent service, short lead-times, and aggressive pricing. Contact: Steve Becker, Vice President/Sales & Marketing, steveb@acphotonics.com

#### Access Laser Co.

#2605

SPIE Corporate

917 134th St SW Unit A-1, Everett, WA, 98204-9377 USA +1 425 582 8674: fax +1 425 582 8679

sales@accesslaser.com: www.accesslaser.com

#### Featured Product: RF excited CO2 and CO lasers

Access Laser specializes in RF excited CO2 and CO lasers with wavelength ranges from 9-12 microns and 5-6 microns and low to medium power from 400mW to 50W CW with peak powers up to 120W. Configuration options include high stability in both power and wavelength; Q-switching up to 1kW with speeds in the hundreds of nanoseconds; grating tuning and isotope gas mixtures extending the wavelength ranges available. We take pride in working with our clients to custom build lasers to meet their needs. Contact: Tim Killeen, Sales Manager, tkilleen@accesslaser.com; Holly Dugan, Sales and Service Coordinator, sales@accesslaser.com

#### **Access Optics LLC**

#5060

SPIE Corporate Member

2201 N Maple Avenue, Broken Arrow, OK, 74012 USA +1 918 294 1234: fax +1 918 294 1236

info@accessoptics.com; www.accessoptics.com

#### Featured Product: Micro Optics, Endoscopy Devices, Metalized Windows, Hermetic Sub-assemblies and Glass-to-Metal Seals.

Access Optics manufactures micron-tolerance precision optical components; conventional sizes to miniature optics including prisms, lenses, cylindrical/ball lenses, as well as high temperature optical filters and high performance, thin-film coatings. We also offer metalized windows, hermetic sub-assemblies, and glass-tometal seals along with complete medical imaging devices. Contact: Jared Seay, Physicist, info@accessoptics.com; Scot Sumner, Optics Fabrication Manager, info@accessoptics.com

#### AccuCoat Inc.

#643

111 Humboldt St Ste 8, Rochester, NY, 14609 USA +1 585 288 2330: fax +1 585 288 2331

alan@accucoatinc.com; www.accucoatinc.com

AccuCoat Inc. is a supplier of thin film coatings on plastic, metal, glass and a variety of other components. We produce a wide variety of antireflective, beam-splitter, hot and cold mirror, ITO, filter and metallic coatings as well as custom coatings to meet your dynamic applications. Experienced in handling prototype through OEM volumes. Coatings available from the UV to the NIR. Over 60 years combined engineering experience can provide custom designed solutions. Contact: Alan Parsons, Sales Manager, alan@accucoatinc.

#### #336 Accumold

1711 SE Oralabor Rd, Ankeny, IA, 50021 USA +1 515 964 5741; fax +1 515 964 5742 micromolding@accumold.com; www.accu-mold.com

#### Featured Product: Micro Molding Services: Micro Optics, Medical or Micro Electronic Applications.

Accumold® is a high-tech manufacturer of precision micro, small and lead frame injection molded plastic components. Utilizing processes developed from our Micro-Mold® technology, we design, build and produce unique molds and parts efficiently for markets that include Micro Electronics, Medical, Micro Optics, Automotive, and Military Applications. Contact: Rick Brown, Sales - Optics Applications, rbrown@accu-mold.com; Aaron Johnson, Sales, ajohnson@accu-mold.com





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SPIE. PHOTONICS
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#### Acktar Ltd.

#2710

#5646

SPIE Corporate Member

1 Leshem St Entrance A, Kiryat-Gat, 8258401 Israel +1 972 8 681 4213; fax +1 972 8 681 0198 customer-support@acktar.com; www.acktar.com

### Featured Product: Super Black SWIR-MWIR Nano-Tube Like Coating.

Acktar is a world leader in the industrial light absorption technology. Our antireflection super black material delivers 1% hemispherical reflectance across DUV, VIS, NIR, SWIR, MWIR and LWIR. Acktar coatings are space qualified, vacuum- and clean-room compatible. Acktar offers both coating service of discrete opto-mechanical components and coated foil products for self-application by the customers. Available at the company's on-line store and in Edmund Optics catalogue. Contact: Dina Katsir, CTO/R&D Manager, customer-support@acktar.com

#### **Acreo Swedish ICT**

#5355

Håstaholmen 4, FiberLab, Hudiksvall, 824 42 Sweden +46 10 522 00 30

www.acreo.se

### Featured Product: Custom specialty optical fiber products: microstructured, doped cores, carbon & high temp. coatings.

Research and innovation partner for fiber optics and photonics. Acreo Swedish ICT is your R&D partner for photonics and fiber optic technologies, with expertise ranging from the design and manufacturing of specialty optical fibers and optical fiber sensors to the industrial implementation of photonics solutions. We partner with academia and industries to develop cutting-edge solutions for industrial needs. Contact: Åsa Claesson, Department manager, asa.claesson@acreo.se

#### **Acton Optics & Coatings**

#1811

15 Discovery Way, Div of Princeton Instruments, Acton, MA, 01720-4482 USA

+1 978 263 3584; fax +1 978 263 5086 info@actonoptics.com; www.actonoptics.com

### Featured Product: New UV-enhanced Silver Coatings – UV reflectivity with high broadband VIS-MIR reflectance.

Acton Research optics and coatings have been the standard in high performance UV optics since 1961. Acton Optics and Coatings continues the tradition providing the highest performing optical components and optical sub-assemblies available to a diverse array of industries, including the medical, semiconductor, materials processing, analytic instrumentation, aerospace and defense markets. Products include UV beam-turning mirrors, VUV/UV optical filters and  $AIMgF_2$  high reflectance coatings. Contact: Joanne Choi, Sales Engineer, jchoi@actonoptics.com; Jim Diamond, Business Manager, jdiamond@actonoptics.com

#### **SPIE INDUSTRY EVENTS**

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Free Seminars—open to all exhibitors, exhibition visitors, and conference attendees *Refer to pages 20–29.* 

2372 Walsh Ave, Santa Clara, CA, 95051 USA +1 408 753 5115; fax +1 408 753 5116

sales@act-vision.com; www.act-vision.com

### Featured Product: HybridMeasure is a cost-effective SW package that adds metrology capabilities to microscopy systems.

ACT-Vision is a distributor of both microscopy hardware and software solutions. We offer microscope cameras, both color and monochrome, in a variety of resolutions, high-color rendering LED lighting including ring lights and high-intensity sources, and metrology software packages with a vast array of analysis utilities. With our products you can greatly expand the imaging capabilities of your microscopy system. We look forward to supplying you with a system that meets your needs. Contact: Sam Pollock, Sales Engineer, sam.pollock@act-vision.com; Hitomi Ueno, Finance and Customer Support Supervisor, hitomi.ueno@act-vision.com

#### Adamant Co., Ltd.

**ACT-Vision** 

#5657

16-7 Shinden 1-Chome, Adachi-ku, Tokyo, 123-8595 Japan +81 33 919 1171; fax +81 33 913 3434 info@adamant.jp; www.adamant.jp

### Featured Product: 2D Fiber Array, 2D Collimator Array, 1 x N x M Optical Switch Module, and Custom Designed LD Module.

Adamant is a cutting edge optical device manufacturer, working on high precision processing for over 60 years and on fiber optics development for over 40 years. Employing design, development, and production elements useful for all product structures, Adamant uses their own internally designed equipment and tools to provide: optical designing and simulation, prototype sampling, and pre-production and mass-production capabilities. Contact: Soichi Masaki, Marketing Manager, masaki@adamant.co.jp; Mas Caccavale, General Manager of AAI, mas@adamant-kogyo.com

#### ADE, Inc.

#4667

1430 E 130th St, Chicago, IL, 60633-2399 USA +1 773 646 3400; fax +1 773 646 3919 info@ade-usa.com; www.ade-usa.com

### Featured Product: Crystalair\* Compression Packs - Transparent protection for valuable surface-sensitive products.

For over 35 years, ADE has been committed to designing, developing, and efficiently producing protective packages and packaging materials. In 1980, we started with just one patented packaging material that was designed to only protect lightweight, fragile products. Now, with seven unique packaging technologies, we produce packages for products as small as micro-optics and as large as one-hundred-pound flat screen televisions. Contact: Mike Marino, Sales Manager; Jason Lofgren, President

#### Adimec Advanced Image Systems by #4238

SPIE Corporate Member

245 North St, Stoneham, MA, 02180 USA +1 781 279 0770; fax +1 781 279 2275 salesus@adimec.us; www.adimec.com

### Featured Product: Quartz Q-2A750/CXP and Sapphire S-25A80/CXP cameras

Adimec specializes in the development and manufacturing of high-performance cameras that meet the application-specific requirements of key market segments, including machine vision, medical, and outdoor imaging. The unique Adimec True Accurate Imaging technology and diverse line of camera products meet a wide range of performance, size, cost, interface and application requirements. Adimec's worldwide offices focus on creating customer value and satisfaction through local, personalized support. Contact: David Northup, Business Director, dnorthup@adimec.us; Marcel Dijkema, Strategic Marketing Manager, mdijkema@adimec.com

**ADIT Electron Tubes** 

#539

300 Crane St. Sweetwater, TX, 79556-0870 USA +1 800 399 4557; fax +1 325 235 2872 sales@electrontubes.com; www.electrontubes.com

#### Featured Product: Detector modules with compact photomultiplier tubes, power supplies, signal processing electronics.

ADIT Electron Tubes designs and manufactures photomultiplier tubes, detector modules, housings, and voltage dividers. Photomultipliers are available in diameters from 1/2" to 11". Special tubes are available for use at cryogenic temperatures and with ultralow radioactivity glass for high energy physics and cosmic ray physics experiments. Ruggedized tubes are available for oil well logging and space flight applications. We welcome your inquiry for special tubes for non-standard applications. Contact: Paul Davison, Sales Manager, paul@electrontubes.com; Graham Sperrin, European Sales Manager, grahamsperrin@et-enterprises.com

Exhibition Map, Featured Exhibitor, Floor Plan Logo, General Sponsor

Admesy B.V.

#5134

SPIE Corporate

Branskamp 5, Ittervoort, 6014 CB Netherlands +31 475 600232; fax +31 475 600316 info@admesy.nl; www.admesy.com

#### Featured Product: Cronus spectro-colorimeter, Atlas 2D spectral vision system, Hera Spectrometer.

Admesy offers a broad range of test and measurement instruments focused on colour and light measurements during development and in inline production process environments. Main markets are the development and production of: (Mobile) displays, LED panels, LED. SSL and several other high tech industries. Product range includes: spectrometers, 2D spectral vision systems, colorimeters and stabilised light sources. Contact: Steven Goetstouwers, CEO

#### AdTech Ceramics

#5142

SPIE Corporate

511 Manufacturers Way, Chattanooga, TN, 37405 USA +1 423 755 5400; fax +1 423 755 5438

sales.department@adtechceramics.com; www.adtechceramics.com

#### Featured Product: HTCC alumina and aluminum nitride electronic packages

AdTech Ceramics offers a full line of multilayer co-fired ceramic packages for electronic applications. With a fully integrated manufacturing facility located in Chattanooga, Tennessee and over 45 years of experience producing high temperature co-fire ceramics (HTCC), we are ideally positioned to take on the most challenging packaging designs. Additionally, our injection molding operation allows for the economical production of complex ceramic components. Contact: Douglas Brown, Director of Sales and Marketing, douglas.brown@adtechceramics.com; Bill Minehan. General Manager, bill.minehan@adtechceramics.com

#### AdTech Optics, Inc.

#4325

SPIE Corporate

18007 Cortney Ct, City of Industry, CA, 91748-1203 USA +1 626 956 1000: fax +1 626 810 0259 sales@atoptics.com: www.atoptics.com

#### Featured Product: Quantum Cascade Lasers.

AdTech Optics designs, engineers, and manufactures mid-IR semiconductor lasers based on Quantum Cascade technology. Home to a respected team of dedicated engineers and scientists, AdTech has partnered with the world's leading academic institutions and has contributed to the scientific development of the emerging Quantum Cascade (QC) technology with numerous "firsts and bests" in laser design and manufacturing, setting unprecedented performance milestones. Contact: Mariano Troccoli. Director. mariano.troccoli@atoptics.com; Charles Luu, Engineer, charles.luu@ atoptics.com

#### AdValue Photonics, Inc.

#700

SPIE Corporate Member

3440 E. Britannia Drive #190. Tucson, AZ, 85706 USA +1 520 790 5468: fax +1 520 790 1158

contact@advaluephotonics.com; www.advaluephotonics.com

Located in Tucson, Arizona, AdValue Photonics is focused on being the worldwide leading developer and manufacturer of high quality, innovative, cost-effective fiber lasers, fiber amplifiers, fiber-based broadband light sources, and optical fiber passive components. Our current products in the 2 micron wavelength region have provided new capabilities and opportunities to our customers for LIDAR, sensing, spectroscopy, mid-IR generation, material processing, and medical applications. Contact: contact@advaluephotonics.com; sales@advaluephotonics.com

#### **Advance Reproductions Corp.**

#4413

SPIE Corporate

100 Flagship Dr, North Andover, MA, 01845-6117 USA +1 978 685 2911; fax +1 978 685 1771 sales@advancerepro.com; www.advancerepro.com

#### Featured Product: Photomasks

Advance Reproductions is a leading supplier of high-quality large-area and optical photomasks and photo-tools. Advance is an ISO 9001 and ITAR registered company. We support manufacturers throughout the world involved in the manufacturing of semiconductor, hybrid, microwave, nano-technology, medical and electronic packaging devices. Advance Reproductions provides solutions and custom manufacturing services for research and development, custom shaped substrates and engineered tooling. Contact: Don Robinson, Director of Business Development, d.robinson@advancerepro.com

#### Advanced Abrasives Corp.

#4572

SPIE Corporate

7980 National Hwv. Pennsauken, NJ, 08110 USA +1 856 665 9300: fax +1 856 488 1815 www.advancedabrasives.com

Contact: Andrew Seligman

### Advanced Cooling Technologies, Inc.

#4960

SPIE Corporate Member

1046 New Holland Ave, Lancaster, PA, 17601-5606 USA +1 717 295 6061; fax +1 717 295 6064 info@1-ACT.com: www.1-act.com

### Featured Product: Cooling solutions for LED and laser applications

Advanced Cooling Technologies, Inc. (ACT) is a premier thermal management solutions company. We serve customers in diverse markets including aerospace, electronics, HVAC and energy recovery, LED thermal management and temperature calibration and control. Our highly engineered products include heat pipes, heat exchangers and cold plates. Contact: Peter Ritt, VP Technical Services, peter.ritt@1-act.com; Amanda Hershey, Marketing Coordinator, amanda.hershey@1-act.com

#### **Exhibition Map Sponsor**

### Advanced Fiber Resources (Zhuhai) Ltd.

#4648

SPIE Corporate

2/F, B-5, Southern Software Park, Tangjia, Zhuhai, Guangdong, 519080 China

+86 756 389 8088; fax +86 756 389 8080 sales@fiber-resources.com: www.fiber-resources.com

### Featured Product: Optic isolators over 405–2100 nm wavelength range

AFR is a leading provider of passive optical components for telecommunication, fiber laser and fiber sensor applications. We are a government certified high-tech enterprise and a host for postdoctoral program. AFR has a strong management team with many members possessing over 10 years of successful technical and management experiences in the Silicon Valley fiber optics industry. AFR's goal is to become our client's first choice for high power and PM fiber optic components in global market. Contact: Grace Pan, V. P. of Business Development, sales@fiber-resources.com

#### **Advanced Microoptic Systems GmbH**

#2109

SPIE Corporate Member

Lebacher Str 6a, Saarbrücken, 66113 Germany +49 681 40000 30; fax +49 681 40000 32 office@amus.de: www.amus.de

#### **Advanced Optowave Corp.**

#5659

SPIE Corporate

105 Comac St, Ronkonkoma, NY, 11779 USA +1 631 750 6035; fax +1 631 803 4445 info@a-optowave.com; www.a-optowave.com

### Featured Product: AONano industrial DPSS lasers, OPico industrial DPSS lasers, AOFemto industrial DPSS lasers

Founded in 2007, Advanced Optowave Corporation has become a highly respected global supplier of diode-pumped solid-state laser solutions for medical device manufacturing, semiconductor, aerospace, automotive, packaging and consumer electronics. Contact: Victoria Mantia, Marketing/Sales Coordinator, vmantia@aoptowave.com; Mike Armas, VP of Marketing & Sales, marmas@aoptowave.com

#### Advanced Photonix, Inc.

#401

SPIE Corporate Member

1240 Avenida Acaso, Camarillo, CA, 93012-8727 USA +1 805 987 0146; fax +1 805 484 9935 sales@advancedphotonix.com; www.advancedphotonix.com

#### **Advanced Scientific Concepts**

#4314

135 E Ortega St, Santa Barbara, CA, 93101-1674 USA +1 805 966 3331

info@advancedscientificconcepts.com; www.asc3d.com

#### Featured Product: The Peregrine: the first 3D flash LIDAR timeof-flight camera weighing less than 1.5 lbs

Founded in 1987 and based in Santa Barbara, California, Advanced Scientific Concepts, Inc., develops leading-edge 3D sensors technology. With a wide range of customers from NASA to the DoD to commercial companies, ASC's proven technology and solutions provide the foundation for automated 3D applications from mobile vehicles in air, space, or on the ground, to 3D videos for mapping, surveillance, games, or movies. The real-time 3D video images and streams can be captured from 5cm to 5km.

#### **Advanced Thin Films**

#1113

SPIE Corporate

5733 Central Ave, Boulder, CO, 80301 USA +1 303 815 1545; fax +1 303 443 0513 atfilms@idexcorp.com; www.advancedthinfilms.com

#### Featured Product: Ultra-high performance laser optics and coatings

Advanced Thin Films' world-class team of engineers and technicians provide solutions to the laser materials processing, biomedical, defense, and semiconductor industries. We utilize the latest in optical monitoring, advanced metrology, and high-precision fabrication processes to repeatedly deliver the highest performance laser optics in the industry, including advanced low-loss, high LDT thin-film coatings on super-polished substrates and CADB optical bonded laser optics and assemblies.

#### **ADVANTAGE AUSTRIA**

#5065

Wiedner Hauptstrasse 63, Wien, 1045 Austria +43 590 900 4396; fax +43 590 900 114396

katharina.staszczyk@wko.at; www.advantageaustria.org/us

ADVANTAGE AUSTRIA is Austria's Foreign Commercial Service. We operate 117 trade promotion and service centers attached to Austria's diplomatic and consular missions in 70 countries. We promote and protect Austria's commercial interests in the United States and deliver customized business support and consultancy services to Austrian companies and their US-subsidiaries.

#### AdvR, Inc.

#935

SPIE Corporate Member

2310 University Way, Bldg 1-1, Bozeman, MT, 59715 USA +1 406 522 0388; fax +1 406 522 0387 info@advr-inc.com; www.advr-inc.com

### Featured Product: Custom wavelength frequency converters for atomic cooling wavelengths

AdvR designs and builds custom wavelength locked narrow-band lasers, modulators, switches, beam deflectors, and UV-visible-near IR frequency converters. Uses in-house expertise in engineered nonlinear crystals (including doped and undoped versions of KTP, LiNbO, and SLT). Fabrication techniques include periodic poling and ion exchange. AdvR also supplies stand alone and packaged SHG crystals and integrates its products into subsystems and systems to meet customer need. Contact: Bob Tamosaitis, Sales Manager, info@advr-inc.com; David Walsh, Business Development Specialist, info@advr-inc.com

#### Aerotech, Inc.

SPIE Corporate

101 Zeta Dr, Pittsburgh, PA, 15238-2811 USA +1 412 963 7470: fax +1 412 963 7459

sales@aerotech.com; www.aerotech.com

Aerotech manufactures automated alignment, positioning, and motion control systems and components for 24/7 manufacturing. Products include: optical mounts and gimbals, single- and multiaxis piezo and direct-drive nano-positioners, linear-motor gantry systems, goniometers, galvanometers, air-bearing and mechanicalbearing linear and rotary and lift stages, a full line of single- and multi-axis motion controllers, PWM and linear drives, linear and rotary brushless motors, and custom systems. Contact: Jim Johnston, Precision Manufacturing Group Manager, jjohnston@ aerotech.com; Tom Markel, Aerospace & Defense Systems Group Manager, tmarkel@aerotech.com

#### Wi-Fi Sponsor

**AFL** 

#2523

#2111

SPIE Corporate

170 Ridgeview Center Dr, Duncan, SC, 29334-9635 USA +1 864 433 0333: fax +1 864 433 5363 sales@aflglobal.com; www.aflglobal.com

Visit AFL's booth to see the latest enhancements to State of the ARC™ technology on Fujikura FSM-100 ARCMaster fusion splicers and the LZM-100 LAZERMaster splicing and glass processing system. Additionally, AFL will demonstrate a complete line of splicing accessories including an automated fiber preparation station and new cleaving and recoating technology. Connectivity and harsh environment fiber and cable will also be on display. Visit www. aflglobal.com for additional product information. Contact: Mike Hetrick, National Sales Manager, Michael. Hetrick@AFLglobal.com; Ron Abel, Regional Sales Manager, Ron. Abel@AFLglobal.com

#### **Agilent Technologies**

#900

2850 Centerville Road, Wilmington, DE, 19808 USA +18774244536

contact\_us@agilent.com; www.agilent.com

#### Featured Product: GC, LC, MS and spectroscopy: consumables, support, services

Agilent Technologies is a leading provider of GC, LC, MS and spectroscopy instruments, technologies, related consumables, support, services, and workflow solutions that enable you to analyze, confirm and quantify substances of interest with confidence while maintaining the most stringent laboratory practices, from sample preparation to final report. Learn more at www.agilent.com. Contact: agilent inquiries@agilent.com

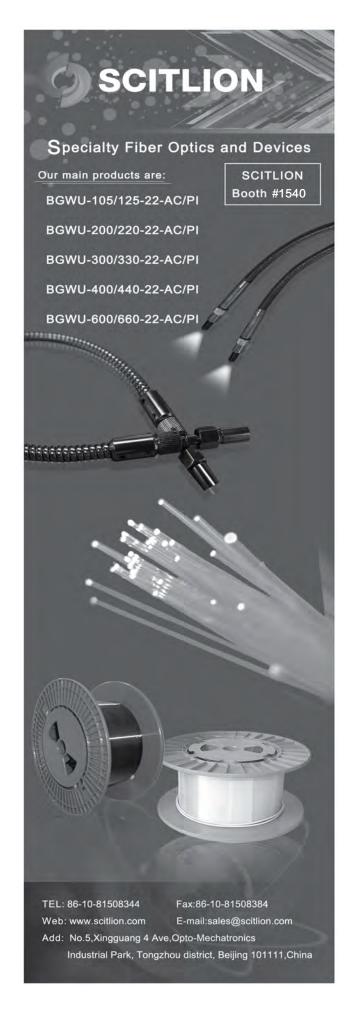
#### AGM Container Controls, Inc.

#2806

3526 E Fort Lowell Rd, Tucson, AZ, 85716 USA +1 520 881 2130: fax +1 520 881 4983 sales@agmcontainer.com; www.agmcontainer.com

#### Featured Product: NEPS Advantage dry gas purge equipment with automatic operation and dew point temperature display.

AGM Container Controls leads in the design and fabrication of products that control and monitor moisture (desiccators, humidity indicators), pressure and vacuum changes (breather valves) and shock and vibration (tie downs, shock overload indicators). These products are used for a variety of applications in defense and aerospace, electronics, electro-optical, industrial and commercial markets to protect and extend the life of critical equipment. Contact: Jim McCorry, Director of Business Development, jmccorry@ agmcontainer.com



**Agoptics** 

21, Hanam Sandan 6beon-ro, Gwangsan-gu, Gwangju-city, 62216 Korea, Republic of

+82 62 956 0765; fax +82 62 956 0764

agoptics@agoptics.co.kr; www.agoptics.co.kr

#### Exhibition Coffee Break and Entry Graphic Sponsor

#### **AIP Publishing**

#4067

1305 Walt Whitman Rd Ste 300, Melville, NY 11747 USA +1 516 576 2200

journals@aip.org; journals.aip.org

#### Featured Product: APL Photonics will feature high-quality original research covering all areas within the field.

AIP Publishing LLC is a scholarly publisher in the physical and related sciences, providing the global science community with a comprehensive collection of highly cited peer reviewed scientific information. Accessed by researchers at nearly 4,000 institutions worldwide, AIP Publishing's portfolio of 18 journals includes prestigious titles such as: Applied Physics Letters, Journal of Applied Physics and The Journal of Chemical Physics, and the AIP Conference Proceedings. Contact: Arlene Gonzalez, Sales Support Manager, agonzalez@aip.org

#### Airoptic Sp z.o.o.

#4204

46H Rubiez Street, Poznan, 61-612 Poland +48 61 6272 128 www.airoptix.com

#### Aistana Inc.

#6013

1879 Lundy Ave Ste 263, Santa Clara, CA, 95131 USA +1 408 329 7911: fax +1 866 628 8556 sales@aistana.com: www.aistana.com

#### Featured Product: 1064nm high-power collimated beam output isolator: high isolation and high-power handling, low IL and RL

Aistana specializes in high precision optical and fiber-optic components. From prototype and specialty quantities to large volume OEM production, our products are manufactured with strict attention to your specifications and delivery requirements. Available products: 1550nm, 1064nm, 2000nm Non-PM and PM isolator; coupler, WDM, circulator, high power isolator, hybrid component; windows/optical flats/mirrors; prisms/light pipes; wedges; filters/ beamsplitters; customer optics. Contact: Shelley Zhong, Regional Director

#### **Ajile Light Industries**

#5642

61 Oriole Dr, Ottawa, ON, K1J 7E8 Canada +1 613 799 3099

info@ajile.ca; ajile.ca

#### Featured Product: High-speed digital micromirror device (DMD) structured light projector, and scientific CMOS camera

Ajile designs and builds products to capture, create and project images. Current products include high-speed digital micromirror based (DMD) projectors, scientific CMOS cameras and lighting controllers. One of our key strengths is very tight integration and synchronization of these components under flexible software control. The Ajile system supports Gig-E and USB 3.0 interfaces and provides local smart image processing and generation capabilities, allowing for high-speed interaction of devices. Contact: Alan Boate, President, aboate@ajile.ca; Jeremy Gribben, Chief Technical Officer, jgribben@ajile.ca

#### **AKA Optics SAS**

#5655

2 rue Marc Donadille, Marseille, 13013 France +33 491055086; fax +33 491055087 sheldakova@akaoptics.com; www.akaoptics.com

#### **Featured Product: Deformable mirrors**

AKA Optics' mission is to design, manufacture and sell worldwide adaptive optics closed loop systems, deformable mirrors and wavefront sensors, using the technology transferred from Active Optics NightN. Our vision is to become a world leader in high power lasers applications, in high resolution imaging applications, and to develop new applications in telecommunication and biology. Contact: Alexis Kudryashov, kud@akaoptics.ru; Gilles Borsoni, CEO, gilles.borsoni@ akaoptics.com

#### AKELA Laser Corp.

#323

SPIE Corporate

1095 Cranbury S River Rd Ste 14, Monroe Township, NJ, 08831 USA +1 732 305 7105; fax +1 732 305 7057

info@akelalaser.com; akelalaser.com

Contact: Igor Trofimov, CTO

#### Akribis Systems Inc.

#4319

780 Montague Expy, Suite 508, San Jose, CA, 95131 USA +1 408 913 1300

www.akribis-sys.com

#### Featured Product: Customized precision motion stages and tiny ultrasonic motors

Akribis Systems designs and manufactures direct drive motion control systems and components. Some of our innovative solutions include single -and multi axis stages, gantry stages, air-bearing stages, custom systems, linear motors, torque motors, tiny ultrasonic motors and voice coil motors. We are ready to solve the most extreme challenges in precision motion and look forward to being your first choice to provide complete photonics solutions. Contact: James Truckle, West Coast Regional Sales Engineer, james.truckle@akribis-sys.com

#### Exhibition Map and Digital Signage Sponsor

#### Alazar Technologies Inc.

#311

SPIE Corporate Member

310 - 6600 Trans-Canada Hwy, Montreal, QC, H9R 4S2 Canada +1 514 426 4899; fax +1 514 426 2723 sales@alazartech.com; www.alazartech.com

Contact: Muneeb Khalid, President

#### **ALIO Industries**

#2310

SPIE Corporate

5335 Xenon Street, Arvada, CO, 80002 USA +1 303 339 7500; fax +1 303 339 7501 sales@alioindustries.com; www.alioindustries.com

#### Featured Product: ALIO's ultra-precision gantry systems from 200 mm to 2 meters

ALIO manufactures True Nano Precision motion systems for applications such as sapphire cracking, additive processes and 3D laser processing. At ALIO we are proud to be the precision, quality and testing leader for novel new motion applications around the world solving new and decade old precision motion issues. Come visit our booth or our new environmentally green world headquarters to learn about our Hybrid Hexapod, monolithic XY stages, linear gantry systems and air-bearing systems. Contact: Randy Graves, Director, Business Development, Randy@alioindustries.com; Dan Crews, VP & General Manager, danc@alioindustries.com

#### Allied Scientific Pro

#404

815 Boul de la Carriere, Bureau 202, Gatineau, QC, J8Y 6T4 Canada +1 819 743 7851; fax +1 866 526 4086

info@alliedscientificpro.com; www.alliedscientificpro.com

# Featured Product: Custom Glass Moulded Lens, LED Moulded Plastic Optical Components, Metrology Point Source Microscope.

Allied Scientific Pro manufactures custom optics such as large prisms and optical filters for periscopes, germanium optics for IR imaging systems. We also provide turnkey solutions with imaging sensors. We offer custom micromachining laser systems for glass cutting and coating removal on gorilla glass or other strengthen glass. We also distribute laser, microscope, power meter, spectrometer, and cameras to the photonics R and D lab or manufacturers. Contact: Steeve Lavoie, President, slavoie@ alliedscientificpro.com

#### Allied Vision Technologies Inc.

#5430

SPIE Corporate Member

38 Washington Street, Newburyport, MA, 01950 USA +1 978 225 2030; fax +1 978 225 2029 info@alliedvision.com; www.alliedvision.com

### Featured Product: CMOS and CCD, SWIR, and LWIR digital machine vision cameras using GigE, USB3, & FireWire interfaces.

Allied Vision offers a wide range of digital machine vision cameras for industrial inspection, automation, medical imaging, scientific research, traffic monitoring, security, and many other demanding applications. With expert consultancy and engineering, manufacturing of the highest quality, and first-class service and support, Allied Vision will help you focus on what counts. Contact: Francis Obidimalor

AllMotion

#4770

SPIE Corporate Member

30097 Ahern Ave, Union City, CA, 94587 USA +1 510 471 4000; fax +1 510 400 8001

support@allmotion.com; www.allmotion.com

AllMotion manufactures Stepper Drives, Stepper Controllers, Servo Drives and Servo Controllers. These are the most compact Intelligent Stepper Motor Drives and Stepper Motor Controllers on the market today. Our Servo Motor Contollers and Brushless DC Motor Controllers feature quadrature encoder feedback and are also programmable to allow stand-alone operation. We can also provide custom solutions based on our EZStepper and EZServo motor driver technology. Contact: Jamie Rodriguez, Operations Manager, Jamie@allmotion.com; Jessica Suto, Operations Assistant, Jessica@allmotion.com

#### Entry Graphic Sponsor

**Alluxa** 

#5270

SPIE Corporate Member

3660 N Laughlin Rd, Santa Rosa, CA, 95403 USA +1855 425 5892

info@alluxa.com: www.alluxa.com

#### Featured Product: Ultra Series IR filters

Founded in 2007, Alluxa designs and manufactures next generation, hard coated optical filters using a proprietary plasma deposition process. Alluxa's unique, purpose-built deposition platform and control systems were designed, developed, and built by our team in Santa Rosa, CA, to address the demanding requirements of the next generation of systems and instruments and to create the world's most challenging filters at breakthrough price points. Contact: Peter Egerton, EVP Business Development, peter-egerton@alluxa.com; Ruth Gorham Houle, Director of Sales & Marketing, r.gorham-houle@alluxa.com

#### Alnair Labs Corp.

#4951

SPIE Corporate Member

6-2-7 Nishi-Gotanda, Westside Gotanda 2F, Shinagawa-ku Tokyo, 141-0031 Japan

+81 3 5487 7831; fax +81 3 5487 7832

sales@alnair-labs.com; www.alnair-labs.com

# Featured Product: Ultra-narrow tunable optical filters (30pm/3.7GHz BW, 1500dB edge) 30ps electrical pulse generator

Alnair Labs specializes in optical test and measurement systems from stand-alone products to full-rack solutions. Key products include ultra-narrow tunable optical filters with 30pm (3.7GHz) bandwidth and 1500dB/nm roll-off, carbon nanotube fs lasers, and short (30ps) electrical pulse generators. We also provide lasers, EDFAs, filters, high-speed optical instrumentation, electrical pulse generators and BERTs. We can also integrate these into sophisticated systems for production-line testing. Contact: Jame Fang, Global Business Development, sales@alnair-labs.com

#### **ALPAO S.A.S.**

#500

SPIE Corporate

345 rue Lavoisier First 2, Montbonnot St Martin, 38330 France +33 4 76 890965; fax +33 4 76 514532 contact@alpao.fr; www.alpao.com

Contact: Bertrand Charlet, Sales Engineer

#### **Alpes Lasers SA**

#714

1-3 Max-de-Meuron, CP 2000, Neuchâtel, 2001 Switzerland +41 32 729 95 10; fax +41 32 721 36 19

info@alpeslasers.ch; www.alpeslasers.ch

### Featured Product: Quantum Cascade lasers including new extended-tuning options

Alpes Lasers is a Swiss engineering company pioneering advanced light sources, especially Quantum Cascade Lasers (QCLs), used in various applications such as gas detection. From our central locations within Switzerland and Europe, we are dedicated to promoting these technologies to customers active in a wide range of markets. Contact: Olivier Landry, Customer Relations, info@ alpeslasers.ch

#### **ALPHANOV**

#1223-J

rue François Mitterrand, Institut d'optique d'Aquitaine, Talence, 33400 France

+33 5 24 54 52 00

info@alphanov.com; www.alphanov.com

### Featured Product: Laser sources and fiber components, laser processes and micro-machining, laser and optical systems

Founded in 2007, ALPhANOV is the Optics and Laser Technology Center of the Route des Lasers cluster, located in Bordeaux, France. ALPhANOV aims to boost innovation through collaboration between research and industry. It offers clients a flexible working structure that enables tailored services along the value chain: collaborative projects, feasibility studies, access to shared technical facilities, edicated resources for companies and laboratories and technical support for entrepreneurship. Contact: Arnaud ZOUBIR, Business Development Manager, info@alphanov.com; Ludovic LESCIEUX, Sales Engineer, info@alphanov.com

#### **Alpine Research Optics**

#4328

SPIE Corporate Member

6810 Winchester Circle, Boulder, CO, 80301-3512 USA +1 303 444 3420; fax +1 303 444 1686 sales@arocorp.com; www.arocorp.com

#### **Featured Product: Precision laser optics**

Established in 1991, Alpine Research Optics is a premier manufacturer of custom and OEM optical components and coatings. We specialize in high precision laser optics from 193nm to 5 microns. Product range includes mirrors, polarizers, beam-splitters, spherical lenses and windows. Our polishing and coating technology allow us to produce some of the highest laser damage threshold coatings available. ARO is ISO 9001:2008 registered. Contact: Katie White, Sales Engineer, kwhite@arocorp.com

#### Altos Photonics, Inc.

#1533; 1640

SPIE Corporate

201 S Wallace Ste B-2C, Bozeman, MT, 59715 USA +1 866 658 5404; fax +1 866 658 7357 sales@altosphotonics.com; www.altosphotonics.com

### Featured Product: EKSPLA LightWire series ultrafast fiber lasers for R&D and OEM applications up to 4W.

Altos Photonics offers femtosecond, mode-locked, Q-switched lasers, and tunable systems for research and industrial customers. Additional products include nonlinear crystals (BBO, KTP, ZGP, KYW, KGW, etc), optical mounts, USB-controlled stages, and other related products. Altos Photonics sells and services products from EKSPLA, EKSMA, Light Conversion and Standa. Contact: Lucian Hand, President, lucian@altosphotonics.com; Laurie Dewar, Customer Support, laurie@altosphotonics.com

#### American Beryllia Inc.

#5539

SPIE Corporate

16 First Ave, Haskell, NJ, 07420 USA +1 973 248 8080; fax +1 973 248 8012 sales@americanberyllia.com; www.americanberyllia.com

#### Featured Product: Thermal Management Solutions.

American Beryllia is a leading worldwide manufacturer of beryllium oxide ceramic (BeO) heat sinks, crucibles, rods, washers, thermocouple tubing, and custom-made substrates for a diverse range of aerospace, defense, electronic, commercial and nuclear applications. BeO is distinguished by excellent thermal conductivity. It is excellent for applications that require a lot of heat dissipation along with dielectric and mechanical strength. Visit our website at americanberyllia.com. Contact: Jeffrey Brundage, Vice Presdient Business Development, jbrundage@americanberyllia.com; Nussy Brauner, CEO, nussyb@americanberyllia.com

#### **American Photonics Co.**

#2816

SPIE Corporate

6621 19th St E, Sarasota, FL, 34243 USA +1 941 752 5811; fax +1 941 752 5861

sales@americanphotonics.com; www.americanphotonics.com

APC is a US manufacturer of laser optics and components for the  $\mathrm{CO}_2$  laser industry. Our high quality optics include focusing lenses, mirrors, beam combiners, collimators, output couplers and other custom designed parts. All parts are fabricated and coated our Florida facilities. We offer world-class thin film coating, CNC optical fabrication, custom optical design and engineering, and optical assembly. APC offers "Solutions through Technology". Contact: Jim Ellington, Sales Manager, jim.ellington@americanphotonics.com; ralph Purdy, Operations Manager, ralph.purdy@americanphotonics.com

### AMETEK Electronic Packaging & Components

#2323

50 Welby Rd, New Bedford, MA, 02745 USA +1 508 998 3141; fax +1 508 995 7315 ecp.info@ametek.com; www.ametek-ecp.com

#### **Featured Product: Seals**

AMETEK Electronic Components and Packaging is a worldwide leader in the design/manufacture of high reliability hermetic micro-electronic packages, headers, and lids. Sealing/insulation technology can be either glass to metal or ceramic to metal. Packages support many applications such as infrared, hybrid microprocessor, and optical networking components. Lids and lids with windows (metallized and A/R coated) are also offered. Contact: Mike Bristol, sales, michael.bristol@ametek.com

#### **AMETEK, Inc.**

#2323

SPIE Corporate Member

1100 Cassatt Rd, Berwyn, PA, 19312-1177 USA +1 610 647 2121; fax +1 215 323 9337 www.ametek.com

#### Amonics Limited

#5557

12 Ng Fong St, 14/F Lee King Industrial Bldg, San Po Kong, Hong Kong, China

+ 852 2428 9723; fax + 852 2428 9704 contact@amonics.com; www.amonics.com

#### **AMPHOS GmbH**

#811

9 Trinity Dr., West Springfield, MA, 01089 +1 413 564 0610; fax +1 413 562 6167

alain.bourdon@amphos.us; www.amphos.de

AMPHOS is the leading manufacturer of extreme high-average power ultrafast laser systems for scientific and industrial applications. AMPHOS systems deliver pulses from 500fs to the ns regime with an average output power up to 1000W and peak power of several 100MW. The continuous setting of pulse width and variation of repetition rate as well as diffraction limited beam quality are outstanding characteristics of AMPHOS laser systems. Contact: Alain Bourdon, US Sales, arb@alliedlasersolutions.com

#### **Amplitude Systemes**

#1332

11 ave de Canteranne, Cité de la Photonique, Pessac, 33600 France +33 5 5646 4060; fax +33 5 5646 0694

info@amplitude-systemes.com; www.amplitude-systemes.com

Amplitude Systemes, a company of the Amplitude Laser Group, is a global leader in developing and manufacturing industrial ultrafast lasers. By combining high quality manufacturing and aggressive R&D, Amplitude Systemes brings new solutions to the most demanding industrial and scientific applications. Today, the company offers easy to use, 24/7 operation ultrafast lasers for a variety of markets including ophthalmology, semi-conductor, microelectronics and medical device manufacturing. Contact: Neal Montgomery, US Sales Manager, nmontgomery@amplitude-laser. com; Vincent Rouffiange, Vice President, Sales, vrouffiange@amplitude-systemes.com

#### Amplitude Technologies

#1332

2 Rue du Bois Chaland CE 2926 Lisses, Evry, 91029 France +33 169 11 27 90

info@amplitude-technologies.com;

www.amplitude-technologies.com

Amplitude Technologies, a leader in high peak power femtosecond lasers, offers ultra-intense, high contrast lasers and CEP-stabilized sub-20fs lasers for scientific applications, such as particle acceleration, plasma physics, X-ray generation, attosecond pulse generation, laser filamentation and pump-probe experiments. Headquartered in France, Amplitude Technologies now provides sales, service, and manufacturing from its new Continuum facility in San Jose, California, USA. Contact: Julie Siv, Ultrafast Sales Engineer, Europe, jsiv@amplitude-technologies.com; Cecile Mukerjee, Ultrafast Sales Engineer, North America, c.mukerjee@ continuumlasers.com

#### #4629 Amtron GmbH

Neustr 26, Würselen, 52146 Germany +49 2405 47989 0; fax +49 2405 47989 20 info@amtron.net; www.amtron.net

#### Featured Product: CM100 OEM diode-laser controller modules: power supplies with up to 7kW for system integration

Amtron GmbH develops and markets high-quality laser-diode power supplies, laser-diode turnkey systems, and pyrometry solutions. Clients include laser manufacturers, system integrators, and research and development specialists using Amtron systems in machining or medical technology. Apart from high-end products with integrated process control, simple applications are also catered for by Amtron models which never the less feature all of the necessary functions for deployment in industry. Contact: Hans-Dieter Gehlen, Business Manager, sales@amtron.net; Sonja Dohmen, Sales Manager, sales@amtron.net

#### Analog Modules, Inc.

#2201

126 Baywood Ave, Longwood, FL, 32750-3426 USA +1 407 339 4355; fax +1 407 834 3806 ami@analogmodules.com; www.analogmodules.com

#### Featured Product: Model 785 ultra low ripple 20A, 14V CW and pulsed laser diode driver

Founded in 1979, Analog Modules, Inc., designs and manufactures a wide range of analog electronic products primarily for laser and electro-optics industries. AMI's products serve military, medical, scientific, and industrial applications. Laser electronic products include laser diode drivers, pulsed flashlamp drivers, cap charging power supplies, simmer supplies, Pockels cell and CW arc lamp drivers. AMI also offers sensors and amplifiers, including rangefinder receivers and laser spot trackers. Contact: Bruce Soileau, Product Manager, bsoileau@analogmodules.com; Tim Cable, Product Manager, tcable@analogmodules.com

#### Andes Scientific Instruments-DICTUC #5647

Vicuna Mackenna 4860, Santiago RM, 7820436 Chile +56 2 23544284

#### Featured Product: Scientific CCD cameras with cryogenic cooling and optimal digital noise filtering techniques.

Andes Scientific Instruments is a spinoff from Universidad Catolica, in Santiago, Chile. Driven by our engineering expertise in instrumentation for astronomy and particle physics, we are committed to developing new technologies for the photonics field. We provide products and fully-customized solutions for a variety of scientific imaging demands. Our debut product is a family of scientific CCD cameras, achieving readout noise below the image sensor stated noise floor. Contact: Dani Guzman, Chief Executive Officer, dani@andesscientific.com; Cony Villanueva, Product Development Lead, cony@andesscientific.com

#### **Andon Electronics Corp.**

#5068

4 Court Drive, Lincoln, RI, 02865-9923 USA +1 401 333 0388; fax +1 401 333 0287 info@andonelect.com; www.andonelect.com

#### Featured Product: Andon's patented Heat Sink Sockets™ dissipate heat and reduce noise from high-res image sensors.

Andon makes precision sockets used in the testing and board-level assembly of image/optoelectronic/gas sensors. Leading camera and laser makers solder Andon sockets - not the sensor - onto the PCB to avoid: 1) device damage from exposure to high temp solder, ESD, and cleaning solutions; 2) the labor and PCB damage associated with desoldering a faulty sensor; and 3) holding up PCB assembly until the devices arrive. Andon's unique SENSTAC™ socket contact is designed to handle shock and vibration. Contact: Julie Andrews, Customer Service Manager, info@andonelect.com; Scott Tate, Vice President, state@andonelect.com

#### #1139 Andor

300 Baker Ave Ste 150, Concord, MA, 01742 USA +1 860 290 9211: fax +1 860 290 9566 info@andor.com; www.andor.com

Andor Technology is a global leader in the pioneering and manufacturing of high performance scientific imaging cameras, spectroscopy solutions and microscopy systems for research and OEM markets. Andor continues to innovate ground-breaking products that improve the world in which we live. Andor Technology is part of Oxford Instruments plc, a leading provider of high technology tools and systems for industry and research.

#### Andover Corp.

#804

SPIE Corporate

4 Commercial Dr. Salem, NH, 03079-2800 USA +1 603 893 6888; fax +1 603 893 6508 info@andcorp.com; www.andcorp.com

Andover Corporation manufactures high-quality optical filters and coatings from 193nm-14µm in sizes up to 300mm on a wide variety of substrate materials. Coating technologies include magnetron sputtering, ion-assisted electron beam deposition, and thermal evaporation. In-house engineering assistance is available to ensure the success of your project. Over 1,500 in-stock products and a large selection of surplus filters are available. AS9100 Certified. Contact: Rob Pursel, Senior Optical Coating Engineer, rpursel@andovercorp. com; Phil Clark, Technical Sales, pclark@andovercorp.com

#### Anson Optical Products Co., Ltd.

12 Kut Shing St, Rm 605 6th Fl Decca Industrial Ctr, Chaiwan, Hong Kong, China

+852 2757 0168; fax +852 2796 2568

info@ansonoptical.com.hk; www.ansonoptical.com.hk

#### Featured Product: Polymer aspheric lens, mirrors and precision components

Anson Optical Products Co Ltd., as one of the trusted name of optics and are specialized in plastic optical components from optics design, prototype making, tooling fabrication, precision molding to assembly. Our experienced work team features states-of-art molding technology ad have capability for supplying custom-designed molded, aspherical, cylindrical, frensel surfaces components, modules and mirrors. Contact: Raymond Law, Marketing Manager, raymond@ansonoptical.com.hk

#### **Anteryon BV**

#5029

Zwaanstr 2a, Eindhoven, 5651 CA Netherlands +31 40 25 61 500; fax +31 40 25 61 503 info@anteryon.com; www.anteryon.com

Anteryon is an innovative high-tech company specializing in the design and manufacturing of optical solutions. Our infrastructure is built on a tripod technology frame (replication of optical structures, surface structuring and opto-mechanical assemblies). Each of these core technologies have their own unique features. We have an extensive track record in micro-optic technologies and solutions and solid global customer base in the industrial, imaging, medical, automotive and defense markets. Contact: Vincent Lyons, Sales Manager US, sales@anteryon.com; Peter Timmerman, Sales Manager, sales@anteryon.com

#### **Aperture Optical Sciences Inc.**

#4567

SPIE Corporate Member

27 Parson Ln Unit G, Durham, CT, 06422 USA +1 860 316 2589; fax +1 860 301 2589 info@apertureos.com; www.apertureos.com

#### Featured Product: Aspheres, silicon-carbide optics, and optomechanical assemblies.

Aperture Optical Sciences, Inc. provides unique and demanding precision optics and systems for aerospace, lasers, and research. We develop and employ advanced technology for making aspheric mirrors and lenses, SiC optics, and optics for high energy lasers; and engage in developmental processes of advanced materials. Contact: Alberto Bodden, Applications Engineer, abodden@apertureos.com; Flemming Tinker, President, ftinker@apertureos.com

#### **Apollo Instruments, Inc.**

#2609

55 Peters Canyon Rd, Irvine, CA, 92606-1402 USA +1 949 756 3111; fax +1 949 756 9166 contact@apolloinstruments.com; www.apolloinstruments.com

### Featured Product: 3-5KW focused beam laser module, collimated laser diode, high brightness FCLD, CW/pulse fiber laser

Located in Irvine, California, Apollo Instruments specializes in laser diode technology and providing cost effective high power laser diode module systems, superior beam quality collimated laser diode modules, high brightness fiber coupled laser diodes, and CW/ pulse fiber lasers. Applications include welding, cutting, heating, blazing, pumping, material processing and medical research. The high quality control diode sources are highly stable and reliable for industry OEM integration. Contact: Peter Wang, VP of marketing, pwang@apolloinstruments.com; Jun KIm, customer service, acho@apolloinstruments.com

#### **Apollo Optical Systems, Inc.**

#608

925 John St, West Henrietta, NY, 14586-9780 USA +1 585 272 6170; fax +1 585 272 6177

in fo@apollooptical.com; www.apollooptical.com

Contact: Daniel McGarry, President, mcgarry@ApolloOptical.com

#### Applied Image, Inc.

#622

SPIE Corporate Member

1653 E Main St, Rochester, NY, 14609-7090 USA +1 585 482 0300; fax +1 585 288 5989 info@appliedimage.com; www.appliedimage.com

"Your Single Source Photonics Solution Provider" dedicated to innovative Opto-Imaging Products and Services. Providing "off the shelf" Calibration Tools, custom manufacturing services on a variety of substrate materials as well as assembly services from simple mounting to complex components. Imaging Gauge Analysis System that includes software and targets for image/camera evaluation plus custom Spherical/Ball Lenses and Mask Making Services. Applied Image, where image concepts become reality. Contact: Darren Dixon, Custom Sales & Support, Ddixon@appliedimage.com; Natalie Russo, Custom Sales & Support, Nrusso@appliedimage.com

#### **Applied Laser Engineering Ltd.**

#5145

Lyon Road, Unit 7 Ember Centre, Walton-On-Thames, KT12 3PU United Kingdom

+44 208 941 1101; fax +44 208 783 1348

sales@appliedlaser.co.uk; www.appliedlaser.co.uk

### Featured Product: The Meridian Nano is a new laser engraving machine focused at R+D and everyday roller production.

Applied Laser Engineering manufactures high-resolution direct laser engraving machinery utilizing multiple fibre laser (cw or pulsed) and/or  $\rm CO_2$  laser beams. Machines range from 0.6m-6m roller length capability and up to 1m diameter. ALE's expertise lies in large format, high-resolution, and in the round engraving, marking, texturing or surface treatment of machinery. Typical applications include printing, embossing, micro machining, coating, and security applications. Contact: Ed Birch, Engineering Director, ed.birch@appliedlaser.co.uk; Philip Limberger, Sales Director, ratty@appliedlaser.co.uk

### Applied Optics Ctr., a Div. of Optex Systems, Inc.

#4033

SPIE Corporate

9827 Chartwell Dr, Dallas, TX, 75243 USA +1 972 629 1701; fax +1 972 629 1702

info.aoc@optexsys.com; www.optexsys.com/aoc

Applied Optics Center, a division of Optex Systems, Inc., is a world-class provider of optical thin films and multi-element optical sub-assemblies with over 50 years of experience. Our coating facility includes multiple 2-meter coating chambers and allows us to produce high volume and large format custom optics at a competitive advantage. Our precision assembly capability allows us to provide turnkey solutions meeting any conceivable optical challenge, from the deep UV to the far IR wavelength. Contact: Bill Bates, General Manager, AOC, bbates@optexsys.com; Greg Rapp, Optical Coating Engineer, AOC, grapp@optexsys.com

#### **Applied Optics, Inc.**

#4610

SPIE Corporate Member

3349 Vincent Rd, Pleasant Hill, CA, 94523-4318 USA +1 925 932 5686; fax +1 925 932 2502

service@applied-optics.com; www.applied-optics.com

Applied Optics, Inc. (AOI) has been supplying customers with high-end optical components and assemblies for more than 35 years. From concept to final product, AOI offers lenses, mirrors, filters, prisms, wedges and assemblies. With full design capabilities, testing, and custom machining, we are a go-to source for your optical needs. Contact: Gery Koch, President



# Industrial Reliability Engineered Into Every Product

Visit us at: BiOS Booth #8908 Photonics West Booth #1101

Coherent has the broadest portfolio of lasers, laser measurement tools, and custom assemblies to enable or enhance your application—from cutting-edge material processing to basic research. We engineer each product to the highest industrial standards, ensuring every customer enjoys the benefits of superior reliability and performance.

For any material, any process, any application, turn to Coherent for solutions that work—day in, day out.



#### **Applied Photonics Inc.**

#3018

SPIE Corporate Member

4733 Torrance Blvd Ste 743, Torrance, CA, 90503-4100 USA +1 310 424 9800; fax +1 310 784 8872 contact@appliedphotonics.us; www.appliedphotonics.us Contact: C. Y. Kao, Vice President

#### **Applied Physics & Electronics, Inc.**

#735

SPIE Corporate

45401 Research Ave Ste141, Fremont, CA, 94539 USA +1 510 378 9067; fax +1 510 240 5055 mail@ape-america.com; www.ape-america.com

# Featured Product: Mini USB TPA-UV New! a scanning autocorrelator for the UV-Blue 340 nm to 400 nm wavelength range.

APE is a manufacturer of ultrafast laser components and systems. Our portfolio includes, but is not limited to, ultrafast diagnostic instruments and wavelength tunable laser systems. APE products are used worldwide in research and industrial applications in markets such as medical imaging, semiconductor and biophotonics. Contact: Olaf Korth, CEO

#### **Applied Surface Technologies**

#6005

SPIE Corporate

15 Hawthorne Dr, New Providence, NJ, 07974 USA +1 908 464 6675; fax +1 908 464 7475 co2clean@co2clean.com: www.co2clean.com

#### Featured Product: Carbon dioxide snow jet

We demonstrate precision cleaning using a CO<sub>2</sub> snow jet, a quick and safe process. CO<sub>2</sub> snow cleaning is a simple process for removing particles of all sizes (visible to below 0.01 micron), and hydrocarbons, even solvent stains and water spots. CO<sub>2</sub> snow cleans substrates, optics, diamond turned optics, fiber-optics, wafers, AFM samples, mirrors, telescopes, including our unique 2" slot telescope unit, and many other applications. We show manual and semi-automated units for R&D and manufacturing. Contact: Robert Sherman, president, RobertS@co2clean.com

#### **Applied Thin-Film Products**

#4348

3439 Edison Way, Fremont, CA, 94538-6179 USA +1 510 661 4287; fax +1 510 661 4250 atp@thinfilm.com; www.thinfilm.com

ATP is a leading ISO 9001:2008 and AS9100 certified build-to-print thin-film manufacturer with a wide range of thermal materials and metalization schemes. Substrates are fabricated from alumina, ALN, BeO, fused silica, and other materials. Metalizations range from plated or sputtered Au-Cu-Ni-Pd-Pt. Features can include laser diode submounts, interconnect solutions, edge defined wraps, conductors, integrated resistors, hollow plated vias, solid filled vias (Au-Cu), and double-sided patterning. Contact: Franco Pietroforte, Vice President, franco@thinfilm.com; Ryan Nguyen, Regional Sales Manager, rnguyen@thinfilm.com

### SPIE JOB FAIR

Talk with representatives from companies currently looking to hire
Refer to page 27 for more information.

#### **Apre Instruments, LLC**

#4573

SPIE Corporate

2440 West Ruthrauff Road, Suite 100, Tucson, AZ, 85705 USA +1 860 398 5764; fax +1 860 347 6407 inquire@apre-inst.com; www.apre-inst.com

#### Featured Product: REVEAL Software.

Apre Instruments upgrades interferometers, designs and develops OEM interferometer software, and provides custom interferometer design and development services. Contact: Robert Smythe, President, rsmythe@apre-inst.com; Artur Olszak, VP Engineering, aolszak@apre-inst.com

#### **April Electro-Optics Co., Ltd.**

#4519

SPIE Corporate Member

No 399 Zhangyang Rd, Nanjing, Jian Su, 210037 China +86 25 83602718; fax +86 25 83602518 market@njapril.com; www.njapril.com

### Featured Product: Sapphire, BK7 and fused silica windows, light guides, lenses

Nanjing April Electro-optics Co., Ltd. is a manufacturer specializing in high precision cold processing of sapphire crystal material. Using the sapphire, quartz, and optical glass as raw material to produce high-precision optical element, our products include sapphire series, quartz series, optical glass window, lens, crystal rods, prisms, blades, balls, filters, cylindrical lens hood and custom-made optical components. Contact: Feng Qian, Sales Manager, market@njapril.com; Lotus Mao, Technical Sales, market@njapril.com

#### Archer OpTx, Inc.

#3058

SPIE Corporate Member

1208 Sigma Ct, Rockwall, TX, 75087 USA +1 972 722 1064; fax +1 972 722 1063 sales@archeroptx.com; www.archeroptx.com

### Featured Product: Design services, ultra-high precision molded glass aspheres, rapid prototyping, metrology services

Maximize your potential with ultra-high optical precision that will produce optimal outcome. Archer OpTx offers the optics industry what could be its most exceptional resource yet: comprehensive solutions to meet your needs by providing engineering design services, ultra-high precision molded glass aspheres, traditional optical components, SIVA series of lens assemblies, subassemblies, and more. Archer OpTx is a strategic resource for your competitiveness. Contact: Janeil Lorin, International Sales Manager, janeil.lorin@archeroptx.com; Colby Freeman, US Sales Manager, colbycfreeman@archeroptx.com

#### **Arden Photonics Ltd.**

#5543

SPIE Corporate Member

267 Cranmore Blvd, Solihull, B90 4QT United Kingdom +44 1217337721; fax +44 1217337797

sales@ardenphotonics.com; www.ardenphotonics.com

#### Featured Product: FGC Fiber Glass Geometry system

Arden Photonics designs and manufactures high-quality components and instrumentation for the measurement of a wide range of optical fiber and laser properties. Our main areas of expertise are encircled flux measurement, optical fiber end face inspection, fiber glass geometry measurement, and laser beam profiling. Contact: Lesley Allison, Sales & Marketing, sales@ ardenphotonics.com

**ARGES GmbH** 

#527

#48

Werk 4, Wackersdorf, 92442 Germany +49 9431 7984 0; fax +49 9431 7984 300

info@arges.de; www.arges.de

ARGES develops and manufactures laser scanning systems for the deflection and positioning of laser beams for applications in the industrial or medical sector, or for use in research and development. Besides producing a highly versatile range of standard scanning systems our extensive multi-industry laser know-how makes ARGES an ideal partner in the development of application-specific solutions and complete OEM laser subsystem. Contact: Barbara Goesswein, Marketing and Communication Manager

#### **Argyle International, Inc.**

#524

254 Wall St, Princeton, NJ, 08540 USA +1 609 924 9484; fax +1 609 924 2679 sales@argyleoptics.com; www.argyleoptics.com

#### **Arima Lasers Corporation**

#4361-D

No 458 Zhongxing Road Pingzheng, 9F, Taoyuan, 32460 Taiwan +886 3 4699800; fax +886 3 4699600

ldsales@arimalasers.com; www.arimalasers.com

### Featured Product: Laser diodes for DVD, industrial single mode, high brightness 635nm, APC IC-integrated, the smallest LM

Arima Lasers Corporation (ALC) was officially founded on August 1st 2007. We are devoted to developing the best LD products and mass production technology. Until now, we have established competitive, fully vertical integrated technology including epitaxy, device fabrication, packaging and testing, and module assembly. Our executive team are highly experienced professionals in laser diode RD, production and marketing. Please find "Innovative laser diode solutions" at Arima Lasers. Contact: Erica Chiang, Sales, Erica\_chiang@arimalasers.com

#### Arrow Thin Films, Inc.

#5435

9 Ackerman Ave, Emerson, NJ, 07630 USA +1 201 977 1070

pw2016@arrow-otf.com; www.arrow-otf.com

### Featured Product: High performance, high damage threshold thin film coatings, optics and laser materials.

Arrow Thin Films is a leading manufacturer of optical coatings on glass and laser materials. Arrow Thin Films partners with our customers from design feasibility and development through high volume production. We deposit high performance thin films from the deep UV through the far IR on a virtually all-inclusive list of optical and crystalline substrate materials in diameters to 15". Arrow Thin Films routinely processes customer supplied substrates or provides high quality finished components. Contact: Jonathan Herringer, President, pw2016@arrow-otf.com; Paul Szczepanski, Vice President, pw2016@arrow-otf.com

#### **Arroyo Instruments, LLC**

#4550

SPIE Corporate

1201 Prospect Street, San Luis Obispo, CA, 93401 USA +1 805 543 1302; fax +1 805 543 1303 sales@arroyoinstruments.com; www.arroyoinstruments.com

### Featured Product: New 5400 Series TECSouce high-power temperature controllers with up to 960W of TEC power.

Arroyo Instruments is a supplier of leading edge diode drivers, temperature controllers, and device fixtures. We offer both benchtop and OEM power supplies in a wide range of power levels and a wide range of heat sinks for lasers and LEDs. Our diode driver offers high stability and low noise performance, and current ranges from 100mA to 100A. Our temperature controllers feature 0.004°C stability and outputs powers from 28W to 960W. Contact: Paul Corr, President, sales@arroyoinstruments.com

#### Art Electronics Co., Ltd.

#4837

23-5 Higashimikatacho Kita-Ku, Hamamatsu Shizuoka, 433-8104 Japan

+81 53 439 7411; fax +81 53 439 7415

info@art-denshi.co.jp; www.art-denshi.co.jp/english

#### Featured Product: Feedback using simulation analysis results

Supported simulations: high frequency and microwave simulations. Software: high frequency, microwave EDA tool, S-NAP Microwave Suite; high-speed transmission circuit simulations. Application: DDR2, DDR3, PCI Express, etc. Software: High-speed transmission analysis tool, HyperLynxSI (LNESM) HyperLynuxSI (Board SM); plane resonance simulations (shape, VIA disposition consideration) Software: EMI suppression design support tool DEMITAS NX EMC countermeasure simulations. Application: hig Contact: Norikuni Ito, President, norikuni@art-denshi.co.jp

#### art photonics GmbH

#426

Rudower Chaussee 46, Berlin, 12489 Germany +49 3067798870; fax +49 30677987799 info@artphotonics.de: www.artphotonics.de

Founded in 1998 art photonics GmbH, develops and manufactures special fiber optic products for the broad spectral range from 180nm to 16µm. Our innovative design of FlexiRay high power laser cables, metal coated silica fibers, FlexiSpec spectroscopy probes, multispectral bundles and FlexiSens fiber spectral sensors provide broad spectra fiber solutions. Contact: Renate Arenknecht, Chief Sales Officer

#### **Artemis Optical Limited**

#5145

1 Western Wood Way Plympton, Plymouth, PL7 5BG United Kingdom

+44 175 229 4900; fax +44 175 234 2467

info@artemis-optical.co.uk; www.artemis-optical.co.uk

#### Artray Co., Ltd.

#4941

1-17-5 Kouenjikita Suginami-ku, 5F Ueno Bldg, Tokyo, 166-0002 Japan

+81 3 3389 5488; fax +81 3 3389 5486 artray@artray.co.jp; www.artray.co.jp

# Featured Product: InGaAs camera (900-1700nnm) available in 640X512 PIXELS (VGA) /320X256 PIXELS (QVGA)/128X128 PIXELS

Since its establishment, Artray has been specializing in manufacturing image processing devices on different interfaces. We provide a variety of products including USB2.0 cameras, USB3.0 cameras, device drivers and customized hardware/software applications. Our business includes: imaging device production and development, image processing software, Windows applications, serial interface development, device driver, FPGA logic development, and OEM/ODM/EMS service. Contact: Wataru Kawarazaki, manager, kawarazaki@artray.co.jp

Ascentta, Inc.

#5339

SPIE Corporate Member

370 Campus Dr Ste 105, Somerset, NJ, 08873-1128 USA +1 732 868 1766; fax +1 732 868 1769 sales@ascentta.com: www.ascentta.com

Featured Product: Mini TGG isolator, circulator, tunable filter at 532, 633, 780, 850, 980, and 1060n

Ascentta delivers a wide spectrum of fiber optic solutions with its high quality passive components such as mini-size circulators, isolators, FBG sensors, couplers, CWDM, DWDM, and tunable bandpass filters. We also specialize in custom design for applications in telecommunication, medical, oil and gas, research, and other various fields. We offer compact circulators, isolators and custom modules in 532, 635, 780, 850, 980 and 1060nm. Please visit us at ascentta.com or email sales@ascentta.com Contact: Jennifer Ke, VP Marketing, jenn@ascentta.com; Shao Liang, President, shao@ascentta.com

**ASE Optics** 

#635

850 John St, West Henrietta, NY, 14586 USA +1 585 292 5450; fax +1 585 292 5459 sales@aseoptics.com; www.aseoptics.com

### Featured Product: ASE Optics is an RPO company and offers optical design services.

Rochester Precision Optics acquired ASE Optics in Jan 2011. ASE was formed in 1994 and has provided optical engineering services and research to over 200 different clients, ranging from government agencies to Fortune 500 companies to universities. ASE's optical scientists and engineers all have either doctoral or master's degrees in optics, and they can partner with you on a simple design or more complex research using our Optical Discovery Service<sup>TM</sup>. Contact: Rosalie Clemens, Director of Business Development, sales@aseoptics.com; Matthew Pembroke, Director of Sales, sales@rpoptics.com

**ASO Corp.** 3-5-8-301 Funado, Itabashi-ku, Tokyo, 174-0041 Japan

+81 3 3969 0021; fax +81 3 3558 0021 k.ota@k-aso.jp; www.kk-aso.jp/base6.html

Featured Product: Transmission centering instrument CS-A1100, reflection centering instrument US-A1000 and US-A1

ASO Corp. develops, manufactures, and sells measurement instruments for optical systems that prioritize accuracy and user-friendliness reflecting the customer's viewpoint. The principal instruments are the transmission centering measurement systems CS-A1100 and the reflection-type US-A1000; as well as the US-A1 for very small lenses with diameter of less than 1.0mm. These instruments are highly evaluated in the market where they are widely considered to have established a new defacto standard. Contact: Katsushi Ota, President, k.ota@k-aso.jp

**Aspen Systems, Inc.** 

#4521

#4935

24 Saint Martin Dr, Marlborough, MA, 01752 USA +1 508 281 5322; fax +1 508 281 1523 info@aspensystems.com; www.aspensystems.com

### Featured Product: The Compact Reliable Liquid Chiller Module is designed to readily integrate into customer's products.

Aspen Systems supplies compact, reliable vapor compression-based chillers and thermal management systems for laser, medical, industrial, and military applications. We specialize in stand-alone or integrated cooling solutions where compact size and reliability are key parameters. Chilled water, direct refrigerant, and air cooling approaches have all been developed by Aspen and successfully used by our customers. Come see us at our booth to discuss your next thermal management project. Contact: Jim Burnett, Director - Business Development, jburnett@aspensystems.com; Glenn Deming, Vice President, gdeming@aspensystems.com

Asphera, Inc.

#6031

108 Whispering Pines Drive, Ste 110, Scotts Valley, CA, 95066 USA +1 831 431 6801

info@asphera.net; www.asphera.net

Featured Product: ZnSe Aspherical - 30.0 mm Aspheric - convex Lens

Asphera Incorporated is a precision optics company located in Scotts Valley, California, in a technology center near the Santa Cruz coast with convenient access to Silicon Valley. Asphera was developed by optical industry experts with a focus on aspherical lens applications and manufacturing. Asphera is continually expanding its capabilities, offering components of optical glasses, fused silica, UV-IR crystals, micro-optics, ultra-thin quartz windows, reticles, prisms and a wide array of coatin. Contact: Brian Morrisey, Director, brian@asphera.net; Rex Tossomich, Business Development, rex@asphera.net

#### asphericon, Inc.

#929

SPIE Corporate Member

411 N Main St Ste 2-A, Gainesville, FL, 32601 USA +1 941 564 0890

sales@aspericon.com; www.asphericon.com

### Featured Product: Aspheric components, optical design, optical coating, and optical systems

AAs an independent specialist, asphericon is among the technological leaders in asphere manufacturing. The basis for manufacturing is a patented technology to control CNC grinding and polishing machines. From small runs right through to large series, asphere can be manufactured with high precision. asphericon assists its customers from the initial optic design, to the manufacturing, coating and full-surface interferometric measuring, through to the assembly of optical modules and their characterization. Contact: Sabrina Matthias, President, s.matthias@asphericon.com; Steffen Schneider, Vice President, s.schneider@asphericon.com

#### AT-Fachverlag GmbH / Photonik

#4345

Wilhelm-Pfitzer-Str 28, Fellbach, 70736 Germany +49 711 95 29 51 0; fax +49 711 95 29 51 99 at@at-fachverlag.de; www.at-fachverlag.de

Featured Product: PHOTONIK, LASER+PHOTONICS, BIOPHOTONIK are magazines for high-tech areas of optical technologies.

AT-Fachverlag is ja German publishing company which published amongst others PHOTONIK, LASER+PHOTONICS, BIOPHOTONIK. These magazines are covering high-tech areas of optical technologies. In this area, PHOTONIK provides the highest circulation in the German-speaking marketplace. PHOTONIK publishes technical articles, reports on new products and business news. The magazine is targeted at development engineers and industrial users of such products. LASER+PHOTONICS is the English best-of issue. Contact: Christiane Wenke, Team Leader Product Management, christiane.wenke@at-fachverlag.de

ATIK Cameras #563

Unit 8 Lodge Farm Barns New Rd, Norwich, NR9 3LZ United Kingdom

+44 1603 740397; fax +44 1603 340600

contact@atik-cameras.com; www.atik-cameras.com

### Featured Product: Low-light slow-scan cameras for OEMs and end users

Atik Cameras has a long history of supplying cooled CCD cameras into OEM, life science, and industrial applications. We take pride in providing cost-effective high-performance products which can be readily modified to meet a specific need. Atik Cameras excels in providing cameras with designed-in reliability for very low-light applications. Contact: Stephen Chambers, R+D manager, contact@atik-cameras.com; Rui Tripa, Production Manager, contact@atik-cameras.com

#### ATL Lasertechnik US

#6043

+1 2794 Gateway Rd, Carlsbad, CA, 92009 USA

+1 858 220 1070

johnwroy1@gmail.com; www.atl-laser.com

### Featured Product: ATLEX FBG, high-efficient excimer laser for Fiber Bragg Grating (FBG) writing applications.

ATL Lasertechnik GmbH was established in 1993 and made a breakthrough in UV laser technology in 1994 by developing the world's first compact, high repetition-rate, short-pulse excimer laser. ATL Lasertechnik is the #1 in compact excimer lasers and the perfect solution for a wide variety of high duty cycle industrial applications such as FBG, micromachining, medicine and spectroscopy. For additional information contact info@atl-laser.com or visit www.ATL-Laser.com Contact: Marius Przybylski, President, info@atl-laser.com; Dawid Przybylski, Product Manager, info@atl-laser.com

#### attocube systems Inc.

#4546

SPIE Corporate

2020 Stuart St, Berkeley, CA, 94703 USA +1 510 649 9245

info@attocube.com; www.attocube.com

attocube offers highest precision piezo positioning systems and multi-axes position displacement sensors based on fiber interferometer technology. With the introduction of the IDS3010, attocube now offers an industrial sensor solution which is designed for OEM integration. The IDS3010 is based on the same R&D100 award-winning technology of attocube's well-established FPS3010 lab measurement system. The IDS3010 opens a new world of possibilities for demanding position sensing applications.

#### **ATV Technologie GmbH**

#4038

Johann-Sebastian-Bach-Str 38, Vaterstetten, 85591 Germany +49 8106 3050 0; fax +49 8106 3050 99 sales@atv-tech.de; www.atv-tech.com

### Featured Product: SRO Series, PEO Series, LTCC Sintering Press, RV Series, Precision hot plates/chucks.

ATV Technologie GmbH manufactures thermal processing equipment that includes IR vacuum reflow soldering & brazing ovens/RTAs with formic acid atmospheres, multipurpose fast ramping process quartz tube furnaces, and the LTCC Sintering Press. In addition to these products we also offer high precision hot plates/chucks and manual diamond scribers. Please visit us in booth # 4038 for more information on our products. Contact: Siegfried Kowalsky, Sales Manager, sales@atv-tech.de

#### **AUREA Technology**

#1223-A

18 rue Alain Savary, Besançon, 25000 France +33 3 81 25 29 83

pw@aureatechnology.com; www.aureatechnology.com

### Featured Product: PicoXea: first "all-in-one" picosecond resolution fluorescence lifetime TCSPC measurement analyzer

AUREA Technology provides the best-in-class single photon counting, time-correlated single photon counting, twin photon source, and picosecond laser solutions from 400 to 1,700 nm. As a technology leader AUREA Technology provides a new generation of well-designed, high-performance, reliable, and easy-to-use optical instruments which enable scientists to achieve outstanding results in quantum information, life sciences, nanotechnology, chemistry, medical and semiconductors industries. Contact: Jerome Prieur, President & CEO, jerome.prieur@aureatechnology.com

#### Autex, Inc.

#4949

16-5 Tomihisa-cho, Shinjuku-takasago Bldg, Shinjuku-ku Tokyo, 162-0067 Japan

+81 3 3226 6321; fax +81 3 3226 6290 sales32@autex-inc.co.jp; www.autex-inc.co.jp

#### Featured Product: Light-Curable Epoxy Resin "Parqit".

Autex Inc, has invented unique photo latent curable initiator for epoxy resin which allows to cure almost all commercial epoxy using with UV or visible light. The name of this product is "Parqit". The Parqit is solventless and one pack type epoxy. For precision gluing, nanoimprinting, low shrinkage, two photon polymerization using with UV curing type. For molding, mixing with heat sink material, Bio applications using with visible curing. Choose appropriate model from wide range of products. Contact: Makoto Kino, Sales Manager, kino@ autex-inc.co.jp; Shin Hiwasa, R&D manager, atc81@autex-inc.co.jp

#### Auxora (Shenzhen), Inc.

#3064

West Keyuan Ave, C-201 Huahan Bldg Northern Hi-Tech Industrial Zone, Shenzhen, Guangdong, 518057 China +86 75586016770; fax +86 75586016750 saleschina@auxora.cn; www.auxora.com

### Featured Product: Filter for communication, CATV, biotechnology, high-power lasers, and instruments

Auxora is well-known as a leading manufacturer and solution supplier of optic wavelength management & control applications, including optical thin film filter coating. Auxora has developed proprietary deposition technology for optical thin film filter coating which can be widely used in optical telecommunication, data communication, CATV, biotechnology, high-power lasers, instruments, and other different markets. Contact: Grant Watkins, Sales, gwatkins@auxora.com

#### Avago Technologies Ltd.

#5337

1320 Ridder Park, San Jose, CA, 95131 USA +1 408 435 5842 www.avagotech.com

### Featured Product: Wafer scale passive optics, refractive/diffractive optics, and integrated components.

Avago Technologies is a leading designer, developer, and global supplier of a broad range of analog, digital, mixed signal and optoelectronics components as well as subsystems with a focus in III-V compound semiconductor design and processing. Leveraging world-class InP, GaAs, BiCMOS and silica fabrication and packaging expertise Avago Technologies develops high value products to serve four primary target markets: wireless communications, wired infrastructure, enterprise storage, and industrial. Contact: Rob Hannah, Product Marketing Manager, Optical Components, rob. hannah@avagotech.com; Amolak Badesha, Product Marketing Manager, Optical Components, amolak.badesha@avagotech.com

Avantes, Inc.

#2311

SPIE Corporate Member

9769 W 119th Dr Ste 4, Broomfield, CO, 80021 USA +1 303 410 8668; fax +1 303 410 8669 infousa@ayantes.com; www.ayantes.com

Featured Product: AvaSpec-NIR512-2.5-HSC, AvaSpec-ULS2048L-EVO

Avantes is a global leader in the field of fiber optic spectroscopy providing a spectrometers, light sources, and fiber optics in the 190-2500 nm spectrum. Drawing upon over 20 years of experience and innovative achievement in fiber optic spectroscopy in hundreds of applications, Avantes is equipped to tailor a solution to your needs. Avantes will showcase the AvaSpec-NIR512-2.5-HSC near infrared spectrometer and the AvaSpec-ULS2048L-EVO USB3 and native gigabit Ethernet spectrometer.

#### **Avo Photonics, Inc.**

#1034

SPIE Corporate Member

700 Business Center Dr Ste 125, Horsham, PA, 19044-3433 USA +1 215 441 0107

sales@avophotonics.com; www.avophotonics.com

Avo Photonics designs, develops, and manufactures confidential, client-owned opto-electronic solutions for medical, industrial, communications, military, and aerospace markets. We provide our customers innovative product design, prototyping, and volume production contract services all within USA-based, ISO certified, high-quality operations. Avo works as an extension of your team to help your company during any stage of your product's life cycle.

Axetris AG #94

Schwarzenbergstrstrasse 10, Kaegiswil, CH-6056 Switzerland +41 21 693 8531; fax +41 21 693 8529

Axetris.USA@axetris.com; www.axetris.com
Featured Product: refractive optical elements

Axetris is your partner for compact, high-speed sensitive mass flow controllers; efficient modulated-blackbody mid-IR sources; stable and sensitive laser diode gas analysis; and high quality optical micro-lens arrays. Using our experienced engineering team and total quality management approach, let Axetris help turn your ideas into solutions. Contact: Stefan Lesjak, Sales Manager, stefan.lesjak@ axetris.com; Peter Rajec, Sales Manager, peter.rajec@axetris.com

**Axiom Optics** 

#1817

50 Milk St, 16th Fl, Cambridge, MA, 02109 USA +1 617 401 2198

info@axiomoptics.com; www.axiomoptics.com

### Featured Product: Ultra-compact Laser Beam Profiler from UV to IR & InGaAs Laser Viewer

Axiom Optics is a leading distributor of optical instrumentation for metrology, laser characterization and scientific imaging in North America. We offer: -Confocal Chromatic distance and thickness sensors and 3D metrology systems -Laser Beam Profiling solutions for UV, Visible, NIR and CO<sub>2</sub> Lasers. -Low-light, high speed & SWIR InGaAs Cameras For more information, go to http://www.axiomoptics.com. Contact: Phillippe Clemenceau, Co-Founder, pclemenceau@axiomoptics.com; Nick Lechocinski, Technical Sales Engineer, nick@axiomoptics.com

#### **Axsun Technologies**

#417

1 Fortune Dr, Billerica, MA, 01821-3923 USA +1 978 262 0049; fax +1 978 262 0035 info@axsun.com; www.axsun.com

#### Featured Product: 1060nm and 1310nm Swept Source OCT imaging engines with integrated data acquisition

Axsun Technologies, the leading provider of healthcare OCT imaging subsystems, offers the industry's most advanced OCT imaging products. Axsun's Swept Laser Engines and high speed data acquisition products enable ultrafast, portable, high-resolution imaging with outstanding depth range across a variety of biomedical and industrial applications. Axsun will demonstrate its next generation Swept Laser Engines and data acquisition products at Photonics West 2016, booth 417. Contact: Kathleen Mooney, Sales Administrator, info@axsun.com

#### AXT, Inc.

#408

4281 Technology Dr, Fremont, CA, 94538-6339 USA +1 510 438 4700; fax +1 510 353 0668

sales@axt.com; www.axt.com/site/index.php?q=node/1

#### Featured Product: III-V semiconductors

AXT, Inc. designs, develops, manufactures and distributes high-performance compound semiconductor substrates. Products available are Gallium Arsenide (GaAs), Indium Phosphide (InP) and Germanium (Ge) substrates. Through subsidiaries & joint ventures, we offer raw materials such as Ga-4N, 6N, and 7N, Ge, As-4N, 6N, and 7N, pBN components, crucibles, and other related MBE parts. Contact: Robert Ochrym, Sr. VP Sales, Mktg & Bus Dev., bob.ochrym@axt.com

#### Ayase America Inc.

#2441

SPIE Corporate Member

100 Pringle Ave Ste 229, Walnut Creek, CA, 94596 USA +1 925 464 7221; fax +1 925 300 3435 info@ayaseamerica.com; ayasecorporation.com

#### Featured Product: LINEMAN (Line Generator Module), Ayase APC Plus Module

Ayase America, Inc., established in Silicon Valley in 2004, is a subsidiary of Ayase Co., Ltd., located in Yokohama, Japan. The Ayase team has extensive experience in lasers and their related applications. We also have close relationships with selected world-class manufactures of laser diodes, laser modules, and optics. Our knowledge and partnerships with manufactures allow us to provide our customers with integrated, innovative, reliable, and cost-effective products. Contact: Kevin Wells, VP of Sales & Marketing, kwells@ayaseamerica.com; Takako Ochoa, Operating Manager, tochoa@ayaseamerica.com

#### **Azur Light Systems**

#1223-G

11 ave de Canteranne, Cité de la Photonique - SIRAH, Pessac, 33600 France

+33 5 47 74 55 90; fax +33 5 47 74 55 99

info@azurlight-systems.com; www.azurlight-systems.com

#### Featured Product: High-power CW fiber laser and fiber laser amps

Azur Light Systems (ALS) develops, manufactures, and commercializes an innovative fiber laser technology at new wavelengths for scientific, industrial, and bio-medical applications. Our products are unique in offering an all-fiber solution for greatly improved stability and unprecedented levels of integration for systems applications. All of our lasers are available in single mode and single frequency versions for the most demanding applications. Contact: Nicholas Traynor, President & CEO, ntraynor@azurlight-systems.com; Didier-Luc Brunet, VP Sales & Marcom, dlbrunet@azurlight-systems.com



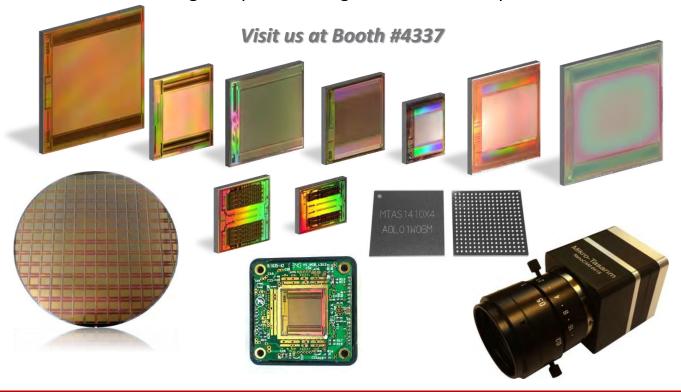
**Next Generation Imaging Sensors** 

www.mikro-tasarim.com.tr

**Mikro-Tasarım** provides high-performance ROICs, sensors, and ASICs for your infrared imaging applications



Infrared images captured using Mikro-Tasarım's products



#### **AZURE Photonics U.S.A., Inc.**

#5350

**Basler** #5547 855 Springdale Dr Ste 203, Exton. PA. 19341 USA

2010 Crow Canyon PI Ste 100, San Ramon, CA, 94583 USA +1 650 739 3001; fax +1 925 833 8708

sales@azure photonics.com; www.azure photonics us.com

Contact: David Weng

Meter Board Sponsor

**B&W Tek, Inc.** 

#2529

SPIE Corporate

19 Shea Way, Newark, DE, 19713-3452 USA +1 302 368 7824; fax +1 302 368 7830 marketing@bwtek.com; www.bwtek.com

### Featured Product: Exemplar Plus LS utilizes an aberration corrected concave holographic grating to minimize straylight

B&W Tek is an advanced instrumentation company producing optical spectroscopy, laser instrumentation, and laboratory, portable, and handheld Raman systems. B&W Tek provides solutions for the pharmaceutical, biomedical, physical, chemical, and research communities. Our commitment to innovative solutions has made B&W Tek a leader in Raman spectroscopy solutions worldwide. With a strong vertical integration capability, B&W Tek also provides custom product development, design, and manufacturing. Contact: Sam Panariello, Application Sales Specialist, samp@bwtek.com; Parag Borgaonkar, Application Sales Manager, paragb@bwtek.com

#### **Baikowski International Corp.**

#4364

6601 Northpark Blvd Ste H, Charlotte, NC, 28216-2385 USA +1 704 587 7100; fax +1 704 587 7106

q.yuminami@baikowski.com; www.baikowski.com

### Featured Product: High purity alumina polishing powder and slurry, Konoshima ceramic YAG.

For more than a hundred years (110 years in 2014), Baikowski has been a leading industrial manufacturer of specialty in-organics. The company focuses on tailoring high purity alumina powders and formulations, as well as other fine oxides and composites such as spinel, ZTA, YAG and Ceria for technical ceramics, precision polishing, crystals, and additives/coatings applications. Konoshima has perfected ceramic YAG over the past 15 years by using in-house developed, high purity raw materials. Contact: Q. YUMINAMI, Sales manager, q.yuminami@baikowski.com

#### **Bartenbach GmbH**

#5065

Rinner Str 14, Aldrans Innsbruck, 6071 Austria +43 512 3338 0; fax +43 512 3338 88 info@bartenbach.com; www.bartenbach.com

#### Featured Product: Luminaires, daylight systems

We offer sophisticated and efficient daylighting and artificial lighting solutions by placing man with his visual, emotional and health needs at the focus of our considerations. Our continuous, fundamental and applications-oriented research translates directly into applications and product innovations. Our clients across the world work in the lighting industry, are research partners and customers who want to generate additional benefits in their respective business areas. Contact: Wilfried Pohl, Director Research, wilfried.pohl@bartenbach.com; Christian Anselm, Director Development, christian.anselm@bartenbach.com

855 Springdale Dr Ste 203, Exton, PA, 19341 USA +1 610 280 0171; fax +1 610 280 7608 sales.usa@baslerweb.com; www.baslerweb.com

### Featured Product: Basler ace: VGA to 14 megapixels, up to 750 fps, CCD and CMOS, NIR, GigE, USB 3.0, Camera Link.

Basler manufactures area scan and line scan cameras with CCD and CMOS sensors and USB3, GigE, and other interfaces, lenses, and software. The cameras are used for machine vision systems in quality control and industrial automation (electronics and semiconductor inspection, food inspection, robotics, automotive production), medical devices and life sciences (microscopy, laboratory automation, ophthalmology, dental scanners etc.), and intelligent traffic systems (ITS). Contact: Chris Sangillo, Sales Operations Manager, Chris.Sangillo@baslerweb.com; Jim Brazil, Regional Sales Manager, jim.brazil@baslerweb.com

#### **BASO Precision Optics Ltd.**

#4361-A

14 Chien-Kuo Rd, Taichung Export Processing Zone, Tantzu, Taichung County, 427 Taiwan +886 4 25320168; fax +886 4 25332501

mkt@baso.com.tw; www.baso.com.tw

### Featured Product: Projection lens, video camera lens, telescope lens, AOI lens, customized lens design and development

Founded in 1970 as a subsidiary of Robert Bosch Gmbh's photographic division, BASO Precision Optics is the first optics company in Taiwan. With complete vertical integration in optical products, their worldwide 1st tier customers can collaborate and have ODM and OEM capability. They can provide optical, mechanical and electronic total module solutions, with quality guaranteed. Contact: Morris Chung, Sales manager, Morris.Chung@baso.com.tw

#### BaySpec, Inc.

#911

SPIE Corporate Member

1101 McKay Dr, San Jose, CA, 95131-1706 USA +1 408 512 5928; fax +1 408 512 5929 sales@bayspec.com; www.bayspec.com

### Featured Product: Custom range UV, Visible, NIR, Raman, Hyperspectral spectrographs and spectrometers.

BaySpec, Inc., located in San Jose, CA, is a vertically integrated spectral sensing company. BaySpec manufactures and markets advanced spectral instruments, including UV-VIS-NIR-SWIR spectrometers, benchtop and portable NIR/SWIR and Raman analyzers, confocal Raman microscopes, hyperspectral imagers, mass spectrometers, and OEM spectral engines and components for R&D, biomedical, pharmaceuticals, chemical, food, semiconductor, health monitoring, human, and animal medical devices. Contact: Eric Bergles, VP Sales & Marketing, sales@bayspec.com; Lynn Chandler, Sales, sales@bayspec.com

#### **B-Con Engineering Inc.**

#5638

14 Capella Ct, Ottawa, ON, K2E 7V6 Canada +1 613 727 0021; fax +1 613 727 0493 sales@bconeng.com; www.bconeng.com

#### **Beamtech Optronics Co. Ltd.**

#4444

SPIE Corporate

5320 Lackner Cres, Richmond, BC, V7E 5Z9 Canada +1 604 960 1429; fax +1 604 277 9070

beamtech@shaw.ca; www.beamtech-laser.com

#### Featured Product: Lapa, Mianna-Pico, Vlite-C

Beamtech Optronics Co., Ltd., is a high-tech laser company that specializes in solid-state laser design, development, manufacture, sales, and service. The company was founded in 1997 and has now accumulated 18 years of professional laser production experience. Beamtech provides various flash lamp pumped Nd:YAG lasers for scientific research, medical and industrial OEM lasers, and custombuilt laser systems tailored to customer requirements. Contact: Maisie Li. Admininistrative Assistant

#### **Becker & Hickl GmbH**

#717

Nahmitzer Damm 30, Berlin, 12277 Germany +49 302 128 0020; fax +49 302 128 00213 info@becker-hickl.com; www.becker-hickl.com

### Featured Product: Photon counting devices and systems, TCSPC, FLIM, ps-lasers, microscope scanners

Becker & Hickl GmbH is a technology leader in time-correlated single photon counting (TCSPC). The product range includes TCSPC devices for a wide range of applications, ps correlation, photon counting detectors, ps diode lasers, TCSPC FLIM systems, and complete TCSPC FLIM microscope systems of various manufacturers. Contact: Ludwig Bergann, Operating Manager, info@becker-hickl.de

#### Beijing Bodian Optical Tech. Co., Ltd. #4537

No 2 Tuanjiehu N Rd Chaoyang District, Beijing, 100026 China +86 10 67816586; fax +86 10 65827907 bdoptic@126.com; en.bd-optic.cn

#### Beijing Golden Way Scientific Co., Ltd. #2001-E

E5F Bldg M7,No 1 Jiuxianqiao East Rd, Chaoyang District Beijing, 100016 China

+86 10 8456 0667; fax +86 10 8456 9901 sunrui@goldway.com.cn; www.goldway.com.cn

### Featured Product: Achromatic lenses, cylindrical achromatic doublets, broadband dielectric mirrors, bandpass filters

Golden Way Scientific, established in 1998, has more than 200 staff and 20 engineers, and most of them have more than 20 years of experience in the corresponding field. We have a whole set of optical processing facilities along with a complete set of top-class metrological instruments. We deliver high-quality off the shelf, custom manufacturing, and OEM production of high precision optical components delivered just-in-time. We will reply your inquiry within 24 hours. Contact: Chuanfeng Liu, Vice President, liuchuanfeng@goldway.com.cn; Rebecca Sun, Marketing Manager, sunrui@goldway.com.cn

#### **Beijing JCZ Technology Co., Ltd.**

#4668

No 1 E Rd of Jiuxianqiao, Beijing, 100016 China +86 10 64426995

sophy@bjjcz.com; en.bjjcz.com

### Featured Product: Scanhead with eyes, can show background in software workspace. Also available: laser marking station

BJJCZ was built in January 2004 and focuses on laser marking system development for more than 11 years. 80% of the staff are engineers. We are trying to supply the best laser marking solutions for customers. Our software name is EZCAD. Contact: Xinrong Tian, Manager of Overseas, sophy@bjjcz.com

### Beijing Jiepu Trend Technology Co., Ltd.

#2001-C

3rd Yongchang N Rd, No 8 Bldg Economic & Development Area, Beijing, 100176 China

+86 10 67877187; fax +86 10 67877162 info@jiepu.com; www.jiepu.com

### Featured Product: Bonding crystal, laser crystal, optical component, windows, prism, lens, mirror

Beijing Jiepu Trend Technology Co., Ltd. (BJP), established in 1998, specializes in laser crystal development, production, processing and is also a professional coating retailer. We produce a series of high-quality laser crystal that can fulfill requirements for industrial, medical, military, scientific research, communications and other fields. Contact: Amy Lee, Marketing Manager, amylee@jiepu.com; Hai Hu, Manager, infor@jiepu.com

#### Beijing Leway International Fairs Co., Ltd. #4547; 4549; 4646

No 13 Nongzhanguan S Rd, Rm 719 Ruichen International Ctr, Beijing, 100125 China +86 10 51295359; fax +86 10 51295379

expo8210@worldfairs.cn; www.worldfairs.cn

### Beijing Opto-Electronics Technology Co. Ltd. #

No 4 Jiuxianqiao Lu, S Hall No 4 Bldg No 11 Research Institute of CETC, Beijing, 100015 China

+86 10 8456 1199; fax +86 10 8456 2777 sales@oet.com.cn; www.oet.com.cn

Featured Product: Laser Crystal.

Beijing Opto-Electronics Technology Co., Ltd (BOET) is a professional manufacturer of crystal for use in solid-state laser system with more than 40 years of experience and Czochralski growth equipment; such as Nd:YAG, Cr:YAG, Yb:YAG, Nd:YLF, Tm:YLF and Ho:YLF. Contact: Heyi Lai, Sales Manager, Laiheyi@oet.com.cn

#### Beijing QM Technology Co., Ltd.

No 88 JianGuo Rd Chaoyang District, Beijing, 100022 China +86 5719 89 70; fax +86 5719 89 70 sales@qm-hightech.com; www.qm-hightech.com

#### Featured Product: TO cap, hermetic sealing, glass packaging

Beijing QM Technology Co., Ltd. specializes hermetically package products. Our packages can be applied to RF/microwave devices, IC, optic-electronic devices and MEMS. Contact: Li Zhang, General Manager, sales@qm-hightech.com

#### Meter Board Sponsor

#### Beijing RealLight Technology Co., Ltd. #5158

No. 5 Liangshuihe 1st Street, 3rd Floor, Beijing, 100176 China +86 10 67889536; fax +86 10 67889536 872 sales@real-light.com; www.real-light.com

### Featured Product: Narrow linewidth diode laser module and system.

RealLight is a high technology enterprise specializing in research, development, and manufacturing of fiber pigtailed semiconductor laser, sub-systems, and related laser accessories. RealLight's staff consists of a team of laser industry veterans with many years of experience in the assembly and fiber-coupling of semiconductor lasers, as well as a team of optical-electro-mechanical engineers who focus on diode laser applications to serve mainly medical and spectral industry. Contact: Lynne Dong, Sales and Marketing Manager, lynne.dong@real-light.com; sales@real-light.com

#### **Beijing Scitlion Technology Co., Ltd.**

SPIE Corporate

No 5 Xingguang 4 Ave, Tongzhou District Beijing, Anhui, 101111

+86 10 81508344: fax +86 10 81508384 jin@scitlion.com; www.scitlion.com

#### Featured Product: Core 100-1000um fiber, customized silica fiber parts & CaF<sub>2</sub>, BaF<sub>2</sub>, MgF<sub>2</sub>, LiF, CeF<sub>3</sub>, Eu:CaF<sub>2</sub> crystals

Founded in 1960, Beijing Scitlion Technology specializes in manufacturing fluoride crystals, optical components & silica fibers & devices. After 55 years of development, we have 4 units: crystal, with CaF<sub>2</sub>, BaF<sub>2</sub>, LiF, MgF<sub>2</sub>, CeF<sub>3</sub>, Eu:CaF<sub>2</sub>, LaBr<sub>3</sub>:Ce, LaCl<sub>3</sub> blanks & end components; optical fiber, with 100µm-1000µm core UV, VIS, IR silica fiber & customized parts; optical design & processing, with cold processing & UV, AR, HR coating; & special glass, with sealing glass powder & the lubricant glass. Contact: Lele Jin, Sales Supervisor, jin@scitlion.com; Liyuan Zhao, Sales Manager, liyuan. zhao@scitlion.com

#### **Beijing TRANS Manufacture and Trade** Co., Ltd.

No 6 Guangyuan Dongjie, Tongzhou District Beijing, 101113 China +86 10 69574218; fax +86 10 69574216

info@transoptics.com.cn; www.transoptics.com.cn

#### Featured Product: Spherical lenses, all kinds of prisms, optical flats, mirrors, windows, and assembly lenses

BTMT was founded in 1998 as a high tech enterprise. We focus on current industry trends, promoting cutting-edge technology, and continuing to improve product quality to be a more complete solution to customers' needs. With the support of advanced processing equipment, first-class testing instruments, excellent team members, and a digital ERP management system, BTMT implements seven day delivery to create higher value for our customers. Contact: Jason Zhang, Senior Marketing specialist, jasonzhang@transoptics.com.cn

#### **Benchmark Technologies**

#6023 7 Kimball Ln, Lynnfield, MA, 01940-2654 USA

+1 781 246 3303: fax +1 781 246 0308 contact@benmarktech.com; www.benchmarktech.com

#### Featured Product: Grayscale mask design and fabrication services, imprint stamps and molds

Benchmark is a leading provider of custom fabrication services utilizing micro and nanoscale lithography and advanced etching. Benchmark can provide micro-and nano-structures for photonic and bio applications on a variety of substrates. The company also provides mask design and fabrication services, standard and custom lithography test masks, and imprint molds. Benchmark also offers grayscale mask design and fabrication services for customers wishing to implement grayscale lithography. Contact: Andrew Zanzal, Vice President of Sales, azanzal@benchmarktech.com; Patrick Reynolds, President, preynolds@benchmarktech.com

#### Berlin Adlershof - WISTA-MANAGEMENT #4629

Rudower Chaussee 17, Berlin, 12489 Germany +49 30 6392 2250; fax +49 30 6392 2235 info@wista.de; www.adlershof.de

#### Featured Product: Berlin Adlershof is Germany's leading Science and Technology Park and Berlin's Number 1 Media Hub.

Adlershof is home to over 1,000 companies and scientific institutions (Jan 2015) on an area of 4.2 km<sup>2</sup> embedded in an integrated urban planning concept. 15,931 people work and 6,235 study here. The Science and Technology Park is at the heart of the Adlershof Science City. It encompasses 478 companies and ten non-university research institutes. They focus on: Photonics and optics, renewable energies and photovoltaics, microsystems and materials, IT and media, and biotechnology and environment. Contact: Sandra Chabrier, Sales and Marketing Technology Centres, chabrier@wista. de; Helge Neumann, Executive Manager Business Development, helge@wista.de

#### Berliner Glas KGaA Herbert Kubatz GmbH & Co.

#1035

SPIE Corporate Member

#1540

#1540

Waldkraiburger Str. 5, Berlin, 12347 Germany +49 30 609050: fax +49 30 60905100 photonics@berlinerglas.de; www.berlinerglas.com

#### Featured Product: OEM optical solutions: from concept to volume production

Berliner Glas is one of the world's leading providers of optical key components, assemblies and systems. Berliner Glas develops, produces and integrates optics, mechanics and electronics into innovative system solutions for its customers. As OEM partners from concept to volume production, Berliner Glas serves innovative customers in various market segments: semiconductor industry, medical technology, laser and space technology, analytics and the display industry. Contact: Kevin Liddane, Director of Sales - North America, kliddane@berlinerglasus.com

#### **Bertin Technologies**

#1123-C

155, rue Louis Armand - CS 30495, Aix-en-Provence, 13793 France +33 7 87 62 96 06; fax +33 4 42 60 00 13 benjamin.fradin@bertin.fr; www.bertin.fr

#### Featured Product: Voltaire: Compact 40-mJ, DPSS Nd:YAG laser, without external cooling device or driver.

Advanced technology for Defense, partner for large armament programs, especially equipments and systems development, prototypes realization: biologic analysis automates, reading and authentication optical equipments, supply on average series of equipments and specific Optronic systems (surveillance, detection, tracking, measure), remote detection of gases, test and inspection benches, systems of measurement and alignment, reading electrooptical sensors, identification and authentication, Contact: Benjamin Fradin de la Renaudière, Sales Manager, benjamin.fradin@bertin.fr

#### **BigC Dino-Lite Digital Microscope**

#4962

SPIE Corporate Member

19803 Hamilton Av, #200, Torrance, CA, 90502 USA +1 310 618 9990; fax +1 877 978 2787 sales@dinolite.us: www.dinolite.us

#### Featured Product: Dino-Lite Edge series

Handheld digital microscopes are used for inspection and quality control. Most models provide 10x-220x magnification. The included DinoCapture software has the capability to capture images, record videos, annotate, and perform measurements. The EDGE series contains an enhanced sensor for improved image quality, with features such as Extended Depth of Field (EDOF) and Automatic Magnification Reading (AMR). The 5MP Edge series models are now available, with Flexible LED Control (FLC). Contact: Pamela Szeto, Trade Show Coordinator, pszeto@bigc.com

#### **Biophotonic Solutions, Inc.**

#736

SPIE Corporate Member

1401 E Lansing Dr Ste 112, East Lansing, MI, 48823-2992 USA +1 517 580 4075; fax +1 517 579 8571

info@bsifemto.com; www.biophotonicsolutions.com

### Featured Product: femtoJockD, budget-sensitive solution for adaptive pulse compression & shaping with >200 P&A channels

Biophotonic Solutions, Inc. (BSI) is the world leader in adaptive femtosecond laser pulse compression and shaping. BSI's mission is to make ultrafast laser applications practical by eliminating the need for manual adjustment of fixed optics, thus minimizing downtime spent fine-tuning the laser system output. BSI's products, based on state-of-art MIIPS technology, unlock the latent power of ultrafast lasers for nonlinear microscopy, micromachining, attosecond science and other applications. Contact: Bingwei Xu, Director of Production and Distribution, bxu@bsifemto.com

#### **BKtel photonics**

#4514

5 rue Louis de Broglie, Lannion, 22300 France +33 967 137 123; fax +33 296 237 123 photonics@bktel.com; www.bktel.com

#### Featured Product: 1.5um pulsed fiber laser

BKtel photonics is the leading manufacturer of fiber amplifiers and fiber lasers for telecommunication, cable TV, FTTH, military, medical, aerospace and laboratory applications. With over 18 years of activity, BKtel products include a wide range of platforms (small OEM modules to rack assemblies) in the 1µm, 1.5µm and 2µm bands with various core technologies Contact: Markus Ojutkangas, General Manager, ojutkangas@bktel.com

#### **Blackstone-NEY Ultrasonics**

#5631

9 N Main St, Jamestown, NY, 14702 USA +1 800 766 6606

info@ctgclean.com; www.ctgclean.com

#### **Featured Product: Megasonics**

Blackstone-NEY Ultrasonics introduces the first multi-frequency, sweeping or non-sweeping, megasonic system. The multiMEG's four mode operation (430 kHz conventional streaming megasonics/430 kHz dualSWEEP megasonics /1.3 MHz conventional streaming megasonics/1.3 MHz dualSWEEP megasonics) delivers higher yields in a single process tank. Contact: Doug Cole, Sales Manager, dcole@ctgclean.com; Dave Melton, Marketing Manager, dmelton@ctgclean.com

#### **Block Engineering, LLC**

#4768

SPIE Corporate

377 Simarano Dr Ste 130, Marlborough, MA, 01752-3096 USA +1 508 251 3100; fax +1 508 251 3171 info@blockeng.com; www.blockeng.com

#### **Blue Ridge Optics, LLC**

#4418

SPIE Corporate

118 Center St, Bedford, VA, 24523-2735 USA +1 540 586 8526; fax +1 540 586 8527 sales@blueridgeoptics.com; www.blueridgeoptics.com

#### Blue Sky Research

#1040

510 Alder Dr, Milpitas, CA, 95035-7443 USA +1 408 941 6068; fax +1 408 941 0406

sales@blueskyresearch.com; www.blueskyresearch.com/c/b/

#### Featured Product: The SpectraTec X, Multi-Laser Source.

Blue Sky Research is a vertically integrated volume manufacturer of fiber-coupled and free space, red, blue, violet, and IR laser systems, semiconductor laser devices, and OEM laser components. The company crafts state of the art laser products using its inhouse expertise in micro-optics, laser diode manufacturing and optical/electrical engineering disciplines. Blue Sky Research provides solutions to your high reliability, custom requirement(s) and application-specific products/system needs. Contact: Charles Mackrodt, Customer Program Manager, cmackrodt@blueskyresearch.com

#### **BMV Optical Technologies Inc.**

#4251

26 Concourse Gate, Ottawa, ON, K2E 7T7 Canada +1 613 228 2442; fax +1 613 228 4003 info@bmvoptical.com; www.bmvoptical.com

### Featured Product: BMV is very pleased to offer custom designed and manufactured Gaussian Reflectivity Mirrors.

BMV is a manufacturer of precision optical components and systems for R&D, military, medical, aerospace, industry, etc. BMV has complete in-house optical, thin-film and mechanical design to complement our manufacturing and assembly capabilities. Specializing in manufacturing prototype to low volume, our products operate from the UV to the IR with tolerances from commercial grade to ultra-precision. BMV is ISO 9001:2008 certified and registered under the Controlled Goods Program of Canada. Contact: Tom Millen, President, tmillen@bmvoptical.com; Terry Vineham, Vice-President, tvineham@bmvoptical.com

#### BORDEAUX ROUTE DES LASERS #1223-F

rue François Mitterrand, Institut d'Optique d'Aquitaine, Talence, 33400 France

+33 5 57 01 74 50

contact@routedeslasers.com; www.routedeslasers.com

### Featured Product: Services for photonics companies located near Bordeaux, France. Business partnerships with clusters.

Bordeaux Route des Lasers is a French photonics cluster. It gathers research & training centers, technology transfer platforms and innovative companies to facilitate optics and laser technology to penetrate markets in lasers sources, biophotonics, energy, aerospace and instrumentation, for instance. It collaborates with clusters in order to facilitate contacts, partnerships and business opportunities between companies. It helps companies that want to open French subsidiaries near Bordeaux. Contact: Hervé FLOCH, General Manager, contact@routedeslasers.com

#### **Boston Applied Technologies, Inc.**

#4447

SPIE Corporate

6 Gill St Ste F, Woburn, MA, 01801-1721 USA +1 781 935 2800; fax +1 781 935 2860 sales@bostonati.com: www.bostonati.com

### Featured Product: High speed polarization controllers, fast switches, and large aperture IR tunable filters

BATi provides functional materials, compact photonic devices, and ultra-fast imaging systems. All are accompanied by easy-to-use, powerful control and analysis software. Our products are based on state- of-the-art OptoCeramic materials, utilizing polarization and florescence from visible to infrared light, and combining expertise in optics, fiber optics, and packaging. Applications include: biomedical research, remote sensing, new energy exploration, nuclear physics, and telecommunications. Contact: Xiaopei Chen, Staff Scientist, xpchen@bostonati.com; Run Zhang, VP of Enginnering, rzhang@bostonati.com

#### **Boston Electronics Corp.**

#714; 717

SPIE Corporate Member

91 Boylston St, Brookline, MA, 02445-7602 USA +1 617 566 3821; fax +1 617 731 0935 boselec@boselec.com; www.boselec.com

#### Featured Product: Tunable IR lasers, picosecond

We are specialists in photodetection and photon generation. We are agents for leading European manufacturers who make or apply single photon counting or analog/linear UV or IR detectors or related light sources - including tunable IR lasers. These manufacturers include Becker & Hickl and sglux of Berlin, id Quantique of Geneva, Vigo System of Warsaw, Heimann Sensor of Dresden and Alpes Lasers of Neuchatel. Picosecond TCSPC spoken here. Contact: Fred Perry, President

#### **Boston Micromachines Corp.**

#936

SPIE Corporate Member

30 Spinelli PI, Cambridge, MA, 02138-1070 USA +1 617 868 4178; fax +1 617 868 7996 moreinfo@bostonmicromachines.com; www.bostonmicromachines.com

Contact: Angelica Perrone, Marketing/Communications Associate

#### **BoXin Photoelectric Co., Ltd.**

#4255

SPIE Corporate Member

66 Forester Cres, Markham, ON, L6C 1V2 Canada +1 416 305 7033

henry@bxoptic.com; www.bxoptic.com

### Featured Product: Optical component with high precision, big size and all shapes e.g. toroidal, Plano, optical coating

BoXin has produced a full series of optical products. In addition to optical glass materials, we also use CaF<sub>2</sub>, MgF<sub>2</sub>, BaF<sub>2</sub>, Ge, ZnSe, Si, ZnS etc. crystal materials to produce lenses, spherical lenses, aspherical lenses, cylindrical lenses, toroidal lenses, prisms, mirrors, windows, and all kinds of filters, cemented lenses, and Plano. In addition, we provide IR camera lens, X-Ray mechanical camera lens, special optical camera lens. All products correspond to ISO9001, 2000 management system. Contact: Henry Zhao, Marketing executive, henry@bxoptic.com

#### **Breault Research Organization, Inc.**

#701

SPIE Corporate Member

6400 E Grant Rd Ste 350, Tucson, AZ, 85715-3823 USA +1 800 882 5085; fax +1 520 721 9630 sales@breault.com; www.breault.com

### Featured Product: ASAP\*, the Advanced Systems Analysis Program, will model the finest details of optical systems.

BRO is an optical engineering firm of global reach and reputation. BRO's APEX, ASAP, and ReflectorCAD optical software products help engineers turn creative visions into working prototypes, and BRO's own engineers work on state-of-the-art projects for enterprise companies, research institutions, and top government labs. In 30+ years of innovation, BRO has contributed to the success of engineering projects for thousands of clients. Contact: Robert Shroder, Technical Director of Sales and Marketing, rshroder@ breault.com; Mary Turner, Director of Training, mturner@breault.com

#### **Bridger Photonics, Inc.**

#4622

2310 University Way Bldg 4-4, Bozeman, MT, 59715 USA +1 406 585 2774; fax +1 406 587 0808

annamarie@bridgerphotonics.com; www.bridgerphotonics.com

### Featured Product: Thickness Metrology Station provides precise non-contact thickness & refractive index measurements.

Bridger Photonics is a recognized world leader in high-resolution, absolute distance measurement and coherent imaging technologies, including ladar and lidar. Together with our customers and partners we create sound and innovative solutions to meet their metrology and security & defense objectives. We are driven by a desire to create innovative distance measurement products that advance society and significantly enhance our customers' measurement capabilities. Contact: Annamarie Brasseur, Admin Specialist, annamarie@bridgerphotonics.com

#### **Bright LED Electronics Group**

#4361-K

No 19, Hepding Rd, Banqiao Dist., New Taipei City, 22061 Taiwan +886 2 29591090 x345; fax +886 2 29547006 alyssa.liao@brtled.com; www.brtled.com

### Featured Product: LED filament light bulbs, LED light bulb, T8 light tube, LED spotlight, LED COB, LED Argus, LED, etc.

BBright LED Electronics Corp., (BRTLED group) has been in the LED field for over 35 years. A publicly listed company, BRTLED group has five subsidiaries: Kobrite Corporation for LED chips and DIE, E-Run Electronic Product Ltd. for plastic parts/materials, Bright Crystal Co, Ltd. for Sapphires, Bright Rise Circuit Board Corp. for PCB/FPC, and Powertip Technology Corp. for LCD, TFT, and 3D. BRTLED has 3 factory plants in China. Our goal is to satisfy/partner with clients to create a brighter world. Contact: Alyssa Liao, Lighting Specialist, alyssa.liao@brtled.com

#### **Bright Solutions Srl**

#2613

Via Artigiani 27, Cura Carpignano, 27010 Italy +39 0382 583091; fax +39 0382 583690 sales@brightsolutions.it; www.brightsolutions.it

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88–90 for complete times, schedules, and locations.

#### Brighterwave, Inc.

#5269

PO Box 266, Tampere, 33101 Finland +358 449894989

info@brighterwave.com; www.brighterwave.com

### Featured Product: Novel laser light sources for augmented reality eyewear and biomedical-imaging applications

Brighterwave Inc. (Finland) designs and sells visible laser light sources for augmented reality eyewear and biomedical imaging applications. Our novel laser technology is based on frequency conversion bringing several advantages to target applications: unparalleled image quality, ultra-compact and cost-efficient design and free-space/SM fiber coupled output (1...100 mW) at any specific wavelength. We design and develop our products in-house and operate through world-class manufacturing partners. Contact: Tomi Jouhti, Co-founder, tomi.jouhti@brighterwave.com; Janne Konttinen, Co-founder, janne.konttinen@brighterwave.com

#### Brimrose Corp. of America

#2105

19 Loveton Cir, Sparks, MD, 21152-9201 USA +1 410 472 7070; fax +1 410 472 7960

jkasprzak@brimrose.com; www.brimrose.com

### Featured Product: Fiber-coupled AOMs, pulse pickers, AO frequency shifters, Q-switches, AOTFs, hyperspectral imagers

Brimrose is a world leader in the design and manufacture of high frequency MHz/GHz acousto-optic devices and systems for various commercial, scientific research, and military uses. These include high speed fiber coupled AOMs and pulse pickers, Q-switches, AOTFs, AO deflectors, and supporting RF drive electronics, AOTF hyperspectral imagers, and AOTF microscope adaptors. For custom designs and OEM arrangements contact Jan S. Kasprzak, Business Development, at jkasprzak@brimrose.com. Contact: Angela Zingone, Sales Assistant, azingone@brimrose.com

#### **Bristol Instruments, Inc.**

#627

SPIE Corporate Member

50 Victor Heights Pkwy, Victor, NY, 14564 USA +1 585 924 2620; fax +1 585 924 2623 info@bristol-inst.com; www.bristol-inst.com

Bristol Instruments offers a variety of wavelength meters and spectrum analyzers for characterization of CW and pulsed lasers that operate over the range of 350 nm to 12  $\mu m$ . Laser wavelength is measured to an accuracy as high as  $\pm$  0.0001 nm and a laser's spectrum is determined to a resolution as high as 2 GHz. Interferometer-based products are also provided to reliably measure critical physical dimensions of materials such as specialty plastic films, medical membranes, and ophthalmic products. Contact: Walter Hersom, North American Sales Manager, whersom@bristol-inst.com; Sam Algera, International Sales Manager, salgera@bristol-inst.com

#### **Brockton Electro-Optics Corp.**

#3010

50 Central Sq Ste 3, Bridgewater, MA, 02324 USA +1 508 559 9958; fax +1 508 659 9190 sales@brocktoneo.com; www.brocktoneo.com



#### **Brolis Semiconductors UAB**

#4310

SPIE Corporate

Moletu pl 73, Vilnius, Vilniaus, 14259 Lithuania +370 52199592

info@brolis-semicon.com; www.brolis-semicon.com

### Featured Product: SensAline tunable single frequency mid infrared laser for gas sensing applications

Brolis Semiconductors is an infrared laser diode maker from near infrared all the way to mid-infrared (0.8 micron - 3 micron) on GaAs, InP, and GaSb. The company runs a state-of-the-art III-V technology facility in Vilnius, Lithuania. Featured products include: high-power CW single-emitters, 10 W @ 980 nm, 1 W @ 1940 nm, 2100 nm, 0.6 W @ 2300 nm, 2450 nm; high-power CW laser diode bars, 15 W @ 1940 nm, 2100 nm, 8.5 W @ 2450 nm; and tunable single-frequency laser in the 1975 nm - 2450 nm range. Contact: Augustinas Vizbaras, Chief Operating Officer Scientist

#### **Brookman Technology, Inc.**

#4837

125, Daiku-machi, Nakaku, Daihatsujisho Bldg 9F, Hamamatsu, Shizuoka, 430-0936 Japan

+81 53 482 7741; fax +81 53 482 7742

bt request@brookmantech.com; brookmantech.com

### Featured Product: Super high sensitivity CMOS image sensor: BT130C

Brookman Technology, Inc., is a fabless CMOS Image Sensor company dedicated for high end imaging applications based on the state of art technologies. BT130C is a 1.3M pixel "super high sensitivity" CMOS image sensor which can capture crystal image under very low light conditions (0.01lx). We will provide a real demonstration of high sensitivity using our evaluation camera of BT130C and sample movies of "high speed global shutter" CMOS image sensors at our booth in Photonics West 2016. Contact: Masaaki Sasaki, Sales Manager, bt\_request@ brookmantech.com

#### Featured Exhibitor Sponsor

#### **Bruker Nano Surfaces, Inc.**

#4245

 $3400\ E$  Britannia Dr Ste 150, Optical and Stylus Metrology, Tucson, AZ, 85706 USA

+1 520 741 1044; fax +1 520 294 1799

productinfo@bruker.com; www.bruker.com/3DMetrology

#### Featured Product: Contour Elite 3D optical microscopes

Bruker is a leader in metrology solutions that provide high-fidelity imaging and trusted measurements for fundamental and advanced surface characterization. Incorporating decades of our Wyko profiler innovations, Bruker's latest 3D optical microscopes measure surface texture, corrosion, wear, volume loss, and many other s-parameters. Contact: Paul Charell, Western Region Sales Manager, paul.charell@bruker.com; Sumin Zho, Product Manager, sumin.zho@bruker.com

#### **Bullen Ultrasonics, Inc.**

#4233

1301 Miller Williams Rd, Eaton, OH, 45320 USA +1 937 456 7133; fax +1 937 456 2779 tfote@bullentech.com: www.bullentech.com

### Featured Product: Structured glass wafers for MEMS and microfluidic applications

We offer precision ultrasonic machining, micro-abrasive jet machining, and CNC grinding of advanced materials including CVD SiC, sapphire, alumina, silicon, quartz, glass, ceramic composites, and other hard & brittle materials; structured wafers for MEMS applications including MEMS pressure sensors and microfluidic applications; and single and double side polished borosilicate wafers. We follow the prototype through production with advanced metrology capabilities. ISO 9001:2008 Contact: Thomas Fote, Director Business Development, tfote@bullentech.com

#### **Business France**

#1123; 1223

77 boulevard Saint Jacques, Paris, 75014 France +33 1 40 73 30 00; fax +33 1 40 73 30 33 tic@businessfrance.fr; www.businessfrance.fr

#### Featured Product: www.youbuyfrance.com

Business France is the national agency supporting the international development of the French economy, responsible for fostering export growth by French businesses, as well as promoting and facilitating international investment in France. It promotes France's companies, business image, and nationwide attractiveness as an investment location, and also runs the V.I.E international internship program. Contact: Nathalie Marchal, Project Coordinator Electronic & Digital, nathalie.marchal@businessfrance.fr

Exhibition Map, Floor Plan Logo, Meter Board, Featured Exhibitor Sponsor

#### **BWT Beiiing Ltd.**

#834

SPIE Corporate Member

No 4A Hangfeng Rd Fengtai District, 2nd Fl, Beijing, 100070 China +86 10 83681053; fax +86 10 83682949 sales@bwt-bj.com; www.bwt-bj.com

#### Featured Product: 915nm/70W high power diode laser

BWT Beijing Ltd. was founded in 2003. We specialize in developing and manufacturing high performance diode laser components and subsystems. As a leading supplier of fiber coupled diode lasers, BWT provides the lasers in a wide range of wavelengths and output powers. BWT has won wide recognition trust from both our domestic and international customers in the areas of fiber laser pumping, CTP, medical use, illumination, industry and etc. Contact: Hellen Wang, Sales Director, hellen@bwt-bj.com; Aki Yamada, Sales Manager, aki. yamada@bwt-bj.com

#### **Caeleste Image Sensors**

#4150

Hendrik Consciencestraat 1b, Mechelen, 2800 Belgium +32 15 71 05 03 admin@caeleste.be; www.caeleste.be

#### CAILabs #1223-B

8 rue du 7ème d'Artillerie, Rennes, 35000 France +33 2 23 44 08 26

contact@cailabs.com; www.cailabs.com

### Featured Product: 10 modes selective spatial multiplexer for optical telecommunications

CAILabs is a French startup dedicated to bringing innovative photonics solutions based on its efficient and flexible light shaping technology of multi-plane light conversion. We manufacture spatial multiplexers tailored for telecom R&D to support research progress. We develop multi-beam shapers and combiners to optimize industrial laser processes and fibers amplifiers. We propose an upgrade solution for existing LAN fibers, to bring new youth to LAN infrastructure without new fiber deployment. Contact: Johanna Massé, Marketing & Commercial Assistant, johanna@cailabs.com; Pu Jian, Head of Marketing, pu@cailabs.com

#### **Calin Technology Co. Ltd.**

#4361-H

24 Chien Kuo Rd, Tan Tzu Dist., Taichung County, 42760 Taiwan +886 4 25353658; fax +886 4 25352916 sales@calin.com.tw; www.calin.com.tw

### Featured Product: Automotive camera, digital camera lens, security lens, molding glass, optical components

Calin delivers a full ODM/OEM service according to customer requirement with the capability to make high-precision optical lens, components, lens assembly and advanced mold design and manufacturing. Insisting on premium quality and creating sustainable competitive edges, Calin continuously orients the high quality in optical lens and enhance the core technologies to meet all customer needs. Contact: Katherine Hsu, Sales Manager, kat.hsu@ calin.com.tw; Grace Lin, Sales assistant, grace.lin@calin.com.tw

**Calmar Laser** 

#2536

SPIE Corporate

#4845

SPIE Corporate

951 Commercial St, Palo Alto, CA, 94303 USA +1 650 272 6980: fax +1 650 272 6988 contacts@calmarlaser.com; www.calmarlaser.com

Featured Product: Carmel X-series >1W. 780nm femtosecond fiber laser, Cazadero high-energy femtosecond fiber laser/OPA

Calmar Laser is a US-based, ISO 9001:2008 manufacturer of innovative ultrafast fiber laser and amplifier solutions for OEM, medical and scientific applications. For nearly 20 years, Calmar has served universities and research institutions with leading-edge ultrafast fiber laser platforms. Our compact, robust designs have also enabled long term industrial partnerships with customers in the fields of biomedicine, material diagnostics, ophthalmology, micromachining, and optical communications. Contact: Claire Chen, claire.c@calmarlaser.com; Tony Lin, CEO, tony@calmarlaser.com

#### Cambridge Technology

#1913

SPIE Corporate

125 Middlesex Turnpike, Bedford, MA, 01730 USA +1 781 266 5800; fax +1 781 266 5123 scanners@cambridgetechnolgy.com; www.cambridgetechnology.com

Featured Product: Galvanometer-based optical scanning components, scan heads, subsystems, control hardware & software

Cambridge Technology designs, develops, and manufactures state-of-the-art beam steering solutions including galvanometerbased optical scanning components, 2-Axis and 3-Axis scan heads, scanning subsystems, high-power scanning heads, and controlling hardware and software. Our engineers excel in collaborating with key OEM partners to develop optimized solutions that meet the needs of their advanced industrial and medical applications requiring reliable, precision laser beam steering. Contact: Sales Team - USA, scanners@cambridgetechnology.com

#### Canon U.S.A., Inc.

#2737

SPIE Corporate Member

3300 N First St, Industrial Products Division, San Jose, CA, 95134-1900 USA

+1 408 468 2000: fax +1 408 468 2149

encoder@cusa.canon.com; www.usa.canon.com/encoder

#### Featured Product: High Precision & Accuracy Digital Position Sensor Galvano Scanner System.

Canon Industrial Products Division is an OEM supplier of high precision & accuracy components & subsystems in the industrial, and medical laser applications. Featured products are high resolution optical reflective linear and rotary position sensors, and digital encoder Galvano scanner systems. All Canon products incorporate in-house developed optoelectronic technology electronics. Contact: Tom Yamamoto, Sales Account Manager, toyamamoto@cusa.canon.com; Taiki lida, U.S. Sales Manager, tiida@cusa.canon.com

Canon U.S.A., Inc.

One Canon Park, Melville, NY, 11747 USA +1 516 330 5000: fax +1 516 328 4639 pr@cusa.canon.com: www.usa.canon.com

Featured Product: ME20F-SH Ultra-High-Sensitivity Multi-Purpose Camera.

Canon U.S.A., Inc., is a leading provider of business-to-business, industrial, and consumer digital and optical imaging solutions to the United States, Latin America and the Caribbean (excluding Mexico) markets with an increasing intent for more customized, localized products. With approximately \$31 billion in global revenue, its parent company, Canon Inc., ranked third overall in U.S. patents granted in 2014 and is one of Fortune Magazine's World's Most Admired Companies in 2015. Contact: Michael Leaning, Project Engineer, mleaning@cusa.canon.com; Kevin Fogarty, Director, kfogarty@cusa. canon.com

#### Carl Zeiss Jena GmbH

#4629

Carl Zeiss Promenade 10. Jena. 07745 Germany +49 3641 64 2725; fax +49 3641 64 2184 info.czjena@zeiss.com; www.zeiss.de

Featured Product: Micro-optics, optical systems, small diameter high-end optics, free form optics, system design

Carl Zeiss Jena is a widely established company with several development and production facilities, a flexible center of excellence for single components and for complex assemblies and modules. With its innovational capability, Carl Zeiss Jena is synonymous with transforming technological challenges into benefit-oriented solutions. Behind these products you find one of the world's highest concentrations of expertise and know-how in the field of optoelectronical systems and components. Contact: Thomas Ahrendt. Senior Director Sales, thomas.ahrendt@zeiss.com; Dirk Schulze, Key Account Manager, dirk.schulze@zeiss.com

#### CAS Laser Co., Ltd.

#5529

155 YangQiao Rd W Fuzhou, Huajing Bldg, Fujian, 350002 China +86 591 8372 0366; fax +86 591 8372 0399 sales@caslaser.com; www.caslaser.com

#### Cascade Optical Corp.

#5635

SPIE Corporate

1225 E Hunter Ave, Santa Ana, CA, 92705-4131 USA +1 714 543 9777; fax +1 714 543 4394 sales@c-optical.com; www.c-optical.com

#### CASIX, Inc.

#2716

20 Fuxing St, Fuzhou Fujian, Fujian, 350014 China +86 591 8362 1246; fax +86 591 8362 1248 marketing@casix.com; www.casix.com

#### Featured Product: High quality crystal, precision optics components and optical sub-assemblies

CASIX Inc. founded in September 1992, is a wholly owned subsidiary of Fabrinet which is a renowned international company. Engaged in R&D, manufacturing excellence and quality improvement, CASIX focus on developing and manufacturing high quality crystal, precision optics components and optical sub-assemblies for market applications in optical communication, commercial laser, instrumentation, surveying, measuring and scanning, and medical. Contact: Rose Chen, Senior Sale manager, rose.chen@casix.com; April Liu, Sales engineer, april.liu@casix.com

#### **CASTECH Inc.**

#4205

89 Ruanjian Ave, Bldg 9 Zone F, Fuzhou Fujian, Fujian, 350003 China

+86 591 83708392; fax +86 591 83711593 sales@castech.com; www.castech.com

#### Exhibition Map, Featured Exhibitor Sponsor

#### **CASTON Inc.**

#310

71 Fuguang Rd, Fuzhou, Fujian, 350014 China +86 591 8399 5661; fax +86 591 8362 9871 sales@fz-caston.com; www.fz-caston.com

#### **CDA GmbH**

#4222

Am Mittelrain 11, Suhl OT Albrechts, 98529 Germany +49 3681 387 0; fax +49 3681 387 216 sales@cda.de; www.cda-microworld.com

### Featured Product: Design and manufacturing of refractive and diffractive polymer optics

CDA is one of the leading manufacturer for customized refractive and diffractive polymer microoptics. Our services include optical design, rapid prototyping, volume manufacturing and assembly of components. Markets we serve are automotive, consumer electronics, VR and AR, machine vision, life-science, gesture and 3D sensing (ToF, structured light). CDA's core competence is mass-production of highly complex microstructures in plastic.

#### **CEDRAT TECHNOLOGIES**

#6015

59 Chemin du Vieux Chêne - Inovallée, Meylan Cedex, 38246 France +33 456580414; fax +33 456580401

actuator@cedrat-tec.com; www.cedrat-technologies.com

### Featured Product: Smart actuators, motors and sensors, mechatronic solutions for demanding applications

CEDRAT TECHNOLOGIES is an internationally recognized mechatronics specialist and manufacturer of piezo and magnetic actuators. We offer a wide range of standard products: amplified (APA), pre-stressed piezo actuators, XY piezo stages, stepping motors, shutters, magnetic actuators, associated electronics and also customised products. We have a strong experience in developing compact dynamic & precise solutions for the optronics and photonics fields for demanding clients. Contact: Sandrine Hugi, Communications Manager, sandrine.hugi@cedrat-tec.com

### Center of Laser Technology – Laserinstruments Ltd.

#4204

49 Wiosny Ludów str, Warsaw, 02-495 Poland +48 22 867 88 01; fax +48 22 867 87 48 pokora@ctl.com.pl; www.ctl.com.pl

#### **Centronic Ltd.**

#4239

King Henry's Dr, Centronic House, Croydon Surrey, CR9 0BG United Kingdom

+44 1689 808000; fax +44 1689 8445117 info@centronic.co.uk; www.centronic.co.uk

#### Featured Product: Silicon photodiode arrays.

Centronic Limited is a leading manufacturer of sensing solutions for photonic and ionising radiation. Products include silicon photodiodes, Geiger-Müller tubes, ion and fission chambers for gamma and neutron detection, electromagnetic wound components and engineering services. Centronic have over seventy years experienced in both standard products and custom designs to enable customer specific sensing solutions. Contact: David Fairweather, Sales Manager, dfairweather@centronic.co.uk; Sales and Customer Services, info@centronic.co.uk

### Changchun New Industries Optoelectronics Technology Co., Ltd. #509

SPIE Corporate Member

No 888 Jinhu Road, High-Tech Zone, Changchun, Jilin, 130103 China

+86 431 87034313; fax +86 431 87033597 cni@cnilaser.com; www.cnilaser.com

### Featured Product: Single-mode spatial beam profile: excellent long-term power stability, easy operation, long lifetime

Changchun New Industries Optoelectronics Tech. Co., Ltd. (CDI) was founded in 1996. Our products include green, blue, yellow and red lasers, RGB lasers, infrared lasers, UV lasers, single longitudinal mode lasers, low noise lasers and Q-switched laser systems. CNI is the largest DPSS and diode laser manufacturers in China. Each year CNI produces 20,000 sets of laser modules, which are exported to more than 120 countries. Contact: AYUKI GAO, Sales manager, amer@cnilaser.com; Wanda Wang, sales, trade@cnilaser.com

#### ChemTrace #5437

44050 Fremont Blvd, Fremont, CA, 94538 USA +1 510 687 8012; fax +1 510 687 9054 info@chemtrace.com; www.chemtrace.com

Founded in 1993, ChemTrace provides state-of-the-art analytical services and problem solving expertise to improve current technologies in photonics, semiconductor, solar, and medical device manufacturing. ChemTrace testing portfolio includes analysis of laser systems, adhesives, parts, cleanroom environments and consumables, and packaging materials for volatile organics, anions, cations, trace metals and particles. What can we do to help you? Contact: Surjany Russell, Director of Sales, Surjany.Russell@ ChemTrace.com

### Chengdu Daxin Optical Instrument Co., Ltd. #4649-3

No. 8 Donghua Rd, Chendgu Economic & Technologiecal Development Zone, Chengdu, Sichuan, 610100 China +82 28 8487 6399; fax +82 28 8487 8837 dx xzb@163.com; www.cddaxin.com

We are a professional optical finishing enterprise, with registered capital of 150 million yuan, covering an area of more than 3000 square meters, and is located in the China National Chengdu Economic and Technological Development Zone Donghua Road on the 8th. We are the company with the telescope, the observation lens, the microscope, the digital camera lens and the instrument lens, the specialized production, the sale and the service primarily business. Contact: Jiming Zhu, General manager, dx\_xzb@163.com

#### Chengdu Dongjun Laser Co., Ltd. #4052

No 17 S Industrial Rd, Ecological Industrial Park, Pujiang Chengdu Sichuan, Sichuan, 611630 China +86 28 8855 4388; fax +86 28 8855 4398 sales@jq-laser.com; www.dj-laser.com

#### Featured Product: Nd:YAG, Nd:CE:YAG, Cr4+:YAG, CTH:YAG

Chengdu Dongjun Laser Co.,Ltd provide various crystal materials with different doping concentrations: Nd:YAG, (Nd:Ce):YAG, Cr<sup>4+</sup>:YAG, Er:YAG, Ce:YAG, Yb:YAG, (Tm.Ho):YAG, (Tm.Ho.Cr):YAG, Nd:YAP, Er:Glass, YOV<sub>4</sub>, and Nd:YOV<sub>4</sub>. Also, it has first-class optical processing technology and can manufacturer various crystal bars, slabs, composite crystals, and threaded crystal rods according to customers' requirements. Contact: Shangquan Cheng, International Business Manager, chengsq@dj-laser.com

#### ChengDu JUKA Optical Component **Factory**

sale1@optment.com; www.optment.com

#2001-H

536 KongGang Rd 1-1, West airport, Shuangliu, ChengDu, Sichuan, 5913844 China

+86 028 85874099; fax +86 028 85874234

#### Featured Product: High precise optical lens, prism and window

Chengdu JUKA Optical Technology Co., Ltd. is a professional manufacturer specialized in producing highly precise optical lens, prisms and windows. Our company is located in the reputed worldwide optical processing center, Chengdu, China. It used to be the processing department of the Institute of Optics and Electronics the Chinese Academy of Science. The department was established in 1988

#### China Germanium Co., Ltd. #4412

No.9 Zhongxing East Road, Nanjing, Jiangsu, 211165 China +86 25 52759450; fax +86 25 52759380 market@cnge.com.cn; www.cnge.com.cn

#### Featured Product: Germanium and silicon optical blanks.

China Germanium Co. is the leading manufacturer of germanium and silicon optical blanks. They have been a supplier of germanium, indium, and gallium since 1960. Contact: Mingzhong Zhou, zhoumz@ yahoo.com; Fengjun Pan, pfj@nange.com

#### **China International Optoelectronic Exposition**

#4034

Haide 3rd Rd Nanshan District, Rm 607 E Block Coastal Bldg, Shenzhen, Guangdong, 518054 China +86 755 8629 0901: fax +86 755 8629 0951 cioe@cioe.cn: www.cioe.cn

#### Featured Product: Optical communication, precision optics, laser & infrared applications, LEDs, Smart City, sapphire

CIOE is a worldwide event that annually presents the most advanced optoelectronic products and technologies. There are more than 5 sub-expositions and over 1000 concurrent reports and workshops that cover the whole industry chain, including Optical Communication Expo, Precision Optics Expo, Laser & Infrared Applications Expo, LEDs, Smart City China and the Sapphire Touch Screen & Technology Expo. All these make CIOE a must attend event every year for all experts and enterprises. Contact: Shirly Yi, International Department Supervisor, shirly@cioe.cn; Erin Deng, International Business Executive, international01@cioe.cn

#### Chongqing Zhaohong Technology Co.. Ltd.

#4672

No 79 Tiansheng Rd Beibei District, Chongging, 400700 China +86 23 68282026; fax +86 23 68282027 infozht@zhsapphire.com; www.zhsapphire.com

#### Featured Product: Sapphire window; sapphire plate; sapphire rod; sapphire cube; sapphire lens; sapphire filter

Chongqing Zhaohong Technology Co., Ltd. is a leading power of industrial sapphire manufacturing in Asia. It specializes in high precision manufacture of super-hard materials with synthetic sapphire and ruby. The production is strictly controlled by ISO9001:2008 system. ZHT is authorized of independent right of import & export and provides high-precision jewel components for various industrial markets worldwide. Contact: Joslyn Jia, Sales, joslyn@zhsapphire.com

#### SPIE Corporate

#1003

10 Imtec Ln, Bellows Falls, VT, 05101 USA +1 802 428 2500: fax +1 802 428 2525 sales@chroma.com; www.chroma.com

**Chroma Technology Corp.** 

Chroma Technology designs and manufactures optical interference filters using advanced sputtering technologies. Our high performance filters are intended for imaging applications ranging from wide field and confocal fluorescence microscopy, TIRF and super-resolution techniques to flow cytometry, high content screening, multi-photon and Raman spectroscopy. Chroma also provides comprehensive technical and applications support.

Contact: Christopher Conca, OEM Sales, cconca@chroma.com; Alex Gao, Sales, agao@chroma.com

#### Chromacity Ltd

#1923

Quantum Court, Research Ave South, Riccarton, Edinburgh Scotland, EH12 4AP United Kingdom +44 0 131 449 4308

info@chromacitylasers.com; www.chromacitylasers.com

Chromacity designs and manufactures laser sources for a range of near-infrared applications. Our patented and robust fiber-based technology provides exceptional performance making it suitable for the most demanding applications.

#### Chuxing Optical Fiber Application Technologies Ltd.

#2822

Rm 3108 5-2 Guandong Park, Wuhan Hubei, 430074 China +86 27 8753 1706: fax +86 27 8753 1656 syp@cxfiber.com; www.cxfiber.com

#### ChuZhou First Imp & Exp Co. Ltd.

#4312

No 455 N Fengle rd. Chuzhou Anhui, 239000 China +86 550 353 3016: fax +86 550 305 9719 magnet117@sina.com; www.sinomagnetic.com

#### CIEC Overseas Exhibition Co., Ltd.

#2001

No 6 E Beisanhuan Rd. Beijing, 100028 China +86 10 84600568: fax +86 10 64671381 overseas@ciec-expo.com; www.ciec-overseas.com

CIEC Overseas Exhibition Co., Ltd. (hereinafter referred to as "CIEC Overseas Company") is a subsidiary wholly owned by CIEC, focusing its business on outbound and inbound exhibitions. CIEC Overseas Company has expanded its outbound exhibition market from traditional hot areas of developed countries to new booming economic zones, complying with the development of different business sectors of exporters. Contact: Qiushuang Song, project manager, songgiushuang@ciec.com.cn

#### Cimcoop

#2209

40 Buxton Blvd, Fl 6, Sofia, 1618 Bulgaria +359 2 955 9741

info@cimcoop.com; www.cimcoop.com

#### Featured Product: Silicon blanks, optical lenses and prisms

Cimcoop is an ISO 9001:2008 certified producer of custom-made silicon substrates and precision optical components in the VIS and UV spectrum based in Bulgaria (EU). For more info please visit www. cimcoop.com. Contact: Kalin Georgiev, Business Development, kgeorgiev@cimcoop.com; Buzz Nesti, buzz@nakedoptics.com

#### Circle and Square Co., Ltd.

#4939

Yasuda 2-2-45, Osaka, 538-0032 Japan +81 669115115; fax +81 669117235 model@csq.co.jp; www.csq.co.jp

Clark-MXR, Inc.

#3090

7300 W Huron River Dr, Dexter, MI, 48130-1186 USA +1 734 426 2803; fax +1 734 426 6288 sales@cmxr.com; www.cmxr.com

Featured Product: Ultrafast Lasers, Micromachining
Workstations and Complete Nonlinear Spectroscopy Solutions

Our Laser Products Division designs and manufactures both Ti:Sap and fiber based ultrafast laser sources and systems. Our products are used in scientific, biomedical, and industrial applications such spectroscopy, biomedical imaging, and micromachining. Our micromachining division performs ultrafast laser based contract developments, parts manufacturing, and other value-added services. Contact: Tissa Gunaratne, VP, Customer Relations, info@ cmxr.com

#### **CLaser Photonics, Inc.**

#5046

No 375 Yecheng Rd Jiading, Shanghai, 201822 China +86 21 39108810; fax +86 21 69528257 sales@claser-sh.com; www.claser-sh.com

### Featured Product: Crystals, polarizers, 1.57um laser and 1.54um laser components

Claser Photonics Inc. focuses on high precision laser components and laser crystals. We can supply our products from optical design, manufacturing, coating, till to assembly. OEM design is welcome for support. Our product categories includes: lenses, IR lenses, laser crystals, polarizers, filters, eye-safe laser core. Contact: Philip Zheng, president, philip@claser-sh.com; Sally Chen, sales manager, sally@claser-sh.com

#### **Class 5 Photonics**

#4629

Notkestr 85, Deutsches Elektronensynchrotron, Hamburg, 22607 Germany

+040 89983039

www.class5photonics.com

**Clear Align** 

#4469

SPIE Corporate Member

2550 Blvd of the Generals Ste 280, Eagleville, PA, 19403-3679 USA +1 484 956 0510; fax +1 484 956 0511

sales@clearalign.com; www.clearalign.com

Clear Align designs & manufactures custom imaging, laser & fiber optic systems, from prototype to production quantities. Our imaging expertise spans UV, VIS, SWIR, MWIR & LWIR, delivering NFOV, WFOV & irZoom systems. Laser & fiber optic expertise includes optical integration for various applications, in-house optical component & coating capabilities. We provide products for an impressive array of top tier homeland security, defense & aerospace contractors, as well as commercial customers. In-house optical component & coating capabilities. We provide products for an impressive array of top tier homeland security, defense & aerospace contractors, as well as commercial customers.

#### **Clemson University**

#4351

91 Technology Drive, Anderson, SC, 29625 USA +1 864 656 1008; fax +1 864 656 1099 www.clemson.edu

### Featured Product: Specialty optical fiber, fiber lasers, MCVD fabrication, draw tower, photonic crystal fibers

The Center for Optical Materials Science and Engineering Technologies (COMSET) is an interdisciplinary unit of the College of Engineering and Science at Clemson University. Comprised of more than 25 faculty and staff from five academic departments, COMSET provides an organized framework with significant centralized infrastructure for faculty with common interests to collaborate in developing advanced materials, devices, and systems that generate, transmit, manipulate, and utilize. Contact: Wade Hawkins, Optical fiber lab director, hawkin2@clemson. edu; John Ballato, Professor, iballato@clemson.edu

#### **CMOS Sensor Inc.**

#5637

20045 Stevens Creek Blvd. #1A, Cupertino, CA, 95014-2355 USA +1 408 366 2898; fax +1 408 366 2841 sales@csensor.com; www.csensor.com

#### Featured Product: Banknote/ID Inspection, Image/Barcode/ XRay Scanners, Space Sensors/Cameras & Robotic/Machine Vision.

CMOS Sensor Inc. designs & manufactures high quality electro-optical image acquisition solutions for applications in space, bio-medical, military, surveillance/security, industrial, commercial, & consumer markets. We supply area and line/linear sensors; standard & custom modules/subsystems. Our headquarters are in Silicon Valley, California, USA. We have subsidiaries in India & Taiwan, and a manufacturing partner in China to supply sensor products complying stringent standards such as ISO9001, ROHS etc. Contact: Harbor See, Sales and Marketing Manager, harbor@csensor.com; Steven Gardner, Sales Manager, New Business Development, Steven@csensor.com

#### CMOSIS International

#4241

SPIE Corporate Member

Coveliersstraat 15, Antwerpen, 2600 Belgium +32 3 260 17 30; fax +32 3 260 17 79 info@cmosis.com; www.cmosis.com

### Featured Product: High Performance Area and Line CMOS Scan Image Sensors.

CMOSIS is a pure-play supplier of standard, off-the-shelf as well as custom area and line scan CMOS image sensors. CMOSIS' image sensors serve a broad range of applications for diverse markets including machine vision, medical, broadcast, traffic, scientific and photography imaging. Contact: Dina Aguiar, Market Communication Manager, dina.aguiar@awaiba.com; Wim Wuyts, Sales & Marketing Manager, wim.wuyts@cmosis.com

#### **Coastal Connections**

#938

SPIE Corporate Member

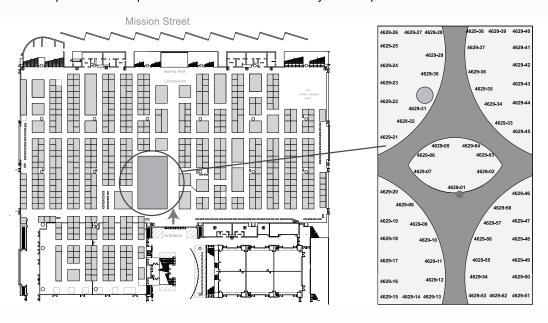
2085 Sperry Ave Ste B, Ventura, CA, 93003-5771 USA +1 805 644 5051; fax +1 805 644 5355 sales@coastalcon.com; www.coastalcon.com

### Featured Product: Fiber End-Caps: Reduce the power density at the end face of high-power cable assemblies.

Coastal Connections is a leading provider of engineered fiber optic cables and terminations serving the medical, military, and industrial markets. Their medical cables are sold around the world for laser surgery, and for blood and cancer diagnosis. Their military cables are on land and in space for communications and sensing. Their industrial cables are used in strain, pressure and positional sensing. Contact: Andy Devine, President, sales@coastalcon.com; Ryan Laudato, Quality Manager, sales@coastalcon.com

### Visit the German Pavilion@Hall D North

Germany participates with a "German Pavilion" offering a professional brokerage service to help to establish contacts with German companies and comprehensive information on Germany as an important business location.



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#### Banner, Exhibition Map, Meter Board Sponsor

Cobolt AB #2726

Vretenvägen 13, Solna, 171 54 Sweden +46 8 5459 1230; fax +46 8 5459 1231 info@cobolt.se; www.cobolt.se

**CODIXX AG** 

#2023

Steinfeldstr 3, Barleben, 39179 Germany +49 39203 9630; fax +49 39203 96333

info@laser-components.com; www.laser-components.com

Featured Product: colorPol  $^\circ$  VIS 600 BC5 - Wider, Higher, and Better.

CODIXX produces dichroic glass polarizers for the UV, Vis, and IR range (340 0nm up to 5,000 nm), well known under the brand name colorPol®). The products have outstanding characteristics like high acceptance angle of 0 degrees ± 20 degrees, transmittance up to 98%, high contrast ratios of 70dB and a wide operating temperature range from <-50 deg C to +400 deg C; also available with low wavefront distortion. Contact: Carol Howard, Sales Engineer, howard@laser-components.com; Michael Tuohy, Sales, tuohy@laser-components.com

Coherent, Inc.

#1101

SPIE Corporate

5100 Patrick Henry Dr, Santa Clara, CA, 95054-1112 USA +1 408 764 4000; fax +1 408 764 4800 tech.sales@coherent.com; www.coherent.com

Contact: Rosemarie Smith-Wood, Sr Marketing Comm Mgr

Coining, Inc.

#4148

15 Mercedes Dr, Montvale, NJ, 07645 USA +1 201 791 4020; fax +1 201 791 1637 sales@coininginc.com; www.coininginc.com

Manufacturer of quality preforms, micro-stampings and bonding wire for low-high temp soldering/brazing. Highly pure alloys of gold, silver, lead, tin, indium, bismuth, palladium, and aluminum. Lead-free RoHS, copper, Kovar® & molybdenum, clad, plated stampings. Flux coating. Tape & reel packaging, custom packaging. Cover assemblies (preform/lid). Extensive tooling library, standard & custom designs. Quick turnaround. Contact 201-791-4020 or go to our website at www.coininginc.com Contact: David Virissimo, Western Regional Sales Mgr., david.virissimo@ametek.com; Vito Tanzi, Director of Field Sales, vito.tanzi@ametek.com

ColdQuanta, Inc.

#3074

3030 Sterling Cir, Boulder, CO, 80301 USA +1 303 440 1284

info@coldquanta.com; www.coldquanta.com

Featured Product: miniMOT SE: low cost, compact magnetooptical trap for undergraduates and researchers

ColdQuanta focuses on the development, design, and manufacture of instruments and systems destined for quantum technologies applications. The company provides products and services for scientific and industrial applications such as cold atom experimentation, quantum simulation, quantum information processing, gravity sensors, atomic clocks and precision instrumentation. Contact: Joel Lucas, Sales, joel.lucas@coldquanta.com; Seema Hess, Manager, HR & Communications, seema.hess@coldquanta.com

#### Collimated Holes, Inc.

#2433

460 Division St, Campbell, CA, 95008-6923 USA +1 408 374 5080; fax +1 408 374 0670 contact@collimatedholes.com; www.collimatedholes.com

Contact: Richard Mead, President

#### Colorado Photonics Industry Association

#2306

PO Box 700, Boulder, CO, 80306 USA +1 303 834 1022; fax +1 303 834 1022

exec@coloradophotonics.org; www.coloradophotonics.org

### Featured Product: CPIA will feature incentives offered by the State of Colorado to companies in advanced technologies.

Colorado Photonics Industry Association promotes the photonics industry in Colorado and supports the growth of member companies and organizations. Visit CPIA and the companies located within the Colorado Cluster at Photonics West. Contact: Karen Eye, Administrator, cpia@coloradophotonics.org

#### **Conex Systems Technology, Inc.**

#4931

2880 Zanker Rd Ste 203, San Jose, CA, 95134-2122 USA +1 408 954 7329; fax +1 408 954 7330

crystals@castech-us.com; www.castech-us.com

### Featured Product: LBO, BBO, KTP, KDP, YVO<sub>4</sub>, Nd:YVO<sub>4</sub>, Nd:YAG, LiNbO<sub>3</sub>, LiTaO<sub>3</sub> and other crystals.

Conex supplies nonlinear (NOL) crystals and other optical materials. It is the most reliable source for LBO, BBO crystals and low cost, high quality wedges, KTP, KDP, YVO<sub>4</sub>, Nd:YVO<sub>4</sub>, Nd:YAG, LiNbO<sub>3</sub>, LiTaO<sub>3</sub> and other optic crystals. Conex offers technical services and satisfaction guarantee for crystal products. Contact: Ken Zhang, VP Sales & Marketing, crystals@castech-us.com; Julia Kanki, Adm. Manager, crystals@castech-us.com

#### Continuum

#1332

SPIE Corporate

140 Baytech Dr, San Jose, CA, 95134 USA +1 408 588 4370: fax +1 408 727 3550

info@continuumlasers.com; www.continuumlasers.com

Continuum offers high energy YAG lasers, OPOs, dye lasers, custom systems & ultrafast systems for scientific, OEM & industrial applications. Standard & custom Nd:YAG lasers range from 25mJ/pulse to 12J/pulse; tunable accessories range from 192nm to 2750nm. Variable pulsewidth systems are available. Custom lasers cover large glass lasers & novel Nd:YAG configurations, while high peak power femtosecond lasers include ultra-intense high contrast lasers & high power CEP-stabilized sub-20 fs systems. Contact: Ken Ibbs, Sales Director, USA, k.ibbs@continuumlasers.com; Cecile Mukerjee, Ultrafast Sales Engineer, North America, c.mukerjee@continuumlasers.com

# SPIE JOB FAIR

Talk with representatives from companies currently looking to hire
Refer to page 27 for more information.

### Contour Metrological & Manufacturing, Inc. (CMM)

#4340

SPIE Corporate

488 Oliver Dr, Troy, MI, 48084-5426 USA +1 248 273 1111; fax +1 248 362 2152 cmmoptic@commoptic.com; www.cmmoptic.com

### Featured Product: Diamond turned optics and ultra-precision machining: mirrors, lenses, inserts, precision components

Contour Metrological & Mfg., Inc. (CMM) manufactures high precision optics with state of the art diamond turning machining centers. CMM supports customers from concept to production. Markets include aerospace, military, medical, industrial, communications, and research. Plastics and non-ferrous metals are a specialty. www.cmmoptic.com. Contact: Mike O'Neill, Vice President, moneill@cmmoptic.com; Chuck Fayed, Sales Manager, cfayed@cmmoptic.com

#### **Exhibition Map Sponsor**

CoolLED #5135

River Way, Westmarch Business Ctr, Andover Hants, SP10 1NS United Kingdom

+44 1264 323040

info@coolled.com; coolled.com

CoolLED are a fast growing specialist design and manufacturing company that specialize in illumination for microscopy and other related areas. We bring experience in producing quality solutions in volume together with 10+ years of experience in using LED technologies to produce illumination systems for customers around the world. It's never too early to start speaking with us about your OEM illumination requirements. Contact: Raj Patey, US Sales Manager, raj.patey@coolled.com; Jim Beacher, Sales & Marketing Director, jim.beacher@coolled.com

#### **CorActive High-Tech Inc.**

#2722

SPIE Corporate Member

2700 Jean-Perrin Ste 121, Quebec, QC, G2C 1S9 Canada +1 418 845 2466; fax +1 418 845 2609 sales@coractive.com; www.coractive.com

At CorActive we pride ourselves in providing technologically advanced specialty optical fiber products that uniquely enable our customers to offer superior products and services. CorActive manufactures specialty optical fibers for applications in telecommunications, remote sensing, strategic defense, security, materials processing, and medical industries. Contact: Melanie Fleming, Assistant Sales & Marketing, melanie.fleming@coractive.com

#### **Coresix Precision Glass, Inc.**

#4557

SPIE Corporate Member

1737 Endeavor Dr, Williamsburg, VA, 23185 USA +1 757 888 1361; fax +1 757 888 1366 sales@coresix.com; www.coresix.com

### Featured Product: Glass Wafers, Glass Substrates, Optical Components.

Wherever glass plays a role in the technologies of tomorrow, Coresix applies creative engineering and innovative process design to achieve new standards in glass specifications. We are an industry leader in the development, manufacturing, and fabrication or precision glass components for advanced applications in a wide array of markets including Display, Biotech, Lithography, Semiconductor, Optoelectronics, MEMS, and more. Contact: Justin Lawson

#### **Cornell Technical Services, LLC**

#4420

22 Enterprise Pkwy Ste 390, Hampton, VA, 23666-6414 USA +1 757 251 9560; fax +1 757 315 8829 EASS@CTS-LLC.COM; www.cts-llc.com

#### **Featured Product: Subject matter experts**

Cornell Technical Services, LLC (CTS) provides support for proposal evaluations, assessments, and studies of programs and missions for NASA's Science Office for Mission Assessments (SOMA) at the NASA Langley Research Center in Hampton, Virginia. The program supports NASA's Science Mission Directorate in evaluating new and innovative approaches for missions intended to help answer the big questions in Earth and Space science. Contact: EASSS@CTS-LLC.COM

#### **Corning Incorporated**

#615

1 Riverfront Plz, Corning, NY, 14831 USA +1 607 974 9000; fax +1 607 974 8177

specialtymaterials@corning.com; www.corning.com

Corning is a world leader in glass and materials science. Our Advanced Optics business specializes in designing and manufacturing precision optical solutions for use in the VUV to the IR. Our products range from optical glasses, glass ceramics, specialty fiber and fluoride crystals to complex optical systems and assemblies. Corning is a world leader in glass and materials science. Our Advanced Optics business specializes in designing and manufacturing precision optical solutions for use in the VUV to the IR. Our products range from optical glasses, glass ceramics, specialty fiber and fluoride crystals to complex optical systems and assemblies. Markets include A&D, astronomy, bio-medical, semiconductor, ophthalmic & telecommunications. In addition Corning manufactures a line of optical-based metrology Instruments.

#### Coset, Inc.

#4067

39, Cheomdan venture-ro 60beon-gil, Buk-gu, Gwangju, 61009 Korea, Republic of

+82 62 975 8881; fax +82 62 975 8889 customerservice@coset.com; www.coset.com

#### **Cosmo Optics**

#3024

75 Benjamin Street, Albany, NY, 12202 USA +1 518 729 2100

info@cosmooptics.com; www.cosmooptics.com

### Featured Product: Custom prototype and large optical components

Cosmo Optics manufactures a variety of optical components including spherical, cylindrical, plano, rings, wedges and prisms. Our unique capability to do this with small to large optics from .040" to 60" is what separates us from other fabricators. We offer prototype to volume services. We handle optics as optical artisans making your design into a true masterpiece. Contact us today about your specialty application for large optical components and assemblies. Contact: Brian Sebastian, President, brians@cosmooptics.com; Paige Barber, Technical Sales Representative, pbarber@cosmooptics.com

**Covesion Ltd.** 

#4506

SPIE Corporate

Premier Way, Unit A7 The Premier Centre, Romsey Hampshire, SO51 9DG United Kingdom

+44 1794 521638: fax +44 8709 289714 sales@covesion.com; www.covesion.com

#### Featured Product: PPMgO:LN crystals, ex-stock or custom, for wavelength conversion in visible and mid-IR applications.

A UK manufacturer of PPMgO:LN supporting a wide range of applications from stock: spectroscopy, sensing, biomedical, terahertz imaging, fs/ps-laser SHG and many more. Our unique production process ensures the highest conversion efficiencies (uniform domains in x, y and z), enhancing both performance and ease-of-use. We can offer these key components in high volumes and at market-enabling prices. Large range of stock PPLN ships within 1 week for a cost effective and fast development cycle. Contact: Christian Rahlff, COO, sales@covesion.com; Rongrong Xu, Sales Engineer, sales@covesion.com

#### **CPG Optics, LLC**

#4414

SPIE Corporate

39 Danfeng St Ste 4, Rm 1103/Bldg 4, Nanjing Jiangsu, 210008 China

+86 25 856 52542; fax +86 25 850 52543 sales@cpgoptics.com; www.cpgoptics.com

#### Featured Product: Lens, prism, asphere, ZnSe, ZnS

CPG has a reputation for supplying high-quality, high-reliability, and high-performance custom-made optical components for OEMs. We are committed to designing and manufacturing lens components to meet customer's requirements and deliver the best cost performance ratio products in photonics industry. Contact: Benjamin Cui, President of Sales, bcui@cpgoptics.com

#### **Craft Center SAWAKI Inc.**

#4837

#638

7708-35 Miyakoda-cho Kita-ku, Hamamatsu-city, Shizuoka, 431-2102 Japan

+81 53 482 8620: fax +81 53 482 8621 sales@ccsawaki.com; www.ccsawaki.com

#### Featured Product: Fiber output LED, LD, SLD light source

We are developing R&D fiber output LED/LD/SLD source, LD pigtail, optical fiber components and instruments with original key technology of optics and sensors to exploit new applications. Contact: Akihiro Sawaki, President, sawaki@ccsawaki.com

Cree, Inc.

4600 Silicon Dr, Durham, NC, 27703-8475 USA +1 919 313 5300: fax +1 919 313 5558 sales@cree.com; www.cree.com/chips

#### Featured Product: LED Chips - Blue and Green for white conversion, single color or RGB/RGBW applications

Cree is the world leader in Blue & Green LED Chips based on Cree Silicon Carbide (SiC) and Gallium Nitride (GaN) technology. Cree LED Chips are available for a wide variety of applications in Automotive, Consumer Electronics, General Lighting, White Goods and other markets. Contact: Steve Hubert, Product Manager, s.hubert@ marktechopto.com; Vince Forte, CTO, v.forte@marktechopto.com

#### CREOL/UCF

#2204

SPIE Corporate

4304 Scorpius St. Orlando, FL. 32820 USA +1 407 823 6800: fax +1 407 823 6880 creol@creol.ucf.edu; www.creol.ucf.edu

#### Cristal Laser S.A.

SPIE Corporate

32 rue Robert Schuman, Messein, 54850 France +33 3 8347 0101: fax +33 3 8347 2272 mail@cristal-laser.fr: www.cristal-laser.com

#### Featured Product: Nonlinear crystals for optical components use, applied to military, industry, medical, R&D

Cristal Laser, 26 year old! Since 1990, we manufacture top quality nonlinear crystals such as LBO, KTP, KTP.fr and KTA, for frequency conversion. Also, RTP Pockel cells for electro-optics applications (Q-switches or pulsepickers). Thanks to our highly skilled staff, high quality and control equipment, we offer the best expertise to propose top rank crystals even for most demanding applications. Our market is worldwide. Contact: Carmen Antunez-Soto, Sales Administrator, carmen.antunez-soto@cristal-laser.fr

#### Critical Link. LLC

#630

#1817

6712 Brooklawn Pkwy, Syracuse, NY, 13211-2158 USA +1 315 425 4045: fax +1 315 425 4048 info@criticallink.com; www.criticallink.com

#### Featured Product: 8MP, 5.5MP, & 2MP sCMOS cameras with onboard dual core ARM & user-programmable FPGA processing

Critical Link is an embedded product engineering firm, offering a range of customizable CMOS and CCD cameras for medical, scientific, defense, surveillance, and industrial applications. Our latest cameras incorporate high-performance sCMOS sensors, on-board dual-core ARM and user-programmable FPGA, and multiple I/O options in a number of production-ready configurations. Visit http:// www.criticallink.com/mitycam-family for full product details. Contact: Omar Rahim, VP Imaging Product Sales, info@criticallink.com

#### **Crosslight Software**

#4409

230-3410 Lougheed Hwy, Vancouver, BC, V5M 2A4 Canada +1 604 320 1704; fax +1 604 320 1734 info@crosslight.com; www.crosslight.com

#### Featured Product: TCAD modeling software for the semiconductor industry: lasers, solar cells, LEDs and transistors.

Crosslight Software Inc. is an industry-leading provider of TCAD simulation tools for the semiconductor industry with over 20 years of experience. Crosslight was the first commercial company to provide TCAD software for electrical and optical modeling of quantum well laser diodes (LD). Since then, it has continued to expand its product line to cover most applications and help engineers overcome modern device design challenges Contact: Michel Lestrade, info@ crosslight.com

#### **CryLaS GmbH**

#4629

Ostendstr 25, Berlin, 12459 Germany +49 30 5304 2400; fax +49 30 5304 2444 sales@crylas.de; www.crylas.de

#### Featured Product: 266 nm cw laser with up to 500 mW output power for use in 24/7 semiconductor inspection and UV Raman

CryLaS is a globally reckoned manufacturer of diode-pumped solid-state lasers. CryLaS lasers are compact and robust, plug and play systems designed for OEM integration and use in demanding scientific applications. The product portfolio includes passively Q-switched nanosecond microchip lasers from 213 to 1064 nm, and DUV cw lasers at 266 nm with up to 500 mW output power. Headquartered in Berlin, Germany, and through a US sales office CryLaS serves customers in more than 35 countries worldwide. Contact: Steffen Prein, Chief Operating Officer, steffen.prein@ crylas.de; Martina Danzmann, Sales & Marketing Specialist, martina. danzmann@crylas.de

### **CryLight Photonics, Inc.**

#4358

SPIE Corporate Member

No 5 Dongling Rd, Fuwan Industrial Park, Fuzhou Fujian, 350026 China

+86 591 83772101; fax +86 591 83772103 sales@crylight.com; www.crylight.com

### Featured Product: Various ranges of IR raw material window and lenses ( $CaF_2$ , $BaF_2$ , $MgF_2$ , LiF, silicon, germanium)

CryLight manufactures a range precision optical components (spherical lenses, windows, achromatic wave plates, Glan laser polarizer, Wollaston and Rochon polarizer, penta-prism, right angle prism, PBS, BBO, KTP, Nd:YVO<sub>4</sub>,Ti:Sapphire, Nd:YAG+Cr:YAG), and IR raw material products which include CaF<sub>2</sub>, BaF<sub>2</sub>, MgF<sub>2</sub>, LiF, silicon, and germanium. Contact: Gary Zhang, President, gary@crylight.com; Zero Huang, Sales Manager, zero@crylight.com

### Cryslaser Inc.

#5529

SPIE Corporate Member

B1 199 Western Rd, High-Tech District Western Zone, Chengdu Sichuan, Anhui, 611731 China

+86 28 66348329; fax +86 28 87988682 sales@cryslaser.com; www.cryslaser.com

### Featured Product: Optical materials and IR materials

Manufactures laser crystals including YAG and YVO<sub>4</sub>. Provides nonlinear crystals including: KBBF, BBO, LBO, and KTP; as well as IR optics (Ge, Si, ZnS, and ZnSe). Laser optics and components are also available. Contact: Tiffany Liu, Sales Manager, sales@cryslaser.com

### **Crystal GmbH**

#4629

Ostendstr 25 Haus 4, Berlin, 12459 Germany +49 30 5304 2500; fax +49 30 5304 2525 info@crystal-gmbh.com; www.crystal-gmbh.com

### Featured Product: Custom-made optical components, diffusion bonded laser crystals

Crystal GmbH is a company committed to highly developed technologies and products with and related to crystals such like CaF<sub>2</sub>, BaF<sub>2</sub>, Zinc Sulfide, Silicon, Nd:YAG, Nd:YVO<sub>4</sub> etc. Proven production technology and comprehensive measuring and testing procedures guarantee our exceptional standard of quality. We apply our extensive experience in the field of crystal technology to processing specialized materials. Our expertise covers the spectrum from individual elements to large-scale order. Contact: Ulrich Krzenziessa, Sales engineer, ulrich.krzenziessa@crystal-gmbh.com

### Crystal IS, Inc.

#4061

SPIE Corporate

70 Cohoes Ave, Green Island, NY, 12183-1519 USA +1 518 271 7375; fax +1 518 271 7394 sales@cisuvc.com; www.cisuvc.com

#### Featured Product: Introducing Klaran: Crystal IS's highperformance UVC LEDs for disinfection applications.

Crystal IS, an Asahi Kasei company, is an innovative U.S.-based manufacturer of proprietary, high-performance UVC LEDs. Crystal IS products are suitable for monitoring, disinfection, and sterilization in a variety of applications, including life sciences and environmental monitoring applications. The company's powerful and reliable UVC LEDs provide customers with the flexibility to develop new products that enhance and sustain life. Contact: Ben Jamison, VP of Sales, sales@cisuvc.com

### CrystaLaser LC

#5055

4750 Longley Ln Ste 205, Reno, NV, 89502-5982 USA +1 775 348 4820; fax +1 775 348 7047 sales@crystalaser.com; www.crystalaser.com

### **Crystalline Mirror Solutions GmbH**

#3080

114 E Haley St., Suite N, Santa Barbara, CA, 93101 USA +1 805 899 1711

info@crystallinemirrors.com; www.crystallinemirrors.com

### Featured Product: High-performance NIR / MIR mirrors manufactured with our proprietary crystalline coating process

The novel crystalline coating technology developed by CMS represents an entirely new paradigm in optical coating technology, impacting cavity end mirrors for ultrastable lasers, cavity-ringdown systems, and ring-laser gyroscopes operating in the near and mid-IR. Moreover, exploiting the high thermal conductivity and active electro-optic properties of our single-crystal semiconductor multilayers, crystalline coatings promise to have a tremendous impact in ultra-fast and high-power laser systems. Contact: Garrett Cole, Co-Founder & CTO, g.cole@crystallinemirrors.com

#### **Exhibition Map Sponsor**

#### CRYSTECH Inc.

#2810

Xianshan E Rd Chengyang District, Electronic Information Industrial Park, Qingdao, Shandong, 266107 China +86 532 66731506; fax +86 532 66731500 sales@crystech.com; www.crystech.com

### Featured Product: KTP crystal, RTP Q-switch, KD\*P Pockels Cell, laser components, polarizer, diffusion bonded crystals

CRYSTECH is the world's largest manufacturer of KTP crystals and world's leading supplier of laser components. We specialize in nonlinear crystals (KTP, KTA, BBO, etc), E-O Q-switch (KD\*P Pockels Cell, RTP pairs, etc.), laser crystals (Nd:YAG, Nd:YVO4,etc.), and laser optics (thin-film polarizers, mirrors, windows, lenses, etc.). CRYSTECH can provide the service for sales and technical support all over the world. Contact: Pikey Huang, Sales Engineer, sales@crystech.com; Kevin Zhang, Sales Engineer, sales@crystech.com

#### Crystran Ltd.

#5468

1 Broom Rd Business Park, Poole Dorset, BH12 4PA United Kingdom

+44 1202 307650; fax +44 1202 307651 sales@crystran.co.uk; www.crystran.co.uk

Crystran Ltd. manufactures high-quality optical components in England, specializing in IR-VIS-UV materials to manufacture windows, lenses, prisms and specialist optics as standard or custom optics available as prototypes or production quantities. Very flat optics in glass and silica have been added to our range of products. We have a reputation for excellent customer service and on-time deliveries. Working in CaF<sub>2</sub>, BaF<sub>2</sub>, MgF<sub>2</sub>, LiF, ZnSe, ZnS, Ge, Si and KRS5 plus many more exotic materials. Contact: Alaina Wright, Sales and Marketing Manager

### **Crystrong Photoelectric Technology Co.**, **Ltd**.

#2001-G

1021 S Jinan Hi-tech Environmental-Tech Park, Bldg C, Shandong, Shandong, 250101 China

+86 531 88985157; fax +86 531 88985159 sales03@crystrong.com; www.crystrong.com

### Featured Product: Q-switches, YAG, YVO<sub>4</sub>, DKDP, KDP, KTP, KTA, BBO, LBO, BIBO, optical components, recoating.

Crystrong is a high-technology company with up to 10 years' experience specialized in development, manufacturing, and sales of laser crystals and optical components. We aim to provide highest quality optical and crystal components precisely meeting specific customer requirements for different high power laser applications. Contact: Kevin Zhu, Sales Manager, sales03@crystrong.com; Michael Wang, Sales Manager, michael@crystrong.com

### **CST of America, Inc.**

#4510

492 Old Connecticut Path Ste 500, Framingham, MA, 01701 USA +1 508 665 4400; fax +1 508 665 4401 info@us.cst.com; www.cst.com

### **CVI Laser Optics**

#1113

SPIE Corporate

200 Dorado Pl SE, Albuquerque, NM, 87123-3605 USA +1 505 296 9541; fax +1 505 298 9908 cvilaseroptics@idexcorp.com; www.cvilaseroptics.com

### Featured Product: High performance optical components for laser optics

CVI Laser Optics manufactures high quality laser-grade optical components, with a particular focus on Nd:YAG, Ti:Sapphire, and Excimer laser applications. We offer custom, semi-custom and standard optics and coatings for long-lifetime, quality and performance. Contact: Jacob Jaramillo, Product Manager, JJaramillo@idexcorp.com

### Cybel LLC

#5436

SPIE Corporate

1195 Pennsylvania Ave, Bethlehem, PA, 18018-2026 USA +1 610 691 7012; fax +1 610 691 7012 contact@cybel-llc.com; www.cybel-llc.com

### Featured Product: Fiber amplifiers and lasers at 1 $\mu$ m, 1.5 $\mu$ m and 2 $\mu$ m

Cybel, LLC designs and manufactures fiber lasers and fiber amplifiers for applications in the 1µm, 1.5µm and 2µm bands. Whether in our high-power OEM SkyLight series or our efficient and compact OEM Mako series, our products offer the best combination of performance, cost and reliability. Cybel's principal mission is to provide the optimal photonic solutions for our customer's applications. Contact: Jean-Marc Delavaux, CEO & Founder, jm@ cybel-llc.com

#### Cymtec Ltd.

#5135

Tredomen Business & Technology Ctr, Hengoen Caerphilly, CF82 7FN United Kingdom +44 0 1443 857040; fax +44 7966 575446 www.cymtec.co.uk

#### Daco Instrument Co.

#3044

45 Woodmont Rd, Milford, CT, 06460 USA +1 203 874 2515; fax +1 203 878 6655

info@dacoinstruments.com; www.dacoinstruments.com

### Featured Product: Rotary spring solenoid, rotary bi-stable solenoid, shutters, indicators, and desiccators.

For over 75 years, Daco Instruments has been recognized as a leading provider of value-added products. Founded in 1928, the company started as a manufacturer of aircraft gearing systems. They design and manufacture advanced optical shutter systems, rotary solenoid devices, and aircraft instrumentation. Daco offers customized and comprehensive design and production support to develop application specific solutions to meet all our customers' exacting requirements. Contact: Dhaval Desai, Global Business Development Manager, ddesai@dacoinstrument.com; Luigi Cazzaniga, General Manager, Icazzaniga@practicalautomation.com

### Daheng New Epoch Technology, Inc.

#2036

SPIE Corporate Member

No A9 Shangdi Xinxliu Rd Haidian Dist, Beijing, 100085 China +86 10 8278 2668; fax +86 10 8278 2669 optics@cdhcorp.com.cn; www.cdhcorp.com

### Featured Product: Terahertz time-domain spectrometers, femtosecond lasers

Daheng New Epoch Technology, Inc., based in Beijing, China, is a technical company specialized in optics. Its main business includes design and manufacture of optical components, laser modules, and optical systems. Wealthy experiences in engineering, production, and service flexibility have been meeting our customer demands since 1987. We are certified according to ISO9001:2008 for quality assurance. Qualified technical department inspects our products at 100% level for quality control. Contact: Anna Yu, sales manager, annayu@cdhcorp.com.cn; Yuan Gao, sales manager, gaoyuan@cdhcorp.com.cn

### **Daheng Optical Thin Film Center**

#4263

No 7 Haiying Rd Fengtai Science Park, Fengtai District, Beijing 100070 China

+86 10 8368 1693; fax +86 10 6379 2951 sales@dahengoptics.com; www.dahengoptics.com

### Featured Product: Optical coating products, infrared filters/ windows/lenses, metalized window, metalized/glass soldering

Daheng has been committed to the optical components and optoelectronic product development. Our products are widely used in laser protection, detection sensors, biomedical, environmental analysis, video, optical, fiber-optic communications, education, research and other fields. Main market located in Asia, Europe and North America, production and supply capacity and technical level. To always stay ahead in the optical film industry has been one of the largest manufactures in domestic. Contact: GenAi Zhao, Sales, zhaogenai@dahengoptics.com; Ying Xie, Sales Manager, xieying@dahengoptics.com

### SPIE INDUSTRY EVENTS

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Meter Board Sponsor

DataRay Inc.

#2239

SPIE Corporate

14505 Seaman Gulch Rd, Bella Vista, CA, 96008-9801 USA +1 530 472 1716: fax +1 530 255 9062 sales@dataray.com; www.dataray.com

#### Featured Product: WinCamD-THz new Terahertz camera

DataRay designs and manufactures innovative laser beam intensity profiling instruments for wavelengths from UV to THz. Camera-based and scanning slit-based instruments are all USB port-powered with Windows based software, and interfacing options to LabVIEW, Python, MATLAB etc. Standard and custom systems available. Unique systems include XYZThetaPhi measurement for focused laser assembly alignment with real-time M2, and high resolution THz camera systems. Contact: John Wilson, VP Sales/Marketing Manager, jwilson@dataray.com; Andrew MacGregor, VP Support, amacgregor@dataray.com

#### Dausinger + Giesen GmbH

#4629

Rotebühlstr 87, Stuttgart, 70178 Germany +49 711 907060 550; fax +49 711 907060 99

info@dausinger-giesen.de: www.dausinger-giesen.de

#### Featured Product: Ultrafast thin disk lasers: high average power 40W -> >1kW; pulse energy up to 1J; disks and modules

Dausinger + Giesen GmbH develops, designs and produces leading edge thin-disk lasers for science and industry. D+G also sells key components of thin-disk lasers as well like mounted thin disks; thindisk modules as well as turnkey thin-disk laser systems. Contact: Johannes Trbola, Business Development, trbola@dausinger-giesen.de

#### **Davidson Optronics**

#1134

2223 W San Bernardino Rd, West Covina, CA, 91790-1008 USA +1 626 962 5181: fax +1 626 962 5188 sales@davidsonoptronics.com; www.davidsonoptronics.com

### **Daylight Solutions**

#4961

SPIE Corporate

15378 Ave of Science Ste 200, San Diego, CA, 92128-3407 USA +1 858 432 7500; fax +1 858 432 5737

sci-sales@daylightsolutions.com; www.daylightsolutions.com

### Featured Product: 'Spero' IR microscope: shining a new light on rapid IR analysis of cells, tissue and materials

As a mid-IR technology leader, Daylight Solutions offers a wide selection of mid-IR lasers and systems optimized for molecular detection and imaging applications, spanning spectroscopy, remote/ atmospheric sensing, defense and security, materials science, and life sciences. Whether you need a CW or pulsed MWIR laser, broad tuning, narrow linewidth, Watts, or low RIN, we have you covered. Please visit our booth and see our new products, including the award-winning 'Spero' IR microscope. Contact: Bob Shine, Senior Sales Manager, rshine@daylightsolutions.com; Leigh Bromley, Director, Scientific Products, Ibromley@daylightsolutions.com

### Dayoptics, Inc.

#2011-A

20 Baihua Zhou Rd, Jinshan Pushang Industrial Park, Fuzhou, Fujian, 350002 China

+86 591 83215681; fax +86 591 83215359 sales@dayoptics.com; www.dayoptics.com

#### Featured Product: DayOptronics fish-eye lenses

DayOptics is a manufacturer of optical lenses, and the sister company DayOptronics do OEM in Hunan. We can manufacture and design any kinds of lenses with a big quantity and good quality, access to ISO 9001 .The fish-eye lenses is our latest products, this following is the description: FOV: 190°, multiple focal lengths, lower F/No., relative illumination: 90%, high image quality: Up to 12MP, IR Correction, security & surveillance & automotive etc. Contact: Joy Weng, sales@dayoptics.com; Rachel Lee, sales@dayoptronics.com

### DCM Tech, Corp.

#412

4455 Theurer Blvd, Winona, MN, 55987-1593 USA +1 507 452 4043; fax +1 507 452 7970 interest@dcm-tech.com; www.dcm-tech.com

#### Featured Product: IG 140SD, most compact of the 12"- 36" SD series programmable vertical spindle rotary table grinders

DCM Tech is an American manufacturer of vertical spindle rotary table grinders that are ideal for optical fabrication in quartz, sapphire, and other hard crystalline materials. Grinders are available with table sizes ranging from 12" to 36" with workpiece capacities up to 39.5". DCM grinders have continuously evolved over 40 years of production, and are sold and supported by a factory direct technical sales team. Engineering support for custom fixtures and machine features are readily available. Contact: Brian Ebbinger, Technical Specialist, brianebbinger@dcm-tech.com

#### Delta Optical Thin Film A/S

#1148

Venlighedsvei 4. Hørsholm, 2970 Denmark +45 70707146

info@deltaopticalthinfilm.com; www.deltaopticalthinfilm.com

### Featured Product: Linear variable bandpass filters for hyperspectral imaging

Delta Optical Thin Film is the leading supplier of the most advanced dielectric filters. For 50 years Delta enables customers to offer the highest performing analytical and diagnostic instruments by applying latest design and process control technologies. Delta offers a wide range of high efficiency durable hard coated filters that have set standards in the market place. With its unique design tools Delta is able to tailor filters to any application with competitive pricing at high volume. Contact: Oliver Pust, Director, Sales and Marketing, opu@deltaopticalthinfilm.com; Poul Svensgaard, CEO, psv@ deltaopticalthinfilm.com

### **Deltronic Crystal Industries, Inc.**

#5228

SPIE Corporate

60 Harding Ave, Dover, NJ, 07801-4710 USA +1 973 361 2222; fax +1 973 361 0722 info@deltroniccrystal.com; www.deltroniccrystal.com

#### Featured Product: Isowave ISOs: NEW small sizes for visible; hipower models, nonpyroelec LiNbO3; PPSLT chips

Deltronic Cystral (est.1972): grows and processes oxide single crystals including YIG, TGG, SLT, nonpyroelectric lithium niobate. In-house periodic-poling of wavelength conversion chips: SLT, SLN, LN, + Isowave (est. 1986) designs and builds a full range of highperformance optical isolators, wavelengths from 400nm to 5000nm. Clear apertures from 0.5mm to 20mm. Contact: Stuart Samuelson, President, ssamuelson@deltroniccrystal.com; Thomas Pelnar, Sales Manager, tpelnar@isowave.com

#### Digital Signage Sponsor

### **Deposition Sciences, Inc.**

#730

SPIE Corporate Member

3300 Coffey Ln, Santa Rosa, CA, 95403-1917 USA +1 707 573 6700; fax +1 707 573 6748 solutions@depsci.com; www.depsci.com

DSI offers a wide variety of coated products ranging from high Laser Damage Threshold (LDT) antireflection (AR) coatings on complex shapes, to visible and infrared bandpass filters, as well as solderable metallization coatings on active devices. Additionally, DSI's photolithography capability enables the deposition of multispectral coatings on filters, as well as directly on active detectors. DSI can deposit an extensive range of materials on most rigid and flexible substrates. Contact: Tatiana Atkinson, Inside Sales Manager

#### Digital Signage Sponsor

#### **Diamond USA Inc.**

#4568

SPIE Corporate Member

27 Industrial Ave, Chelmsford, MA, 01824-3618 USA +1 978 256 6544; fax +1 978 256 3362 info@diausa.com: www.diausa.com

### **DiCon Fiberoptics**

#4436

SPIE Corporate

1689 Regatta Blvd, Richmond, CA, 94804-7438 USA +1 510 620 5000; fax +1 510 620 4102 sales@diconfiberoptics.com; www.diconfiberoptics.com

### Featured Product: MEMS OCT 1xN optical switch, intended for OEM integration into OCT systems.

DiCon Fiberoptics offers optical switches for aerospace & defense, biomedical, fiber sensing, network monitoring, network security, and optical communications applications. DiCon's proven MEMS optical switches offer unsurpassed lifetime and reliability, and can be optimized to the application. ScopeLED, a division of DiCon Fiberoptics, manufactures high intensity tunable dense matrix LED arrays for BF and fluorescence microscopy along with illuminators for microscopy fiber optic light guides. Contact: Kirk Lussier, Director of Sales - DiCon Fiberoptics, klussier@diconfiberoptics. com; James Paladino, Global Brand Manager - ScopeLED, jpaladino@scopeled.com

#### **Diffractive Optics Ltd.**

#3036

Unit 531 Enterprise Place, Hong Kong Science Park, Hong Kong, China

+852 2793 5976; fax +852 2793 1696 sales@diffractive-optics.com; www.diffractive-optics.com

### Featured Product: Diffractive optical element (DOE), aspheric optics, micro-optics

In the production of optical system components and parts, this professional optical manufacturing technology includes all kinds of plastic optical lens-shaped pressure injection molding technology; two metal optical components and sub-nanometer precision electroforming polishing techniques; additional light science and all kinds of metalized film coating; single point diamond ultra-precision machining; and optical non-contact measurement (phase shift WO involving technology) Contact: Chi Man Fok, Director, manfok@ diffractive-optics.com

#### Lanyard Sponsor

### **DILAS Diode Laser, Inc.**

#4765

SPIE Corporate Member

9070 S Rita Rd Ste 1500, Tucson, AZ, 85747 USA +1 520 232 3480; fax +1 520 300 8230 sales@dilas-inc.com: www.dilas.com

DILAS manufactures high-power diode laser components and systems in a wide range of output powers and wavelengths including fiber-coupled, direct beam and integrated solutions for the defense, display and projection, graphic arts, laser pumping, materials processing, medical, printing, and scientific markets Contact: Steve Patterson, VP/GM, s.patterson@dilas-inc.com

### **Diode Laser Concepts, Inc**

#4445

2027 Commerce Dr, Medford, OR, 97504-9744 USA +1 541 773 5321; fax +1 541 773 1705

sales@diodelaserconcepts.com; www.diodelaserconcepts.com

### Featured Product: World-class laser solutions: OEM applications for medical, machine vision, measurement and alignment

Diode Laser Concepts: Custom integrated solutions. We leverage your engineering capabilities with our proven laser and optical design expertise. We solve manufacturing challenges by providing turnkey, high-quality optoelectronic and mechanical solutions. We deliver your production capacity needs from prototypes to full-scale OEM volume, with DLC-owned domestic and offshore manufacturing options. Our relationship-based business has been developing successful long-term partnerships since 1991. Contact: Adam Bylund, Marketing, adam.b@diodelaserconcepts.com; Mike Robinson, President, mike.r@diodelaserconcepts.com

### **Discovery Semiconductors, Inc.**

#4335

119 Silvia St, Ewing, NJ, 08628-3200 USA +1 609 434 1311; fax +1 609 434 1317 aberry@discoverysemi.com; www.discoverysemi.com

### Featured Product: Wideband RF amplifiers from 30 kHz to 70

Discovery Semiconductors, Inc., established in 1993, is an industry leader in manufacturing ultrafast, broadband (800 nm-2200 nm) high optical power handling InGaAs photodetectors, optical receivers, balanced optical receivers, PAM4 linear optical receivers, coherent receivers, and wideband RF amplifiers for 10G through 400G applications. In addition, Discovery offers its complete photodetector product line in its plug-and-play Lab Buddy instrumentation platform. Contact: Aaron Berry, Sales Engineer, aberry@discoverysemi.com

#### **DITF Interconnect Technology**

#4260

2245 Meridian Blvd #E, Minden, NV, 89423 USA +1 775 782 1041; fax +1 775 782 1044 sales@dtif.com; www.ditf.com

#### **Diverse Optics Inc.**

SPIE Corporate Member

10310 Regis Ct, Rancho Cucamonga, CA, 91730 USA +1 909 593 9330; fax +1 909 596 1452 info@diverseoptics.com; www.diverseoptics.com

#### Featured Product: Diverse Optics: custom polymer optics

Diverse Optics creates custom precision polymer optics. Core processes include injection molding, single point diamond turning, assembly, and thin-film coating. We manufacture the most complex polymer optics for defense, medical, and commercial uses with advanced technology. We do it all; from prototyping to series production of spheres, aspheres, bi-convex, free-forms, Fresnels, prisms, light-pipes, lens arrays, combiners, CPC's, TIR's, microoptics, parabolics, off-axis, ellipticals, and more. Contact: Letty Treviño, Sales Engineer, info@diverseoptics.com

### **Docter Optics, Inc.**

#703

#315

SPIE Corporate Member

1425 West Elliot Road, Suite A-105, A Subsidiary of Docter Optics SE, Gilbert, AZ, 85233 USA

+1 480 844 7585; fax +1 480 844 7826 doi@docteroptics.com; www.docteroptics.com

### Featured Product: Lenses, aspheres, free-forms, light pipes, lens arrays, optomechanic/opto-electronical subassemblies

Docter Optics, an ISO 9001:2008, ISO 14001:2009, ISO 13485:2010, ISO 50001:2011 and ISO 19600:2014 certified and ITAR registered global OEM supplier of custom designed and manufactured molded glass and plastic components, opto-electronical and opto-mechanical subassemblies as well as standard objective lenses Tevidon, Auto-Tessar, Stilar for applications and industries such as automotive, biometrics, illumination, medical devices, security and surveillance. Contact: Bruce Nielsen, Executive Vice President, doi@docteroptics.com; Frank Müller, Sales Manager, frank.mueller@docteroptics.com

#### Dominar, Inc.

#3060

734 Aldo Ave, Santa Clara, CA, 95054-2210 USA +1 408 496 0508; fax +1 408 496 0910 dominfo@dominar-inc.com; www.dominar-inc.com

### Featured Product: Optical thin-film coatings, 250-3500 nm, AR, HR, LWP, SWP. Metals, conductive and protective layers.

Dominar, Inc. specializes in the design and manufacture of optical thin film coatings. We coat crystals, AMTIR, semiconductors, glasses, and silica, from UV to IR. We offer anti-reflection, high-reflection dielectric, and most metals. We quote on prototype or production quantities. Dominar offers expertise for optical coating design, fiber optic light guides and imaging, optical design and testing, and illumination engineering. Contact: John Ellis, President, jellis@dominar-inc.com; Lucina Ellis, Vice President, lucina@dominar-inc.com

### **Donaldson Company, Inc.**

#5533

PO Box 1299, Minneapolis, MN, 55440-1299 USA +1 952 887 3700; fax +1 952 887 3612 semiconductor@donaldson.com; www.donaldson.com/en/ semiconductor/index.html

#### **Doric Lenses Inc.**

#4355

357 Franquet street, Quebec, QC, G1P 4N7 Canada +1 418 877 5600; fax +1 418 877 1008 sales@doriclenses.com; www.doriclenses.com

#### Featured Product: Ce:YAG & blue fiber light source

Manufacturer of optical components and photonics hardware for life sciences under own brand and with global reach. The product portfolio includes gradient and acylindrical lenses, different LED, LD and fluorescent light sources, fiber-optic rotary joints, optical fiber brain implants, fiber photometry, miniaturized microscopes, etc. Ce:YAG & blue fiber light source, the connectorized combination of broadband fluorescent and blue LED/LD light, perfect for coupling into 200 um fiber. Contact: Branka Prijovic, VP Sales, branka@ doriclenses.com; Kemal Trtak, Sales representative, kemal@ doriclenses.com

#### Exhibition Map, Floor Plan Logo Sponsor

### **Dowa Electronics Materials Co., Ltd.**

#4943

4-14-1 Sotokanda, Chiyoda-ku Tokyo, 101-0021 Japan +81 3 6847 1253; fax +81 3 6847 1260 www.dowa-electronics.co.jp/en/index.html

### Featured Product: Deep UV LED (265nm-340nm), infrared & red LEDs. N-type GaAs substrate. GaN on Si. high purity metal

DOWA is a Japanese manufacturer of Deep UV LEDs (265nm-340nm), infrared and red LEDs, GaAs substrates and high purity metals. This year, DOWA will release new 280nm model that has over 50mW output power. DOWA is also a supplier of high-power infrared/red LEDs (from 660nm to 1900nm), N-type GaAs substrates from high quality GaAs crystals for optical application (laser diode and LED), GaN on Si for electric devices, and high purity Ga, In, Mg and Zn. Contact: Hiromichi Asahara, Marketing Manager, asaharah@ dicny.com; Akihisa Yamaguchi, Marketing Manger, akihisa@dicny.com

#### **DPSS Lasers Inc.**

#3059

2525 Walsh Ave, Santa Clara, CA, 95051-1316 USA +1 408 988 4300; fax +1 408 988 4305 sales@dpss-lasers.com; www.DPSS-lasers.com

#### Featured Product: Samurai UV Laser Marking System

DPSS Lasers Inc. specializes in low-cost DPSS UV "quasi-CW" lasers and UV laser markers that are ideal for marking and engraving materials such as plastic and metals. UV lasers are especially well suited for medical, aerospace, pharmaceutical, and military applications because they utilize photo ablation or photochemical response rather than thermal ablation, which can damage many materials. Contact: Alex Laymon, President, alaymon@dpss-lasers.com; Allie Constantino, Marketing, marketing@dpss-laser.com

#### **Dr. Bohrer Lasertec GmbH**

#5065

Ludwig-Boltzmann-Str 2, Neusiedl am See, 7100 Austria +43 664 34 23 028; fax +43 2167 20058 markus@dr.bohrer.com; www.drbohrer.com/

### Featured Product: Ultra-stable 600 W CO<sub>2</sub> laser & modular beam path including AOM and correlative high-speed engraving.

Dr. Bohrer Lasertec is a leading, worldwide, focused, industrial company in the domain of correlative ultrafast laser engraving with three clearly defined business areas. Services: Offer of service especially for the general refurbishment of CO<sub>2</sub>-lasers up to 1.000 W. Sources: Own CO<sub>2</sub> reference laser source with beam guiding and beam forming components. Solutions: Industrial laser solutions, especially in the area of laser engraving. Contact: Markus Bohrer, President, Markus@DrBohrer.com; Nina Hubmajer, International Sales Backoffice, Nina@DrBohrer.com

### **DRS Technologies, Inc.**

#2801

SPIE Corporate Member

100 N Babcock St, Melbourne, FL, 32935-6715 USA +1 855-230-2372; fax +1 321 622 1804 marketing@drs.com: www.drs.com

Contact: Margaret Mello, Manager/Trade Shows

#### **DST CONTROL**

#4354

SPIE Corporate Member

Åkerbogatan 10, Linköping, 582 54 Sweden +46 13 211080; fax +46 13 211081 info@dst.se; www.dst.se

### Featured Product: Long-wave infrared imager, SAITIS-640, gyro-stabilized camera system within the OTUS series

DST CONTROL is a supplier of light-weight, high performance gyrostabilized electro-optical systems with both EO and IR capabilities and also, small lightweight long-wave thermal imagers. The SAITIS uncooled microbolometer LWIR camera (amorphous silicon, spectral band 8-14 µm) is one of the smallest LWIR available. The OTUS gyrostabilized electro-optical micro-gimbal is optimized for use in small & medium sized unmanned vehicles and small manned aircrafts Contact: Magnus Sundstedt, Marketing Director, magnus@dst.se; Fredrik Bjurén, Marketing & Sales, fredrik@dst.se

### **DTF Technology GmbH**

#4629

Am Promigberg 16, Dresden, 01108 Germany +49 35132029200; fax +49 35132029210 info@dtf-technology.de; www.dtf-technology.de

### Featured Product: EOSS sputter system, coatings for precision optics (collaboration with Fraunhofer IST, Braunschweig)

DTF develops processes, technologies and equipment for thin-film deposition and vacuum technologies for example: tools and equipment for PVD (sputtering (RF, DC), evaporation), (PE) CVD, ALD; EOSS sputter system for precision optics (in collaboration with Fraunhofer IST in Braunschweig, Germany); ultrashort time annealing tools for thermal treatment in the (sub) millisecond range; (FLA: flash lamp annealing); and plasma based ion implantation & deposition systems (PIII). Contact: Thoralf Gebel, CEO, gebel@dtf-technology. de; Michael Vergoehl, Project Manager, michael.vergoehl@ist. fraunhofer.de

### **Duma Optronics Ltd.**

#4269

1st Hazait St, Nesher, 367 5018 Israel +972 4 8200577; fax +972 4 8204190 sales@duma.co.il; www.duma.co.il

### Featured Product: Wide spectral range beam profiler system, 190nm to 1600nm, one sensor without distorting coatings.

Duma Optronics manufactures electro-optical instrumentation, optical beam positioning, alignment measurement systems, electronic autocollimators, and beam analysis systems (beam profilers, M2 meter, divergence meter) with unique high power measurement capabilities. Privately owned and established late in 1989, it currently employs 25 people. Duma Optronics offers solutions to the medical, industrial and security markets. The products are patent pending. Contact: Judith Aharon, CEO, judith@duma.co.il; Oren Aharon, CRO, oren@duma.co.il

### **Dynamic Structures - Optics**

#4532

SPIE Corporate Member

1515 Kingsway Ave, Port Coquitlam, BC, V3C 1S2 Canada +1 604 813 5794; fax +1 604 294 4550 p.wangsness@outlook.com:

www.dynamicstructures-optics.webs.com

Designs and manufactures economical lightweight glass (primarily borosilicate) mirror substrates from 20mm to >2,400mm+ in diameter. Unusual shapes and dimensions are possible. Low mass and high stiffness complement, low inertia and rapid thermalization. Quantities range from single prototype to OEM. Areal densities as low as 8kg/m^2 have been fabricated. Complete systems available. Optical telescopes, lidar systems, scanners, active primary and secondary optics and airborne optical systems Contact: Peter Wangsness, Astronomy Technologist, p.wangsness@outlook.com; Timothy Lee, MechTech Engineer, timothy.lee@empireds.com

### **Dynasil Fused Silica**

#607

385 Cooper Rd, West Berlin, NJ, 08091 USA +1 856 767 4600

sales@dynasilfusedsilica.com; www.dynasilfusedsilica.com

Since 1960, Dynasil has provided high quality synthetic fused silica and fused quartz products to customers for an ever increasing range of applications. As an authorized distributor of Corning HPFS® 7980 and ULE® 7972 and 7973, Dynasil fabricates precision machined blanks and other components as well as from a variety of other manufacturers' optical materials. Dynasil's commitment to our customers is to provide fast, on-time delivery of the highest quality products at a competitive price. Contact: Bruce Leonetti, VP Sales & G.M., sales@dynasilfusedsilica.com; Michael Orlando, Inside Sales, sales@dynasilfusedsilica.com

### **DynaVac**

#4261

110 Industrial Park Rd, Hingham, MA, 02043-4369 USA +1 781 740 8600; fax +1 781 740 9996 sales@dynavac.com; www.dynavac.com

#### **Featured Product: Thin-film deposition systems**

Dynavac designs and manufactures thin film coating equipment. Product lines include systems for precision optical coatings, automotive, lighting, solar and biomedical applications. PVD systems utilize evaporation and sputtering technologies that include magnetron cathode, electron beam and thermal evaporation. Dynavac provides custom engineered products to support start-of-the-art requirements and emerging technologies. Systems are fully automated and well-suited for production environment. Contact: Steven Chiavaroli, Product Manager - Thin Film Systems, schiavaroli@dynavac.com

### **DZD Photonics Co., Ltd.**

#4307

No 12 JinXing Road Daxing District, 5F/Bldg 3, Beijing, Anhui, 102608 China

+86 01060219816

dzd@dzdphotonics.com; www.dzdphotonics.com/en

### Featured Product: 3, 5,10 W UV DPSS lasers; 15, 30 W GR DPSS lasers; 40 W IR DPSS lasers; and LD pumped module

As a subsidiary company of DZD International, DZD Photonics is a pioneering developer as well as a leading manufacturer focused on high power DPSS and fiber lasers. DZD Photonics has developed 10-60W Q-switched pulsed IR, Green, and UV lasers with DZD Photonics' own well-designed and patented pumping modules which provide high beam quality, longer lifetime, and cost-effective solutions for fine material micro-processing. Contact: Feng Chang, General manager, fengchangchem@163.com; Zhi Gao, Application Engineer, gz@dzdphotonics.com

### **E.R. Precision Optical Corp.**

#2202

SPIE Corporate

805 W Central Blvd, Orlando, FL, 32805 USA +1 407 292 5395; fax +1 407 292 7984 sales@eroptics.com: www.eroptics.com

### Featured Product: Germanium and silicon near-net shaped blanks.

The HUBZone facility in Orlando, Florida specializes in manufacturing precision optical components, like windows, lenses, prisms and filters, made out of germanium, silicon, and other advanced materials. It is the only US facility growing high purity germanium and silicon CZ crystals for optical components of the most advanced infrared (IR) targeting and sighting applications. They support the US DoD military and aerospace programs, commercial electronics, and solar and semiconductor markets. Contact: Jason Hess, VP Operations, jhess@eroptics.com; Brian Weinberg, Business Development Mgr., bweinberg@eroptics.com

### e2v technologies plc

#4234

SPIE Corporate Member

106 Waterhouse Lane, Chelmsford Essex, CM1 2QU United Kingdom

+44 1245 493493; fax +44 1245 492492 enquiries@e2v.com; www.e2v.com

e2v provides high quality CMOS & CCD image sensors, cameras and sub-systems which deliver high performance in automation, healthcare & safety. e2v develops custom solutions with our customers, as their innovation partner. e2v produces image sensors and line scan cameras for automation and healthcare, area array sensors for automatic data collection system (including 2D barcode reading) CMOS dental intra-oral X-ray sensors and high-res three dimensional imaging systems for ophthalmology.

#### **Exhibition Map Sponsor**

### eagleyard Photonics GmbH

#932

Rudower Chaussee 29, Berlin, 12489 Germany +1 49 30 6392 4520; fax +1 49 60 6392 4529 info@eagleyard.com; www.eagleyard.com

### Featured Product: Powerful 20W pulsed 808nm laser diode @ 10µs pulse width

eagleyard Photonics GmbH develops, manufactures and distributes high power semiconductor laser diodes based on GaAs wafer material, the key component for advanced laser systems. Offering wavelengths from 630 nm to 1,120 nm eagleyard has become a leading provider of reliable laser diodes that serves the requirements for industrial, space, defense, medical and scientific applications. The product portfolio comprises five basic types of laser diodes, each optimized to meet specific requirements. Contact: Michael Kneier, VP Sales & Marketing, info@eagleyard.com

### **Ealing Catalog Inc.**

#723

340 El Pueblo Rd Ste E, Scotts Valley, CA, 95066 USA +1 831 461 1930; fax +1 831 461 1936 sales@ealingcatalog.com; www.ealingcatalog.com

#### Featured Product: Motorized 3-axis stage

The Ealing Catalog offers a wide variety of research and industrial grade products that will help you design and build a better optomechanical system. We offer high precision optical components including bandpass filters, laser mirrors, fused silica lenses as well as selection of polarizing elements such as waveplates, beam splitters and sheet polarizers. Contact: Philip Crowley, Sales, phil@markettechinc.net

# While others increase their prices, we increase our performance.

Distributed computing is now available in FRED® Optimum Optical Engineering software.

FRED Optimum can now distribute calculations across an unlimited number of networked Windows computers, dramatically cutting your processing time while increasing your productivity.

Added value at no added cost.



Contact us for additional information.



310 S. Williams Blvd., Suite 222 | Tucson, AZ 85711 520.733.9557 | www.photonengr.com

### **East Tender Optoelectronics Corp.**

#5447

No 14 Te Hsing 7th Rd, Su-Ao I-Lan, 270 Taiwan +886 39908671; fax +886 39908553 sonyalo@east-tender.com; www.east-tender.com

### Featured Product: Thin Film Filter, Optical Filter coating Filter for data center, Big AOI 800G, Big AOI CWDM filters.

East Tender Optoelectronics Corp. established in year 2000. Main mission: provide quality optical coating products, provide the best optical coating services. Goal: Provide the products that are fully compliant with the European Union Directive 2011/65ET "Restriction of Hazardous Substances", also known as the RoHS Directive. Contact: Sonya Lo, Assistant VP, sonyalo@east-tender.com; Yummy Chou, President/CTO, chouym@east-tender.com

#### **Eblana Photonics**

#2511

Pearse St #32, Trinity College Enterprise Campus, Dublin 2, Ireland +1 353 1 675 3228

sales@eblanaphotonics.com; www.eblanaphotonics.com

#### Floor Graphic Sponsor

### **Edmund Optics Inc.**

#1612

SPIE Corporate Member

101 E Gloucester Pike, Barrington, NJ, 08007-1380 USA +1 856 547 3488; fax +1 856 573 6272

sales@edmundoptics.com; www.edmundoptics.com

### Featured Product: TECHSPEC\* Imaging Filters extremely high and flat transmission profiles provide even illumination.

Edmund Optics is a leading supplier of optics and optical components, designing and manufacturing a wide array of multi-element lenses, lens coatings, imaging systems, and optomechanical equipment. EO's state of the art manufacturing capabilities combined with its global distribution network has earned it the position of the world's largest supplier of off-the-shelf optical components. Customers can purchase items by calling 1-800-363-1992, via the catalog or the website at www.edmundoptics.com Contact: Birgit Heinz, Director of Global Trade Shows

#### **Exhibition Map Sponsor**

### EDT/Engineering Design Team, Inc. #6049

1400 NW Compton Dr Ste 315, Beaverton, OR, 97006 USA +1 503 690 1234; fax +1 503 690 1243

info@edt.com; edt.com

### Featured Product: VisionLink line of Camera Link framegrabbers and fiber-optic extenders supporting up to 850MB/secv

EDT, Engineering Design Team (Beaverton, Oregon, USA) designs and manufactures fast, compact, high-performance camera link frame-grabbers, simulators, and extenders (fiber or coax) for multiple modes (base through extended full), form factors (PCIe, PCI, PMC, cPCI), operating systems (Windows, Linux, Mac), and environments (desktops, workstations, embedded systems). Products include API, SDK, and engineer-to-engineer support. Contact: Cliff Hayes, Field Application Engineer, cliff@edt.com

#### **EGIDE**

#5345

4 Washington St, Cambridge, MD, 21613-2802 USA +1 410 901 6100; fax +1 410 901 2324 sales@us.egide-group.com; www.egide-group.com

### Featured Product: Hermetic packaging, glass-to-metal (GTMS), ceramic-to-metal (CTMS), high-temp-cofired-ceramic (HTCC)

EGIDE is a leading provider of Innovative Hermetic Package Solutions to the world's most demanding microelectronic and optronic applications. Since 1986 the company's glass-to-metal-seal (GTMS), ceramic-to-metal seal (CTMS) and high-temperature-cofired-ceramic (HTCC) technologies have supported solutions for military, aeronautic, space, security, telecommunications and industrial markets. Our world class manufacturing facilities are located Cambridge, Maryland and Bollene, France. Contact: Kirk Williamson, North American Sales Manager, Kwilliamson@us-egide-group.com; Ignace Dupon, Director of Sales, idupon@fr.eqide-group.com

### **EKSMA Optics**

#1533

Mokslininku str 11, c/o Optolita UAB, Vilnius, LT-08412 Lithuania +370 5 272 9900; fax +370 5 272 9299

info@eksmaoptics.com; www.eksmaoptics.com

### Featured Product: Ultrafast electro-optical pulse picker master for lasers operating at up to 100MHz repetition rate.

EKSMA Optics is a manufacturer and supplier of precision laser components. Product range includes laser optics for high power lasers, opto-mechanics, BBO, KD\*P, KTP Pockels Cells, HV drivers and power supplies, ultrafast pulse picking systems, nonlinear LBO, BBO, KTP, KD\*P, LiNbO3, AgGaSe2, AgGaS2, ZnGeP2, GaSe, CdSe, Raman Ba(NO3)², KGW, terahertz ZnTe, GaSe, passive Q-switching Cr:YAG, Co:Spinel and laser media Yb:KGW, Yb:KYW, Nd:YLF, Nd:KGW crystals. EKSMA Optics is ISO 9001:2008 certified. Contact: Lucian Hand, President, Altos Photonics, lucian@ altosphotonics.com; Laurie Dewar, Customer Support, Altos Photonics, laurie@altosphotonics.com

### EKSPLA #1533

Savanoriu Ave 237, Vilnius, LT-02300 Lithuania +370 5 264 9629; fax +370 5 264 1809 sales@ekspla.com; www.ekspla.com

#### Featured Product: UltraFlux series compact tunable OPCPAbased femtosecond laser system, tunable 235 nm-2200 nm.

Innovative manufacturer of solid state and fiber lasers, systems and components from unique custom system for basic research to small OEM series. In-house R&D team and more than 20 years' experience enable to tailor products for specific applications and/or according to specific requirements. Main products are: femtosecond, picosecond and nanosecond lasers, tunable wavelength systems, ultrafast fiber lasers, spectroscopy systems and laser electronics. Contact: Lucian Hand, President, Altos Photonics, sales@ altosphotonics.com; Laurie Dewar, Customer Support, Altos Photonics, laurie@altosphotonics.com

### **ELAS, Ltd.**

#4566

Savanoriu Ave 231, Vilnius, Alytus, 02300 Lithuania +370 655 14467; fax +370 5 2641809 info@e-lasers.com: www.e-lasers.com

### Featured Product: Laser micromachining systems for science and industry

ELAS Ltd. is a designer and manufacturer of laser micromachining systems for industrial and scientific applications. Applications include: metals cold micro-marking; thin-film solar cells processing; flexible electronics manufacturing & selective polymer ablation; silicon, glass and sapphire wafers cutting and scribing; metal, synthetic diamond or ceramic mechanical tools treatment; medical device manufacturing; optical & metal coatings patterning; and fuel injector nozzles & mechanical filters. Contact: Simonas Varapnickas, Sales Manager, info@e-lasers.com; Laura Balasaityte, Marketing Manager, laura.b@e-lasers.com

Eldim #72

1185 rue d'Epron Ancienne, Hérouville Saint-Clair, 14200 France +33 2 31 947 600; fax +33 2 31 940 950 sales@eldim.fr; www.eldim.fr

Featured Product: EZContrast 80

Eldim manufactures 2D photometers & colorimeters and Inspection systems for LCD, FED, LEDs, Plasma, CRT, micro displays, instrument clusters and lighted panels. Contact: Philip Crowley, Sales, phil@markettechinc.net

### **Electro Optical Components, Inc.**

#4859

SPIE Corporate

5464 Skylane Blvd Ste D, Santa Rosa, CA, 95403 USA +1 707 568 1642; fax +1 707 568 1652 info@eoc-inc.com; www.eoc-inc.com

### Featured Product: Signal recovery amps; high-temp thermopile; gas detectors; UV detectors; body core temp measurement

Electro Optical Components (EOC): technologically advanced systems and components for laser and optoelectronic systems from the UV to the far IR. Signal recovery amplifiers & photoreceivers; thermopile and pyroelectric detectors; MID IR photodiodes; UV detectors; IR and visible laser diode modules; broadband & LED mid-IR sources; optics and coatings including low refractive index coatings; IR interference filters; EO modulators; beam shapers; spectral imaging systems; body core temp measurement. Contact: Andriko Zavadell, Sales, andrikoz@eoc-inc.com; Bill Bolster, President, billbolster@eoc-inc.com

### **Electro Optical Industries, Inc.**

#6009

SPIE Corporate

859 Ward Dr, Santa Barbara, CA, 93111-2920 USA +1 805 964 6701; fax +1 805 967 8590 eoi@electro-optical.com; www.electro-optical.com

#### Featured Product: White balance multi camera stitching system

Electro Optical Industries is the world leader in advanced infrared and visible light spectrum test and calibration equipment. EOI solves customers' electro-optical testing challenges by understanding the technical requirements and providing the best value solution of proven EOI equipment. Electro Optical Industries is the world leader in advanced infrared and visible light spectrum test and calibration equipment and has been in business for over 50 years. Contact: Brent Lindstrom, Sales, lindstrom@electro-optical.com; Stephen Scopatz, President, sscopatz@electro-optical.com

#### **Promotional Partner**

### **Electro Optics**

#2704

4 Signet Court, Cambridge, CB5 8LA United Kingdom +44 1223 211 170; fax +44 1223 213 385 info@europascience.com; www.electrooptics.com

#### **Featured Product: Electro Optics**

Electro Optics is Europe's original photonics title & multiplatform resource for those involved in the photonics industry. Readers have access to the latest technological developments, trends & opinions; independent, in-depth editorial content; and informed commentary & analysis. Electro Optics is published ten times a year in print & digital editions, and alongside two monthly newsletters, EO Newsline & EO Productline, is available at no cost to readers working or engaged in the industry. Contact: Jon Hunt, Sales Czar, jon.hunt@ europascience.com; Warren Clark, Lord Director, warren.clark@ europascience.com

#### Featured Exhibitor Sponsor

### **Electro-Optics Technology, Inc.**

#2500

SPIE Corporate Member

5835 Shugart Lane, Traverse City, MI, 49684-6946 USA +1 231 935 4044; fax +1 231 935 4046 sales@eotech.com; www.eotech.com

#### Featured Product: Faraday rotators and optical isolators

Electro-Optics Technology has been supplying enabling components and diagnostic equipment for manufacturers and users of high power laser since 1987. Current products include Faraday rotators, optical isolators, and fiber collimators for use with laser diodes, fiber lasers, and solid-state lasers with an emphasis on high average power and peak power applications. EOT also stocks a complete line of photodetectors for monitoring the output of pulsed, mode-lock and externally modulated CW lasers. Contact: Mike Torrance, VP Business Development, sales@eotech.com; Haily Papes, Customer Service Representative, hpapes@eotech.com

### **Element Six Technologies U.S. Corp**

#4543

3901 Burton Dr, Santa Clara, CA, 95054-1583 USA +1 408 986 2400; fax +1 408 327 1300 UStechnologies@e6.com: www.e6.com

### Featured Product: Diamond PureOptics offers a solution for improved high power reliability for 10.6µm optical windows.

E6 fabricates and sells precision industrial diamond products. Products are made from engineered synthetic poly- and monocrystal diamond and diamond composites. Technologies using diamond include high power laser optics: laser exit windows, output couplers, beam splitters and novel YAG cooling. Other areas are: IR spectroscopy, thermal management, high energy particle detectors and scientific applications. Standard and custom engineered configurations are available to meet your requirements. Contact: Thomas Obeloer, Business Manager, thomas.obeloer@e6.com; Bruce Bolliger, Sales Director, bruce.bolliger@e6.com

#### **Elforlight Ltd.**

#935

4B Brunel Cl Drayton Fields, Daventry Northants, NN11 8RB United Kingdom

+44 1327 300069; fax +44 1327 300076 info@elforlight.com; www.elforlight.com

### Featured Product: Visible/infrared pulsed OPOs. Short ns durations at up to 5 kHz rep rates with $\mu J$ and mJ energies.

Elforlight offers pulsed tunable visible through IR OPOs with nanosecond pulse durations. Elforlight has pioneered short nanosecond (<2ns) pulses for photoacoustic microscopy, at standard 1064/532 wavelengths, and now offer tunable OPOs to facilitate spectroscopic studies. Absorptions can now be targeted across the visible, in particular blood absorptions in the yellow/orange region. Near IR versions around 1700nm target lipid (plaque) absorptions at up to 5kHz. 2940 nm output also available. Contact: Keith Oakes, Director, info@elforlight.com

### PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88–90 for complete times, schedules, and locations.

### **Elite Engineering Corp.**

#5546

SPIE Corporate

1270 Avenida Acaso Ste A, Camarillo, CA, 93012 USA +1 805 987 6217; fax +1 805 987 6269 inform@eliteeng.com; www.eliteeng.com

### Featured Product: Gain real-time auto-focus control with Elite's line of Position Sensitive Detector (PSD) modules.

Elite Engineering Corp is a consulting engineering company offering multi-disciplined full turnkey product development, design, prototyping and low volume manufacturing. We specialize in custom instrumentation, automation and test equipment of electro-optic systems. We offer a line of standard modules for OEM or new development applications such as filter wheels, PSD controllers, electrophoresis (SMU), TE cooler driver & motor drivers, to name a few. These enable us to quickly prototype systems. Contact: Pat Kay, Marketing

### **Elite Optoelectronics Co., Ltd.**

#5455

SPIE Corporate Member

3-10502 modern business center, Zhangba 5th Road, Xi'an Shaanxi, 710077 China

+86 29 68590 616; fax +86 29 685907 28 sales@s-laser.com; www.s-laser.com

#### Featured Product: Laser diode modules, RGB laser, fibercoupled laser module, DPSS laser modules

Elite is a professional designer and manufacturer of laser diode modules, RGB lasers, RGB fiber-coupled lasers modules, fiber-coupled laser module, DPSS laser modules and related laser instruments. Benefitting from our experienced R&D team and large-scale production capacity, Elite became a world-class laser diode module suppliers. Our facilities and products are in full compliance with ISO9001:2008, FDA, IEC.GB standard. Contact: Yanlin Wu, Vice President, woo@s-laser.com; Li Li, sales, vicky,lee@s-laser.com

#### Elliot Scientific Ltd.

#4555

SPIE Corporate

3 Allied Business Centre, Coldharbour Ln, Harpenden Herts, AL5 4UT United Kingdom

+44 1582 766 300; fax +44 1582 766 340 sales@elliotscientific.com; www.elliotscientific.com

### Featured Product: AOD computer controlled optical tweezer system

Manufacturer of optical tweezer systems, fiber alignment solutions and miniature positioning components. Also a distributor of photonics products into the UK and Ireland. Contact: David Welsh, Managing Director, david.welsh@elliotscientific.com; Colin Freeland, Product Manager, colin.freeland@elliotscientific.com

#### **Elma Ultrasonic**

#4419

Gottlieb-Daimler-Str 17, Singen, 78224 Germany +49 7732 882 0

info@elma-ultrasonic.com; www.elma-ultrasonic.com

#### Featured Product: Ultrasonic cleaning equipment systems

Elma Ultrasonic's highly advanced German engineering makes it the world's most trusted supplier of standard and customer-specific parts-cleaning equipment, meetomg the critical cleaning demands of all facets of the optics industries. Fully supported in North America by JAYCO Cleaning Technologies' applications engineers, sales and service, Elma's top-of-the-line quality and reliability are unmatched. Contact: Michael Schnaufer, Division Manager Optics, michael.schnaufer@elma-ultrasonic.com; Jay Nawani, President JAYCO Cleaning Technologies, jnawani@jaycoclean.com

### **EMD Performance Materials Corp.**

SPIE Corporate

900 Middlesex Tpke, Billerica, MA, 01821 USA +1 617 803 0162; fax +1 484 652 5668 emdinfo@emdchemicals.com; www.emd-performance-materials.com/en/index.html

Contact: Barry Seff

**EMF Corp.** 

#607

#4509

SPIE Corporate Member

239 Cherry St, Ithaca, NY, 14850-5024 USA +1800 456 7070; fax +1800 456 3227 information@emf-corp.com; www.emf-corp.com

EMF, the most established thin film coating house in US, founded in 1936. Outstanding service, on time delivery at 99% & product quality in excess of 99%. Able to coat both small & large optics ranging from 0.25" to 2.6 meters. Largest capacity in the industry: 27 chambers across 2 sites. We coat class, metals, ceramics, & plastics substrates. We supply AR coatings, beam splitters, durable metal coatings; dichroic coatings, cold mirrors, hot mirrors along with application specific designs. Contact: Paul Schulz, President, paul@ emf-corp.com; John Vakiner, Director of Operations & Engineering, jvakiner@emf-corp.com

### **Empire Precision Plastic**

#633

SPIE Corporate

500 Lee Rd Ste 400, Rochester, NY, 14606 USA +1 585 454 4995; fax +1 585 454 0449 www.empireprecision.com

### Featured Product: Molded and diamond-turned polymer optics

Empire Precision is a Rochester, NY-based privately held, \$10 million plastic molding firm. Founded in 1992, Empire provides injection molded polymer optics, single point diamond turning, thin-film coating, and multi-component subassemblies. Empire also offers opaque molded products and assemblies, primarily to the medical devices industry. Capabilities include in-house mold making and design verification services. Contact: Gary German, Applications Engineer, ghg@empireprecision.com; Neal Elli, CEO, npe@empireprecision.com

### **Empire West, Inc.**

#2611

SPIE Corporate Member

9270 Graton Rd, Graton, CA, 95444 USA +1 707 823 1190; fax +1 707 823 8531

info@empirewest.com; www.opticspackaging.com

#### Featured Product: PET-G optics packaging

Empire West designs and manufactures thermoformed PET-G optics packaging containers for the full range of today's optical lenses, filters, and mirrors. Our Safe-Guard line of unique, slip-fit, low outgassing optics containers are the industry standard for value and performance. Designed to contact optics on only the bevels, these versatile containers eliminate the need for lens paper and foam liners, and greatly reduce the opportunity for handling-generated surface degradation. Contact: Liz Faolain

#### Featured Exhibitor Sponsor

Enable Inc. #4415

610 Price Ave, Redwood City, CA, 94063-1413 USA +1 650 363 1302; fax +1 650 395 6069

Sales@Enableimaging.com; www.Enableimaging.com

#### Featured Product: minnieCam-XS and minnieScope-XS

Enable's recent advances in digital imaging and illumination technologies is helping the company emerge as an industry leader in ground-breaking, low-cost, highly-flexible, miniature imaging solutions for medical and industrial applications. Our recent product release of the minnieScope-XS videoscope model, features a complete videoscope with HDMI or USB 3.0 ready hardware that can output up to 1Mpixel frames at 1080p 60fps from a videoscope tip with OD of less than 1.35mm. Contact: Uli Haug, sales@ Enableimaging.com

### **Energetiq Technology, Inc.**

#4559

SPIE Corporate Member

7 Constitution Way, Woburn, MA, 01801-1024 USA +1 781 939 0763; fax +1 781 939 0769

info@energetiq.com; www.energetiq.com

Energetiq Technology is the world's leading developer and manufacturer of ultra-bright broadband light sources for a wide variety of advanced applications in life and materials sciences, semiconductor manufacturing, and R&D. Energetiq's Laser-Driven Light Sources (LDLSTM) are based on a revolutionary technology that generates high brightness across the spectrum, with high reliability and long life. Contact: Peter Dwyer, VP of Sales, info@energetiq.com

### EOLITE Lasers #5159

11 ave Canteranne, Pessac, 33600 France +33 5 56 46 45 50; fax +33 5 56 46 24 35 contact@eolite.com; www.eolite.com

### Featured Product: Ultrafast fiber lasers: CHINOOK is a sub-ps IR, green, UV high power laser for industrial processing

EOLITE Lasers develops and sells ns to fs lasers dedicated to high-precision laser processing: NWR lasers for components repair; BOREAS fiber lasers for ns high power (IR, green & UV); CHINOOK sub-ps fiber lasers for ultrafast micromachining (IR, green & UV) Contact: Nicolas Falletto, Business Dev. Manager, nicolas.falletto@ eolite.com; Cindy Zilbert, office manager, cindy.zilbert@eolite.com

### EPIGAP Optronic GmbH

#4629

Köpenicker Str 325, Berlin, 12555 Germany +49 30 6576 3760; fax +49 30 6576 3770 sales@epigap-optronic.de; www.epigap-optronic.de

### Featured Product: High efficient LEDs, LED chip and multicolor CoB module from UV to NIR (250nm-1720nm), photodiodes

EPIGAP Optronic GmbH is an industrial leader in LED technology for state-of-the-art optoelectronics that plays a key role in many industries. Our clients work in fields for industrial sensors, automation, security and safety technology, diagnostics, biotechnology and medical imaging. EPIGAP offers a fully integrated service from design and development to production for LED chips, LEDs customized modules and photodiodes in a range from 150nm in the ultraviolet up to 2600nm in the near infrared. Contact: Antje Thamm, Manager Marketing & Sales, thamm@epigap-optronic.de; Matthias Gamp, General Manager, gamp@epigap-optronic.de

### EpiWorks, Inc.

#2442

1606 Rion Dr, Champaign, IL, 61822 USA +1 217 373 1590; fax +1 217 373 1591 epiworks@epiworks.com; www.epiworks.com Contact: Nick Kolarich, Director of Sales & Mktg

#### EPIX, Inc.

#6007

SPIE Corporate Member

381 Lexington Dr, Buffalo Grove, IL, 60089-6934 USA +1 847 465 1818; fax +1 847 465 1919 epix@epixinc.com; www.epixinc.com Contact: Kirsten Gimm, Office Manager

### **Epner Technology Inc.**

#3042

SPIE Corporate Member

78 Kingsland Ave, Brooklyn, NY, 11222-5603 USA +1 718 782 5948 info@epner.com; www.epner.com

#### Digital Signage, Escalator Center Strip, Exhibition Map Sponsor

### Esco Optics, Inc.

#4230

95 Chamberlain Road, Oak Ridge, NJ, 07438-8920 USA +1 973 697 3700; fax +1 973 697 3011

sales@escooptics.com; www.escooptics.com

Esco Optics manufactures the highest quality custom and precision optical components for commercial, R&D, medical and military applications. Esco is ITAR-registered. We can produce components for IR up to UV applications in optical materials from the common to the exotic. Esco has all the equipment in-house to completely manufacture your components: grind and polishing, coating, machining, and more. Whether you need a few parts to several thousand, Esco Optics can manufacture your components. Contact: Ron Schulmerich, Business Development Manager, Ron@ EscoOptics.com; Jason Wickersham, Manufacturing Engineer, jason@EscoOptics.com

#### **ESPROS Photonics AG**

#839

St Gallerstrasse 135, Sargans, 7320 Switzerland +41 584110300; fax +41 584110301 info@espros.com; www.espros.com

### Featured Product: epc660 fully integrated, 3D time-of-flight imager with a resolution of 320 x 240 pixels (QVGA)

epc is the foundry, product, and technology solution provider for optoelectronics manufacturers, imager designers, and researchers. We serve our customers with the only non-captive high performance CMOS process with optical front end worldwide. The open-access ESPROS Photonics technology is available for everyone with the need to design photonics chips with outstanding optoelectronic performance. We serve biomedical, robotics, life science, automotive, space, automation and many more. Contact: Steven Freedman, Managing Director, steven.freedman@espros.com; Beat DeCoi, CEO, beat.decoi@espros.com

### EssentOptics Ltd.

#723

Kuprevich St 10 - 61/1, Minsk, 220141 Belarus +1 375 17 2605919; +1 375 17 2605941 office@essentoptics.com; www.essentoptics.com

### **Evaporated Coatings, Inc.**

#4428

SPIE Corporate

2365 Maryland Rd, Willow Grove, PA, 19090-1708 USA +1 215 659 3080; fax +1 215 659 1275 sales@evapcoat.com; www.evaporatedcoatings.com

### Featured Product: Attenuation coatings for glass, Ultem, Zeonex, molded components & fibers to required db value

ECI deposits optical coatings including LWP/SWP, tri-band and bandpass filters, anti-reflection and attenuation coatings, low-pol beam-splitters, transparent conductive, enhanced metal and dielectric mirrors. ECI expertly coats glass, Ultem, Zeonex, molded optics, semiconductors, crystals, ultrathin wafers, laser bars, prisms, fiber ends and ball lenses. Wide experience coating high stain glasses, metals, micro optics, CaF<sub>2</sub> and crystals. Full aperture, IBS, APS and IAD deposition technologies. Contact: Stephen Schaffer, Vice President, sales@evapcoat.com; Patrick Wenrich, Senior Sales Engineer, sales@evapcoat.com

#### Evatec NA Inc.

#4141

150 Dow St, Manchester, NH, 03105 USA +1 603 669 9656; fax +1 603 606 7043 infona@evatecnet.com; www.evatecnet.com

### **Everix Optical Filters**

#3084

SPIE Corporate

2372 N Forsyth Rd, Orlando, FL, 32807 USA +1 407 637 2987

info@everix.co; www.everix.co

EVERIX launches unique flexible ultra-thin optical filters with scratch-resistant layers and easy custom-shaping for OEM customers requiring volume consistency. Contact: Hooman Banaei, CEO, hooman@everix.co

**Exalos AG** 

#430

SPIE Corporate

Wagistr 21, Schlieren, 8952 Switzerland +41 43 444 6090; fax +41 43 444 6099 sales@exalos.com; www.exalos.com

Contact: Eugene Covell, VP Sales & Marketing

Digital Signage Sponsor

### **Excelitas Technologies Corp.**

#1323

SPIE Corporate Member

200 West Street, Waltham, MA, 02451 USA +1 855 382 2677; fax +1 781 290 4702

generalinquiries.na@excelitas.com; www.excelitas.com

Excelitas Technologies is a global technology leader delivering innovative, high-performance optical and photonic solutions in Sensors & Detection, Optics & Imaging and Lasers & Illumination. With the acquisition of Qioptiq, Excelitas leverages an extensive technology portfolio and expanded global footprint to enable our customers' success with single-source, end-to-end photonic solutions in medical, life science, consumer electronics, safety & security, industrial, defense & aerospace sectors.

### **Excell Technology**

#4642

SPIE Corporate Member

1001 Varian St, San Carlos, CA, 94070 USA +1 650 592 6224; fax +1 650 592 6684

sales@excelltechnology.com; www.excelltechnology.com

### Featured Product: Grinders, lappers, polishers, drills, dicers, saws, mills, measuring-new-used-rebuilt. SFO locale.

Excell specializes in selling new, used and rebuilt equipment for over 30 years. Guaranteed to OEM spec. Grinders lappers, polishers, dicers, drills, mills, saws, and measurement equip. Very large stock of machines & parts. Top brands: Speedfam, Lapmaster, Peter Wolter; Disco, ADT, MTI, Engis, Strasbaugh, STC, MB, R&C, Blanchard, DCM, Mitutoyo, and Universal. Services include: software eng., rebuilding & upgrades, new controllers, and onsite install & training. Contact David Hodges, GM, dhodges@excelltechnology.com

#### **Exhibition Map Sponsor**

### **Exciton, Inc.**

#4654

SPIE Corporate

PO Box 31126, Dayton, OH, 45437 USA +1 937 252 2989; fax +1 937 258 3937 sales@exciton.com; www.exciton.com

#### Featured Product: Selective Visible and Infrared Absorbing Dyes.

As Exciton celebrates 42 years in the laser dye industry we continue to offer the highest quality of laser dyes, including ultraviolet, visible and near-infrared dyes. For flat panel displays, projectors, laser filters, and laser eye protection, we offer unique, narrow band absorbers for wavelength selective filters at both visible and infrared wavelengths. Exciton offers sensitizers for photoresists, lithography, and recordable media, and toll manufactures such dyes to support our customers. Contact: Richard Steppel, President, richard@exciton.com; Paul Cahill, Vice President, paul@exciton.com

### **Fairchild Imaging**

#5249

1841 Zanker Rd., Ste. 50, San Jose, CA, 95112 USA +1 408 433 2676; fax +1 408 435 7352 cams.sales@baesystems.com; www.fairchildimaging.com

### Fairfield Crystal Technology, LLC #5651

8 South End Plz, New Milford, CT, 06776-4200 USA +1 860 354 2111; fax +1 860 354 3093

atimmerman@fairfieldcrystal.com; www.fairfieldcrystal.com

### Featured Product: New single crystal zinc selenide & zinc sulfide, both doped (Fe or Cr) and undoped.

Fairfield Crystal Technology grows high-purity single crystal materials for optical and semiconductor use and manufactures optical components for commercial, industrial, space, and military applications. Our expertise isn't limited to crystal growth. We polish crystals for a variety of optical components - prisms, lenses, waveplates and other specialized, custom components. We offer very competitive prices because we manufacture and test everything in-house. We are your one stop crystal shop! Contact: Andrew Timmerman, VP of Sales, atimmerman@fairfieldcrystal.com

Fastlite #1817

1900 route des crêtes, Bât D1-Les collines de Sophia, Valbonne Sophia Antipolis, 06560 France +04 488131751; fax +04 492957690

info@fastlite.com; www.fastlite.com

### Featured Product: New at Photonics West: the Fringeezz, an ultrafast and single-shot integrated CEP detector.

FastLite provides innovative solutions to the ultrafast laser user community. The Dazzler is an ultra-compact pulse shaper, and the Wizzler spectral phase measurement system features the highest dynamic range. The Dazzler/Wizler feedback loop enables automated pulse compression and contrast optimization. The Mozza is an optical spectrum analyzer dedicated to the measurement of pulsed IR sources. The Fringeezz, is a new CEP detector enabling single-shot CEP control at multi-kHz repetition rates. Contact: Herve Jousselin, Sales and Marketing manager, herve.jousselin@fastlite.com

FBG Korea #4067

1707 Ho, 9 Cheomdan venture-ro 108beon-gil, Buk-gu, Gwangju, 61007 Korea, Republic of +82 62 973 5430; fax +82 62 972 5430 fbg101@gmail.com; www.fbg.co.kr

FBGS #4268

Bell Telephonelaan 2H, Geel, 2440 Belgium +32 14 58 11 91; fax +32 14 59 15 14 info@fbgs.com; www.fbgs.com

### Featured Product: Draw Tower Gratings, DTG, Fiber Bragg Gratings, FBG, Optical sensors, fiber, sensors.

FBGS is a Belgium/Germany based developer and manufacturer of high strength Fiber Bragg Gratings (FBG) using draw tower technology: the grating arrays are written during the drawing process of the fiber. This automated process results in high quality, cost effective Fiber Bragg Gratings with unique characteristics such as seamless integration of multiplexed sensing points. These are ideally suited for both standard and bespoke applications in industries such as: medical, process, civil, telecom. Contact: Nick Plescia, Sales Manager North & South America and Asia, plescia@ fbgs.com; Bram Van Hoe, Business & Technology Developer, bvanhoe@fbgs.com

### Feinwerkoptik Zünd AG

#5341

SPIE Corporate Member

Haldenstr 3, Werdenberg, 9470 Switzerland +41 81 750 3939; fax +41 81 750 3930

info@feinwerkoptik-zuend.ch; www.feinwerkoptik-zuend.ch

### Featured Product: Miniaturized camera system with high performance optics and subwavelength surface shape accuracy

Individually adapted to our international customers of photonics we develop and produce innovative miniaturized optical systems and components with high demand to quality. The cooperative teamwork with our partners results in creative perfectly tailored OEM solutions with sustainable success and constant delivery reliability. Our experience is in the product development of opto-electromechanical systems, production of miniaturized optical components and packaging of miniaturized systems. Contact: Rene Zuend, MSc, rene.zuend@feinwerkoptik-zuend.ch

#### FEMTO Messtechnik GmbH

#4859

Klosterstr 64, Berlin, 10179 Germany +49 30 280 4711 0; fax +49 30 280 4711 11

info@femto.de; www.femto.de

### Featured Product: DLPCA, DDPCA and DHPCA variable gain low noise amplifiers; OE-300 high speed photoreceiver.

FEMTO® manufactures a unique range of amplifier modules, that are compact "sophistacated tools for signal recovery" for your toughest applications. These FEMTO amplifiers are designed for use in scientific and industrial applications. The noise performance and the frequency response are outstanding. "Sophisticated tools for signal recovery" means that every product FEMTO develops must offer a significant advantage over comparable products available in the market. Contact: Tobias Neustupny, Sales Manager, tobias. neustupny@femto.de

### FemtoFiberTec GmbH

#4629

Am Stollen 19, Goslar, 38640 Germany +49 53216855 x222; fax +49 53216855 x229 info@femtofibertec.de; www.femtofibertec.de

### Featured Product: Customized FBG's for special applications written into any kind of optically transparent material.

As the first commercial supplier for femtosecond(fs)-laser-written Fiber Bragg gratings worldwide, FemtoFiberTec provides FBGs that open up completely new sensing possibilities. Contact: Margarethe Kampling, Sales Manager, info@femtofibertec.de

#### **FEMTOprint SA**

#4407

Via Industria 3, Muzzano Ticino, 6933 Switzerland +41 9 1960 10 70; fax +41 9 1960 00 48 info@femtoprint.ch; www.femtoprint.ch

### Featured Product: 3D printing for micro-devices out of glass and other transparent materials

FEMTOPRINT is absolutely an innovation for the production of 3D micro devices integrating optical, fluidic, mechanical features down to the nanoscale in a single substrate. It uses a femtosecond laser to directly create a large variety of 3D micro devices out of glass or other transparent substrates like fused silica, borofloat, sapphire, some polycarbonates. Contact: Nicoletta Casanova, CEO, nicoletta. casanova@femtoprint.ch

### Ferrotec (USA) Corp.

#530; 531

3945 Freedom Cir Ste 450, Santa Clara, CA, 95054 USA +1 408 964 7700; fax +1 408 235 7775 info@ferrotec.com: www.ferrotec.com

### Featured Product: TEC thermoelectric modules, Peltier coolers, electron beam coating components, machinable ceramics

Ferrotec is a world leader in advanced material, component, and system solutions. We make precision TECs, Peltier coolers for heat-pumping, thermal cycling and precise temperature control. We supply thermoelectric modules and assemblies to telecom, biomedical, industrial, instrumentation, analytical, automotive, and consumer application manufacturers. Also featured are our electron beam components and solutions for optical coating and machinable ceramic materials. Visit www.ferrotec.com

### **Ferson Technologies**

#3014

5801 Gulf Tech Dr, Ocean Springs, MS, 39564-8225 USA +1 228 875 8146; fax +1 228 875 5947 sales@ferson.com: www.ferson.com

Manufacturer of custom precision optical components including lenses, prisms, windows, mirrors, filters and domes. Capabilities include optical coating design and services, assembly and optical systems. Contact: Connie Spence, Applications Engineer, cspence@ferson.com; Louis Peters, President, Ipeters@ferson.com

Fianium Inc.

#2417

SPIE Corporate

FIBERCRYST S.A.S.

#4137

SPIE Corporate Member

858 W Park St, Eugene, OR, 97401 USA +1 541 343 6767; fax +1 541 610 1825 sales@fianium.com; www.fianium.com

Fiber Optic Center, Inc.

#5048

23 Centre St, New Bedford, MA, 02740 USA +1 508 992 6464

sales@focenter.com; www.focenter.com

### Featured Product: ÅngströmLap Ultimas-Pro cost-effective protrusion producing film, better yield, meets Telcordia spec

Fiber Optic Center (FOC) is an international distribution/consulting company specializing in optical polymers, lapping film, adhesives, polishing machines, stripping, crimping, test equipment, fusion-splicers, tools, cables, ferrules, attenuators, cleaning supplies, drillout & standard connectors. FOC partners with Wayne Kachmar's Technical Horsepower Consulting providing solutions to optical cable & assembly problems. Domaille Engineering optical fiber polishing machines & fixtures featured. Contact: Kathleen Skelton, Director of Strategic Marketing, kskelton@focenter.com

### **Fiber Optic Valley AB**

#5355

SPIE Corporate

Stationsgatan 7, Hudiksvall, 824 43 Sweden +46 650556618; fax +46 650601005 info@fiberopticvalley.com; en.fiberopticvalley.com

Connecting Ideas. Creating business. Fiber Optic Valley: an international center for innovation in the area of broadband and sensor technology. We initiate new collaborations between businesses, universities and the public sector in the areas of broadband and sensor technology. We unite people with other people, needs with solutions, problems with ideas, and money with innovations. Please visit us and our co-exhibitors Optoskand. Acreo Swedish ICT, Nyfors Teknologi and LC-Tec displays at #5355. Contact: Susanne Nylén, Customer Relations Manager, susanne. nylen@fiberopticvalley.com

Fibercore Ltd.

#2713

Fibercore House, Southampton Science Park, Southampton, Hampshire, SO16 7QQ United Kingdom +44 23 8076 9893; fax +44 23 8076 9895 info@fibercore.com; www.fibercore.com

Founded 1982, Fibercore is a leading innovator, designer, and manufacturer of specialty fiber serving customers across the world. Products include specialty fiber for the aerospace, defence, telecommunications, oil and gas, energy, medical, and fiber laser industries. As a result, the business is a global market leader. The company's operations are headquartered in Fibercore House, a custom-built, Southampton-based facility in the UK. Fibercore has received four Queen's Awards for Enterprise. Contact: Helen Morris, Marketing Manager, marketing@fibercore.com; Andy Gillooly, Sales & Technical Business Development Manager, info@fibercore.com

31 rue Wilson, Decines Charpieu, 69150 France +33 428 270 075; fax +33 426 689 874

contact@fibercryst.com; www.fibercryst.com

#### Featured Product: High power ultrafast lasers PICO and FEMTO

Fibercryst supplies high power ultrafast lasers series PICO and FEMTO as well as laser amplifiers. FEMTO by Fibercryst is a series of powerful industrial femtosecond lasers offering output powers up to 25 W for high throughput, high quality micromachining. The FEMTO series provides high pulse energies up to 150 μJ of typically 800 fs pulse width at repetition rates selectable between 100 kHz and 2 MHz. PICO by Fibercryst is a series of powerful industrial picosecond lasers. It emits picosecond pulses (<10 ps) with excellent beam quality, in a compact package. The PICO series also uses the well proven Taranis Single Crystal Fiber (SCF) technology for greater design simplicity, ruggedness and adjustable parameters. The PICO series is available at three average power levels: 12 W, 35 W and 60 W.

### Fiberguide Industries, Inc.

#1717

SPIE Corporate Member

1 Bay St, Stirling, NJ, 07980-1529 USA +1 908 647 6601; fax +1 908 647 8464 info@fiberguide.com; www.fiberguide.com

#### Featured Product: Optical fiber and custom fiber optic assemblies

Fiberguide Industries manufactures over 500 different specialty optical fibers used for applications involving optical power delivery and optical sensing. Fiberguide also offers several high performance metal coated fibers to operate in extreme temperatures and harsh environments. Fiberguide's assembly facility in ID provides assemblies for the medical, high-power, oil & gas sensing, high-temp, and bio-analytical markets. We also provide VFT and collimator capabilities. Contact: Andy Strickland, Business Development Manager, astrickland@fiberguide.com

### Fiberoptic Components, Inc.

#5334

2 Spratt Technology Way, Sterling, MA, 01564 USA +1 978 422 0422; fax +1 978 422 0050 Sales@lightguides.com; www.lightguides.com

### Featured Product: Fiber optic cables and assemblies with glass, plastic, and quartz fibers.

For the past 25 years, Fiberoptic Components has partnered with the world's leading medical, industrial, and analytical device OEMs to design and produce the highest value, application-specific, fiber optic solutions. With the combined experience, they have developed a comprehensive suite of capabilities and services for our OEM partners. We follow the philosophy and practices of lean manufacturing/continuous improvement. They are ISO 9001:2008 and ISO 13485:203 certified. Contact: Tony Olivero, Sales Engineer, Sales@lightquides.com

### Fiberoptic Systems, Inc.

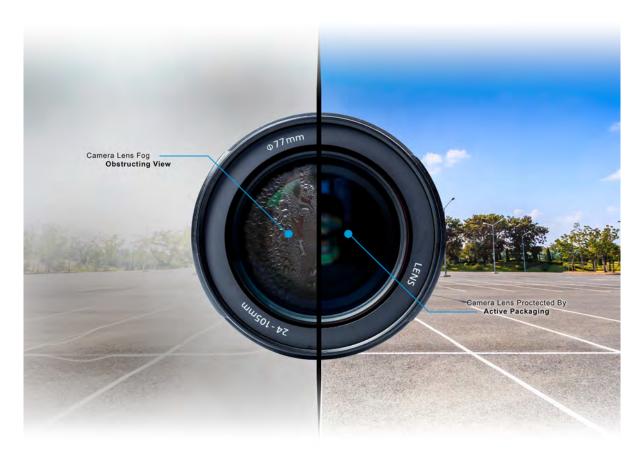
#411

60 Moreland Rd Unit A, Simi Valley, CA, 93065 USA +1 805 583 2088; fax +1 805 583 4018

sales@fiberopticsystems.com; www.fiberopticsystems.com

Fiberoptic Systems, Inc. is a leading company in the field of fiber optic applications. In over 30 years of business we have worked with borosilicate, fused silica (quartz), fluoride, silver halide, chalcogenide, imaging, and plastic optical fibers. The bulk of the fibers we use in our assemblies are manufactured in-house. From prototype to production, UV to IR, cryogenic to high temperature, short to long, we will help design a solution to fit your budgetary, timing, and quality requirements. Contact: Todd Johnson, VP Engineering, todd@fiberopticsystems.com; Sandy Stark, President, sandy@fiberopticsystems.com





## Product Failures? Higher Warranty Costs? Prevent the damage before it starts.

If your product is experiencing performance degradation, corrosion, fogging on optics, or any other degradation caused by moisture, oxygen, or volatiles, we can help. We offer customized sorbent solutions based on over 50 years of experience for a variety of electronic products.

With a wide range of desiccants and oxygen absorbers available, we'll help you identify the optimal solution to protect your electronic products and their packaging.

Visit Us At SPIE Photonics West Booth # 5431 - North Hall

www.multisorb.com

#### **FIBERPRO USA**

#4333

Filmetrics, Inc. 10655 Roselle St., Ste. 200, San Diego, CA, 92121 USA +1 858 573 9300; fax +1 858 573 9400 info@filmetrics.com; www.filmetrics.com

Featured Product: Thin-Film Metrology Tools.

1154 Cadillac Court, Milpitas, CA, 95035 USA +1 408 316 1238; fax +1 408 521 0402 sales@fiberpro.com; www.fiberpro.com

#### Featured Product: Fiber Optics Gyroscope (FOG)

[Fiber Optics Gyroscope(FOG)] Fiberpro's PM Splitter, Integrated Optical Circuit (IOC), Coiling Service (PFC), and Inertial Measurement Unit (IMU) will bring you total solution in Fiber Optics Gyroscope(FOG) business. [Distributed Temperature System] It collects temperature data of tunnel, oil & gas pipes, power plant and recording to display the real-time temperature and heat transfer of the entire area at once. Contact: David Lee, Sales/Marketing Manager

just one click, we measure thin-film thickness by analyzing how the film reflects light. By measuring light not visible to the human eye, films as thin as 1nm and as thick as 13mm can be measured. And, because there are no moving parts, results are available in seconds: film thickness, color, refractive index, and even roughness. Contact: info@filmetrics.com

Affordability, ease-of-use, and an unbeatable Sales and Technical

Support team sums up Filmetrics, Inc. and the products we offer. In

### Fibertech Optica Inc.

#4450

SPIE Corporate

330 Gage Ave Ste 1, Kitchener, ON, N2M 5C6 Canada +1 519 745 2763: fax +1 519 342 0128 info@fto.ca: www.fto.ca

#### Featured Product: Specialty fiber optic assemblies

From prototype through production quantities, Fibertech Optica (FTO) is a leader in the manufacture of specialty fiber optic solutions. We offer fiber bundles, assemblies, spot to line converters, low FRD cables, reflectance probes, v-groove arrays, micro-lens assemblies, process control cables to 500 meters and high power laser cables with multimode, singlemode, and borosilicate fibers. FTO also produces fiber coupled LED multi-emitter light sources and vacuum feedthroughs. Contact: Jeff Dupuis, Vice-President Sales & Marketing, jeffdup@fto.ca; Cheryl Provost, Sales Engineer, cprovost@fto.ca

### **Fibotec Fiberoptics GmbH**

#4673

Herpfer Str. 40, Meiningen, 98617 Germany +49 3693 8813 200; fax +49 3693 8813 201 info@fibotec.com; www.fibotec.com

The Fibotec team supports OEM customers with fiber optic engines in their instrument products. Fibotec develops products for and with customers, and respectively, is also a contract manufacturing partner for specialty fiber optics. Examples of products include: many types of fiber optic light sources, interferometer type products, and products related to time domain reflectometry. Applications include the testing, measurement, and sensing in medicine/biotech (major market at the moment), security (fastest growing) and more. Contact: Gerald Werner, Managing Director, gerald.werner@fibotec.com

### ficonTEC Corporation

#5148

SPIE Corporate

25 Calle Canela, San Clemente, CA, 92673 USA +1 949 388 5800: fax +1 949 388 1489 info@ficontec.com; www.ficontec.com

#### Featured Product: High precision die bonders and optoelectronic test equipment

ficonTEC is a premier supplier of semi- and fully-automated optical device assembly and testing systems for the optical industry, including HPLD manufacturing, fiber optics and opto-electronics, medical technology, security and military applications, R&D, telecommunications, and others. ficonTEC's automation solutions are based on its expertise in process technology and systems engineering where each solution is appropriately customized from a proven line of system platforms. Contact: Soon Jang, President & CEO, soon.jang@ ficontec.com; General Information, info@ficontec.com

### Filtech Photonics Co., Ltd.

#2001-B

#526

#88, North Rd., Pingdi., Longgang District, Shenzhen, Guangdong, 518117 China

+86 755 84088009; fax +86 755 28957369 sales@filtech-filters.com; www.filtech-filters.com

Filtech is a high-tech company specialized in the manufacturing of optical components and thin film filters, an ISO9000 certified company. With our state-of-the-art manufacturing facility in Shenzhen, Filtech is one of the leading manufacturer of precision optical components and optical filters for optical communication, lasers, projectors and biomedical industries. We are also specialized in infrared components and filters. Contact: Zheng Sun, Sales Manager, szeng@filtech-filters.com

#### Finetech #4644

560 E Germann Rd Ste 103, Gilbert, AZ, 85297 USA +1 480 893 1630

sales@finetechusa.com; www.finetechusa.com

### Featured Product: Fineplacer Lambda die bonder provides 0.5 placement accuracy for all types of precision bonding.

Finetech supplies submicron accuracy bonders for photonics packaging and assembly: laser bars, VCSELs, photo diodes, MEMs, sensors, LEDs, flip chip, copper pillar, etc. Process flexibility in one platform makes the systems ideal for R&D and prototype. Manual, motorized and automated models accommodate thermocompression, thermo-sonic, eutectic, epoxy, ACF & indium bonding. Finetech collaborates with customers to understand their complex applications and deliver a purpose-built solution. Contact: Robert Avila, Sales Manager

### **Finger Lakes Instrumentation**

#4124

7298 W Main St, Lima, NY, 14485 USA +1 585 624 3760; fax +1 585 624 9879 sales@flicamera.com; www.flicamera.com

#### **Finisar Corporation**

#4242

1389 Moffett Park Dr. Sunnyvale, CA, 94089-1134 USA +1 408 548 1000; fax +1 408 541 6138 sales@finisar.com; www.finisar.com

### Featured Product: WaveShaper 1000/SP Programmable Filter enables arbitrary amplitude and phase shaping of laser pulses

Finisar is a global technology leader for fiber optic subsystems and components that enable high-speed voice, video and data communications for telecommunications, networking, storage, wireless, and CATV applications. For more than 25 years, Finisar has provided critical optics technologies to system manufacturers to meet the increasing demands for network bandwidth and storage. Contact: Dorina Rehlender, Corporate Communications Manager, dorina.rehlender@finisar.com

#### Firebird Sensors, Inc.

#5459

1715 Canyonlands Way, Reno, NV, 89521 USA +1 775 232 1063; fax +1 775 852 9104

jim.parsons@firebirdssensors.com; www.firebirdsensors.com

### Featured Product: FSI's MEGA Laser Power Meter (LPM) with revolutionary SiC sensor delivers unmatched LPM performance.

At Firebird Sensors, Inc. (FSI), we produce a SiC laser power meter (LPM) based on a revolutionary approach, resulting in a sensor with unrivaled durability and cycle times (<1s). FSI's MEGA LPM readings are isolated from ambient changes and remain accurate while never requiring meter-head recalibration or experiencing meter-head drift. It accurately measures CW and pulsed lasers with 1mW-2kW average power across all lasing wavelengths, without the need for any additional cooling or absorbers. Contact: James Parsons, CTO, jim.parsons@firebirdsensors.com; Johnathan Kendler, Product Design Engineer, johnathan.kendler@firebirdsensors.com

### **First Light Imaging**

#1123-B

SPIE Corporate

100 route des Houilleres, Meyreuil, 13590 France +33 4 42 61 29 20

contact@first-light.fr; www.first-light.fr

### Featured Product: State-of-the-art scientific ultrafast and sensitive cameras for visible and infrared spectra

First Light Imaging designs and builds scientific cameras that combine extreme sensitivity and high speed for both visible and infrared spectra (SWIR). First Light Imaging's range of cameras offers three revolutionary products: OCAM2K, 2000 fps full frame with sub-electron read out noise; OCAM2S, same performances with an embedded shutter and minimal pulse width lower than 300 nanoseconds; and C-RED, 3500 fps full frame, with sub-electron readout noise, e-APD technology, and cooled MCT Contact: David Boutolleau, CEO, david.boutolleau@first-light.fr; Cecile Brun, Marketing Manager, cecile.brun@first-light.fr

### First Light Lamps

#5135

9 Lancaster Way Business Park, Ely Cambridgeshire, CB6 3NW United Kingdom

+44 1353 659922; fax +44 1353 668883 info@firstlightlamps.com; www.firstlightlamps.com

### Featured Product: Xenon and Krypton Arc Lamps for Laser and IPL systems

For over 11 years First Light Lamps have been manufacturing high quality Xenon and Krypton arc lamps for the worldwide Laser and IPL industries in our custom fitted factory in the UK. We are a high volume manufacturer, capable of supporting the largest OEM or Distributor with the flexibility and personal approach you would normally expect from a smaller organisation. First Light is able to offer replacement lamps for most industrial and medical laser and IPL systems as well as custom designs. Contact: Martin Churchley, Director, martin@firstlightlamps.com; Carl Sandall, Sales Manager, carl@firstlightlamps.com

### SPIE JOB FAIR

Talk with representatives from companies currently looking to hire
Refer to page 27 for more information.

#### General Sponsor

### First Sensor, Inc.

#4749

SPIE Corporate Member

5700 Corsa Ave Ste 105, Westlake Village, CA, 91362 USA +1 818 706 3400: fax +1 818 889 7053

contact.us@first-sensor.com; www.first-sensor.com

First Sensor is one of the world's leading suppliers in the field of sensor systems. Our company develops and manufactures both standardized and tailor-made sensor solutions for applications in the industrial, medical and mobility growth markets. First Sensor develops and manufactures high-quality, customer-specific sensor solutions for the detection of light, radiation, pressure, flow, level and acceleration. We produce in-house and along the value-added chain from component to system level.

### Digital Signage, Floor Graphic Sponsor

### **FISBA AG**

#2429

SPIE Corporate Member

Rorschacher Str 268, St Gallen, 9016 Switzerland +41 71 282 3131; fax +41 71 282 3130 info@fisba.com; www.fisba.com

### Featured Product: FISBA FISCam – High Resolution Micro Camera, Optics for Laser Diodes, IR Lenses (SWIR, MWIR, LWIR).

FISBA is a world leader in customized microsystems, optical components and systems. The company designs and manufactures scalable products for medical applications and bio-photonics as well as the laser, sensor, machine and industrial image processing industries. 350 highly qualified employees work at facilities in Switzerland, Germany, and the US. Contact: Thomas Goundry, Sales Manager, thomas.goundry@fisba.com; Dzelal Kura, Sales Director North America + Asia, dzelal.kura@fisba.com

### FJW Optical Systems, Inc.

#2601

SPIE Corporate

322 N Woodwork Ln, Palatine, IL, 60067-4933 USA +1847 358 2500; fax +1847 358 2500 irsales@findrscope.com; www.findrscope.com

FJW Optical Systems, world-leading manufacturer of self-contained, high-res. Find-R-Scope® Infrared Viewers, Ultraviolet Viewers, IR Cameras, & Radiometric Thermal Imagers. This includes: IR Viewers sensitive 350-1550nm, UV Viewer 180-1550nm, Vidicon NIR/SWIR/Camera 400-2200nm, & Thermal Camera 8-14m. These viewers are used to inspect IR diodes, align laser systems, view sources invisible to the naked eye, & biotech, forensics and document analysis. Accessories available to extend capability. Contact: Barry Durr, General Manager, bdurr@findrscope.com; Mary Scarlata, Inside Sales/Customer Service, irsales@findrscope.com

### Flexible Optical B.V.

#6047

SPIE Corporate

Polakweg 10-11, Rijswijk, 2288 GG Netherlands + 31 70 262 9420; fax + 31 70 710 1400 oko@okotech.com; www.okotech.com

#### FLIR Systems, Inc.

#2632

SPIE Corporate

27700 SW Parkway Ave., Corporate Headquarters, Wilsonville, OR, 97070 USA

+1 866.477.3687

info@flir.com; www.flir.com

### Featured Product: The X6900sc is the world's fastest, highly sensitive IR camera, producing 640x512 data at 1000fps.

FLIR Systems designs and manufactures the most advanced commercial thermal imaging systems in the world for applications ranging across commercial, government, and scientific purposes. With a nearly 50-year history of infrared innovation, hundreds of thousands of systems in use worldwide, and locations in over 60 countries, FLIR is the world leader in thermal imaging technology. Visit www.flir.com/research. Contact: Chris Bainter, Business Dev Director, Science/R&D, chris.bainter@flir.com; Bob Bush, Business Dev Manager, robert.bush@flir.com

#### Florida Photonics Cluster

#2204

12424 Research Pkwy Ste 100, Orlando, FL, 32826 USA +1 407 451 2199; fax +1 407 386 3426

jpearson@creol.ucf.edu; www.floridaphotonicscluster.org

### Featured Product: International consortium for advanced manufacturing (ICAMR: http://icamr.net/)

The Florida Photonics Cluster focuses on growth of Florida's photonics industry and particularly the growth and profitability of its members by bringing together the knowledge, expertise, and service of each member to accomplish the following goals: partner with economic development organizations, universities and colleges; market Florida's photonics companies worldwide; provide a means of communication within the business community; and develop a competent statewide photonics workforce. Contact: James Pearson, Executive Director, jpearson@creol.ucf.edu; Alex Fong, President, AFong@goochandhousego.com

#### **FOCtek Photonics, Inc.**

#4760

SPIE Corporate Member

No. 8, the 7th Road, Phase 2 of Minhou Tieling Industrial District, Fuzhou, Fujian, 350100 China

+86 591 38266618 EXT819; fax +86 591 38266619

sales@foctek.net; www.foctek.net

### Featured Product: Optics assemblies, CCTV camera lens, machine vision lens, automotive camera lens, and ITS lens.

FOCtek is a leading manufacturer of optical components, crystal components, and optical assemblies. Founded in 2002, FOCtek has had over 1300 employees and owns a facility that is 17500 square meters large. FOCtek is ISO9001, TS16949, & ISO14001 certified. It has the most advanced metrology instruments, including: ZYGO GPI Interferometers, 3D digital CMM, Trioptics OptoSpheric Lens measurement, Trioptics Prism measurer, Lambda 950 Spectrophotometer, & Trioptics Image Master MTF Measurer. Contact: Steve Huang, President, Steve.huang@foctek.com; Daniel Wei, Vice-president, Daniel.wei@foctek.com

#### **FocusLight Technologies Inc.**

#4607

56 Zhangba 6th Rd, High Tech Zone, Xi'an Shaanxi, 710077 China +86 29 8956 0050; fax +86 29 8177 5810 sales@focuslight.com.cn: www.focuslight.com.cn

### Foreal Spectrum, Inc.

#1642

SPIE Corporate Member

2370-A Qume Dr, San Jose, CA, 95131-1844 USA +1 408 436 5558: fax +1 408 436 5557

sales@forealspectrum.com; www.forealspectrum.com

Foreal is a supplier of optical coatings, optical modules, and LED light sources. Our custom coatings include: X-cubes, polarization beam splitters, polarization management coatings, AR coating, wide band and narrow band filters, and notch filters manufactured through our custom Ion Beam Sputtering process. Our LED light sources are designed for optimum brightness, leveraging our optics design and manufacturing expertise. Contact: Claire Nippress, Director of Sales and Marketing, ClaireN@ForealSpectrum.com; Dan Cifelli, VP of Business Development, DanC@ForealSpectrum.com

### Forth Dimension Displays Ltd.

#1923

7 St. Davids Drive, Dalgety Bay, Fife, KY11 9NB United Kingdom +44 1383 827 950; fax +44 1383 827 951 sales@forthdd.com; www.forthdd.com

#### Fosta-Tek Optics, Inc.

#4151

320 Hamilton St, Leominster, MA, 01453 USA +1 978 534 6511; fax +1 978 537 2168 info@fosta-tek.com; www.fosta-tek.com

Fosta-Tek Optics is your one stop resource for polymer based optical components. The company offers high performance and thin film coatings, precision molded optics, and optical filters for electronics. Products include lenses for night-vision and tactical optics, birefringence free cast windows, precision molded optics for lighting and medical industries, and mirrored reflectors. ISO 9001: 2008 and ITAR compliant. 100% U.S. Manufacturing. Contact: Diane Bryce, Trade Show Coordinator, dbryce@fosta-tek.com

### Fotofab, LLC

#330; 4343

SPIE Corporate Member

3758 W Belmont Ave, Chicago, IL, 60618-5292 USA +1 773 463 6211; fax +1 773 463 3387 sales@fotofab.com; www.fotofab.com

### FRAMOS Technologies Inc.

#5636

57 Auriga Dr Ste 203, Ottawa, ON, K2E 8B2 Canada +1 613 208 1082; fax +1 613 482 2023 info@framos.ca; www.framos.com

### Featured Product: Sony Pregius global shutter family: IMX 174/IMX 249, IMX 250/252 and IMX 253/255

Since 1981 FRAMOS has been a leading technology provider in industrial, scientific, and medical image processing. Our team is proud to support our customers by offering the following: imaging components to build a camera or an entire imaging system; engineering design support, hard- and software development tailored to your needs; imaging systems, customized image processing solutions; global services, technical consulting, global sourcing, and extensive logistics. Contact: Sebastien Dignard, President, s.dignard@framos.com; Tenaha Stilzebach, Operations Manager, t.stilzebach@framos.com

Exhibition Map, Meter Board, Featured Exhibitor Sponsor

### **Frankfurt Laser Company**

#2501

SPIE Corporate Member

An den 30 Morgen 13, Friedrichsdorf, 61381 Germany +49 6172 27978 0; fax +49 6172 27978 10 sales@frlaserco.com; www.frlaserco.com

### Featured Product: Laser diodes, laser modules, DPSS lasers, superluminescent diodes, QCLs, VCSELs, and MID-IR LEDs.

FLC is a private company engaged in development, production, & distribution of: FP, DFB & DBR laser diodes, SM individually addressable & broad area laser diode arrays, and VCSELs & Quantum Cascade lasers. FLC also incorporates technologies in other products, like laser diode modules, free space & fiber-coupled, diode-pumped SS frequency-doubled lasers, and OEM modules. Its products cover 266nm to 14µm wavelength & 5mW to 750W power range, and they supply superluminescent diodes in visible & IR. Contact: Vsevolod Mazo, General Manager, sales@frlaserco.com; Stefan Meier, Sales & Product Manager, stefan.meier@frlaserco.com

#### Fraunhofer Heinrich Hertz Institute

#4629

Einsteinufer 37, Berlin, 10587 Germany +49 30 310 02 0; fax +49 30 310 02 213 info@hhi.fraunhofer.de; www.hhi.de

#### Featured Product: World's most compact THz transceiver

From optical sensing to information technology, this is the range of solutions developed at HHI. We develop and produce lasers, fast photodiodes, novel InP based THz devices, miniaturized fiber optic sensors, sensor networks, and microring resonators for applications in process control, safety engineering, offshore wind energy plants, power cables, and environmental and medical sensing. Contact: Joern Falk, Head Of Group General Adminstration, joern.falk@hhi. fraunhofer.de

### Fraunhofer ILT #4629

Steinbachstr 15, Aachen, 52074 Germany +49 241 8906 0; fax +49 241 8906 121 info@ilt.fraunhofer.de: www.ilt.fraunhofer.de

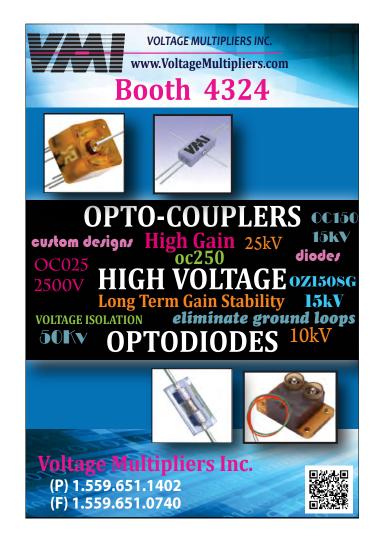
### Featured Product: Fiber coupled high power diode laser module based on dense wavelength-division multiplexing

With more than 400 employees and more than 19,500 m2 net floor space, the Fraunhofer Institute for Laser Technology ILT, founded in 1985, is one of the most important contracting R&D institutes of its sector worldwide. Its experts develop and optimize laser beam sources and laser processes. In close cooperation with its clients, it uses laser technology to solve tasks for production, measurement technology, environment, energy, medical technology and biotechnology, done in real life situations. Contact: Dieter Hoffmann, Competene Area Manager, photonics-west@ilt.fraunhofer.de; Martin Traub, Group Manager Optics Design and Diode Lasers, photonics-west@ilt.fraunhofer.de

### Fraunhofer Institut für Keramische Technologien und Systems IKTS

#4629

Michael-Faraday-Str 1, Hermsdorf, 07629 Germany +49 36601 9301; fax +49 36601 9301 3921 www.ikts.fraunhofer.de/en/contact.html



### Fraunhofer Institute for Applied Optics and Precision Engineering IOF #4629

Albert-Einstein-Str. 7, Jena, 07745 Germany +49 36 41 807 0; fax +49 36 41 807 600 info@iof.fraunhofer.de: www.iof.fraunhofer.de

### Featured Product: 3D computer-generated hologram for display applications, fiber technology

Fraunhofer IOF develops innovative optical systems to control light from the generation to the application. The service range covers the entire photonic process chain from optomechanical and optoelectronic system design to the manufacturing of customized solutions and prototypes. The institute works in the business fields of Optical Components and Systems, Precision Engineering Components and Systems, Functional Surfaces and Layers, Photonic Sensors and Measuring Systems and Laser Technology. Contact: Kevin Füchsel, Head of Marketing, kevin.fuechsel@iof. fraunhofer.de

### Fraunhofer Institute for Silicate Research ISC

#4629

Neunerplatz 2, Würzburg, 97082 Germany +49 9 3141 00 0; fax +49 9 3141 00 1 99 info@isc.fraunhofer.de; www.isc.fraunhofer.de

### Featured Product: 3D microoptical components, microfluidic components, light management layers (guiding, scattering)

Fraunhofer ISC's Optics & Electronics Unit provides contractual R&D for industrial partners with major focus on the development of custom-designed hybrid polymers (e.g. ORMOCERs®) and processes for optical, electro-/optical, micro and polymer electronics and packaging as well as for micromedical applications. The materials for optics feature low absorption losses, adjustable refractive indices, and can be processed by lithography, replication/NIL, printing, and 3D laser direct writing. Contact: Gerhard Domann, gerhard.domann@isc.fraunhofer.de; Sönke Steenhusen, soenke. steenhusen@isc.fraunhofer.de

### Fraunhofer UK Research Ltd.

#1923

SPIE Corporate Member

Level 5, Technology and Innovation Centre, 99 George Street, Glasgow, G1 1RD United Kingdom +44 141 548 4667

photonics@fraunhofer.co.uk; www.fraunhofer.co.uk

#### Featured Product: Collaborative and Contract R&D

Fraunhofer UK through its Centre for Applied Photonics offers a flexible R&D resource that responds to industry's needs for applied research and prototyping for the development of novel laser sources and photonics systems. As a not-for-profit RTO, Fraunhofer UK's mission is to benefit industry by providing a flexible, cost-effective and professional R&D capability and aid in the translation of cutting edge-research into new and innovative commercial products. Contact: Mark Goossens, Business Development Manager, mark.goossens@fraunhofer.co.uk; Paul McCartney, Business Development Manager, paul.mccartney@fraunhofer.co.uk

### Fraunhofer-Institut for Produktion Technology IPT

#4629

Steinbachstr 17, Aachen, 52074 Germany +49 241 8904 0; fax +49 241 8904 198 info@ipt.fraunhofer.de; www.ipt.fraunhofer.de

### Featured Product: Flexible assembly solution for micro-optical systems, prototyping service for micro-optical systems

Fraunhofer IPT combines knowledge and experience in production technology. We offer tailor-made solutions and immediately actionable results for modern production. In the optics field, we focus all of our expertise on the production and evaluation of complex optical components and systems for industrial production. We develop highly efficient glass or polymer components as well as highly accurate sensor systems for the quality control and technologies for micro-optical systems. Contact: Sebastian Haag, Group Manager Assembly of Optical Systems, sebastian.haag@ipt.fraunhofer.de

### Fraunhofer-Institut für Photonische Mikrosysteme

#4636

SPIE Corporate Member

Maria-Reiche-Str 2, Dresden, 01109 Germany +49 351 8823 0; fax +49 351 8823 266 info@ipms.fraunhofer.de; www.ipms.fraunhofer.de

Fraunhofer Institute for Photonic Microsystems IPMS carries out customer specific developments in the fields of microelectronic and micro systems technology. We develop and fabricate modern MEMS and MOEMS devices in our own clean room facilities. In addition to R&D services we offer ramp-up within a pilot production. The range of projects and expertise covers micro scanner mirrors, spatial light modulators, electro-optical switches, sensor and actuator systems as well as wireless microsystems. Contact: Michael Scholles, Dr., info@ipms.fraunhofer.de

### Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration IZM #4629

Gustav-Meyer-Allee 25, Gebäude 17/2, Berlin, 13355 Germany +49 030 464030

info@izm.fraunhofer.de; www.izm.fraunhofer.de

### Featured Product: New developments in laser technology, optical measuring instruments, sensor technology and SSL

Fraunhofer IZM specializes in industry-oriented applied research, covering the entire spectrum of technologies and services necessary for developing reliable electronics and hybrid optoelectronical assemblies for numerous applications. We will showcase current developments in electronical and optical assembly technologies for sensor systems, high data rate communication systems, optical subassemblies for beam forming and efficient fiber coupling as required in laser processing. Contact: Gunnar Boettger, Senior Scientist, Gunnar.Boettger@izm.fraunhofer.de; Henning Schroeder, Senior Scientist, henning.schroeder@izm.fraunhofer.de

#### Freedom Photonics, LLC

#4249

41 Aero Camino, Santa Barbara, CA, 93117 USA +1 805 967 4900

info@freedomphotonics.com; www.freedomphotonics.com

### Featured Product: Optical communication and sensor PICs: widely tunable lasers, high power PDs, 780nm lasers, Lasercom

Freedom Photonics is a leading developer and manufacturer of opto-electronic components and modules, such as integrated optical transmitters, receivers, and sensors. The company offers products in the areas of monolithic widely tunable lasers, high power photodiodes, 780 nm diode lasers, and 1550 nm FSO communication transceivers. Freedom Photonics serves the communications and sensor markets with a wide range of standard products and also designs products to exact customer requirements. Contact: Daniel Renner, VP - Business Development, drenner@freedomphotonics.com; Raphaella Banholzer, Applications Engineer, rbanholzer@freedomphotonics.com

### Fresnel Technologies Inc.

SPIE Corporate

101 W Morningside Dr, Ft Worth, TX, 76110-2708 USA +1 817 926 7474; fax +1 817 926 7146

info@fresneltech.com; www.fresneltech.com

Fresnel Technologies, Inc., manufactures molded plastics Fresnel lenses and related optical components, as well as infrared-transmitting materials and optics. Specialties include lens arrays for passive infrared applications, diffusers and microlens arrays for illumination, and optics for environmental monitoring at 3.4 micrometers. Design assistance, tooling and production services, diamond machining for prototyping, and four-axis diamond machining of freeform optical surfaces are available. Contact: Linda Claytor, Vice President, Iclaytor@fresneltech.com; Nelson Claytor, President, nclaytor@fresneltech.com

### **Frontier Optics**

16618 Honeybee Dr, Tustin, CA, 92782-1920 USA +1 949 786 1919; fax +1 949 786 1907 sales@frontier-optics.com; www.frontier-optics.com

### Featured Product: New online offering of standard optics with next day delivery to the customers in the U.S.

Manufacturer of stock and custom precision optical components. Products include singlet lenses, doublets, triplets, cylindrical lenses, prisms, windows, mirrors, beam-splitters, and filters. Capabilities include prototype and high volume production. Standard optics are listed on our website and can be delivered to the customers the next day. Contact: Lee Shaw, President, Lshaw@frontier-optics.com; Lily Pan, Office Manager, lilypan@frontier-optics.com

### Fuzhou Alpha Optics Co., Ltd.

SPIE Corporate Member

Jinshan Juyuanzhou, Bldg 14 Gulou Industrial Park, Fuzhou Fujian, 350002 China

+86 591 83841095; fax +86 591 83841097 sales@alphaoptics.com.cn; www.alphaoptics.com.cn

### **Fuzhou Hundreds Optics Inc.**

Juyuanzhou Industrial Park, Cangshan District Fuzhou Fujian, Anhui, 35002 China

+86 591 83583937; fax +86 591 88261253 elva.li@100optics.com; www.100optics.com

### Featured Product: Lens, windows, coner cube, prisms, BBO, LBO, polarizer

Fuzhou Hundreds Optics, founded in 2010, is devoted to offering high quality optics and crystals, including five production lines: windows, lens, prisms, crystals and coating workshop. We also have the ability to provide customers with high quality optics components and crystals at competitive prices. We now we introduce Zygo GPI interferometer, Lambda 950 spectrophotometer, and AK40 to ensure good quality to our customers. Contact: Li Elva Li, Sales Manager, Elva.li@100optics.com

#### Fuzhou Path Optics Co., Ltd.

#4513

Bldg #2/Minhou Economic & Technology Dev Zone, Fuzhou, Fujian, 350100 China +86 591 22193853; fax +86 591 22193863

www.optronstar.com

#800

#4542

#5041

### Featured Product: Focuses on optical components including: cylinders, spheres, windows/prisms, and optical coating

Founded in 2006, Path Optics is dedicated to be a world class manufacturer of precision optics. With great vision and young skilled opticians, Path Optics is determined to be the most innovative precision optics manufacturers in China. We focus on optical components including: cylinders, spheres, windows/prisms, optical coatings, and special optics. Contact: Kevin Wang, V.P.Sales, kevin. wang@optronstar.com

#### **GAM Laser Inc.**

#514

6901 TPC Dr #300, Orlando, FL, 32822 USA +1 407 851 8999; fax +1 407 850 0700 sales@gamlaser.com; www.gamlaser.com

### Featured Product: EX10A/1000 industrial laser (high reliability industrial grade mini excimer laser)

GAM Laser, Inc., manufacturers Excimer lasers and CO<sub>2</sub> TEA lasers. High reliability Excimer lasers feature lifetimes of billions of pulses, soft preionization, high pointing stability, low trigger jitter, long gas life, high energy density, all metallic/ceramic design, internal vacuum pump and halogen filter, internal energy monitor, computer controlled. Wavelengths (nm): 157, 193, 248, 308, 337, 351. Energy output: 14-150 mJ at 193 nm. Contact: Joe Batcho, Sales Manager, joebatcho@gamlaser.com; Gordon Murray, President, excimer1@aol.com

### **GAMDAN Optics**

#1644

SPIE Corporate Member

2362 Qume Dr Ste B, San Jose, CA, 95131 USA +1 408 318 9253; fax +1 408 519 3760 info@gamdan.com; www.gamdan.com

Contact: Hanna Cai, Director Business Development

#### Gamma Scientific

#5342

9925 Carroll Canyon Rd, San Diego, CA, 92131 USA +1 858 279 8034; fax +1 858 576 9286 contact@gamma-sci.com; www.gamma-sci.com

### Featured Product: Spectroradiometer and integrating sphere systems for LED measurement

With over 50 years of experience in developing light measurement instruments, Gamma Scientific is trusted by the world's leading organizations to provide accurate results. Based in San Diego, Gamma Scientific manufactures laboratory grade spectroradiometers, spectrometers, spectrophotometers, integrating spheres and calibration light sources. Gamma Scientific also operates an ISO 17025, NVLAP accredited laboratory (NVLAP Lab Code 200823-0) performing LM-79 and LM-80 tests for LEDs. Contact: Anthony Zazo, Technical Marketing Manager

### **Ganzhou Jiaton Technology Company Limited**

No 5 Jinlong Rd Development Zone, Ganzhou, Jiangxi, 341000 China

+86 21 62082768

info@jiaton.com; www.jiaton.com

### Featured Product: Complete range of rare earth oxides, compounds in high purity and fine particle size.

Jiaton commits itself to research and develop advanced rare earth materials. Products include complete range of rare earth as single element and composites: lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium and yttrium. Materials are technically used in optical glass, lighting and laser application. Jiaton can customize non-standardized materials according to customer special requirements. Contact: Shengyu Mao, Export Manager, info@jiaton.com

Gasera Ltd. #5269

Tykistokatu 4, Turku, 20520 Finland +358 405222611 contact@gasera.fi; www.gasera.fi

### Featured Product: Gas analyzers and accessories for laboratory FTIR benches

Gasera produces cutting edge measurement equipment for reliable analysis of gases, liquids, and solid materials. Our main focus is in protecting humans and the environment by measuring the toxic air pollutants of indoor and outdoor air. Other markets served include power utility, food safety, energy, process control, medical, and security. Technology solutions are based on photoacoustic spectroscopy (PAS), Fourier transform infrared (FTIR) principle and widely scanning mid-infrared lasers. Contact: Ismo Kauppinen, CEO, ismo.kauppinen@gasera.fi

Gavish, Inc. #507

360 Route 101, Suite 1, Bedford, NH, 03110-5033 USA +1 603 472 5900; fax +1 603 472 8333 info@gavish.com; www.gavish.com

#### **Featured Product: Sapphire**

Sapphire optics include windows, imaging arrays, optical lightpipes, lenses, and skin-cooling optics for cosmetic surgical lasers. Optics are produced to user specifications of finish and flatness with AR and other specialty coatings, like solderable metallization. Final turnkey parts, soldered, and brazed multi-element assemblies are also available. Gavish is ISO 9001:2008 certified and ITAR registered. Contact: Jeremiah Fitzgibbon, Sales & Marketing Manager, jfitzgibbon@gavish.com; Cathy Schult, Account Manger, cschult@gavish.com

### GD Optical Competence GmbH #4629

Herborner Str 7i, Sinn, 35764 Germany +49 2772 5744 0; fax +49 2772 5744 165 info@gdoptics.de; www.gdoptics.de

#### Featured Product: Micro lens array for beam homogenization

We develop & produce precision molded glass optics for highest requirements in high-end applications. We focus on individual customized solutions for a broad array of applications. All production steps are performed in-house- from the optical design of the lens, design of the tools, ultra-precision machining of all necessary tools to the point of molding the glass components themselves. Our innovative molding technologies allow for the economic production of both very large & rather low volumes. Contact: Florian Lucas, Production Manager, f.lucas@gdoptics.de; Michael Wolz, Director R&D, m.wolz@gdoptics.de

### Gel-Pak #2107

31398 Huntwood Ave, Hayward, CA, 94544-7818 USA +1 510 576 2220; fax +1 510 576 2282 support@gelpak.com; www.gelpak.com

### Featured Product: Gel-Pak carriers and films for optoelectronic devices and applications

Gel-Pak manufactures carriers that safely transport and handle valuable devices from bare die to medical components or other fragile parts. For more than 30 years, Gel-Pak, an ISO certified company, has been an industry leader in guaranteeing safe shipping, handling and storage of cutting edge technologies ranging from 250µm chips to 300mm wafers and substrates. Gel-Pak's unique Gel Technology immobilizes the component to ensure damage free transportation and storage. Contact: Raymund Abiera, Sales Manager, raymund@gelpak.com; Darby Davis, VP Sales and Marketing, darby@gelpak.com

### General Dynamics-Global Imaging Technologies

#4131

SPIE Corporate

#4649-2

24 Simon St, Nashua, NH, 03060-3025 USA +1 603 864 6300; fax +1 603 864 6250 susan.benz@gd-ms.com; www.gd-imaging.com

### Featured Product: Optical coatings and services, assemblies, Beryllium, fast steering mirrors, motors, resolvers

General Dynamics-Global Imaging Technologies offers highperformance optical solutions that provide superior thermal imaging for targeting, navigation, and surveillance missions. We offer solutions and services for applications that demand the most stringent optical requirements including fast steering mirrors, precision machined products, and integrated optical lens assemblies. Contact: Susan Benz, Senior Sales Manager, susan. benz@gd-ms.com; Lance Whalen, Business Development, lance. whalen@gd-ms.com

### **General Photonics Corp.**

#738

5228 Edison Ave, Chino, CA, 91710-5719 USA +1 909 590 5473; fax +1 909 902 5536

info@generalphotonics.com; www.generalphotonics.com

### Featured Product: PSY-201 polarization synthesizer: a high speed polarimeter and deterministic polarization control

General Photonics is the leading supplier of polarization and optical delay products to the telecommunications, photonics, fiber sensor, and medical imaging markets. General Photonics supplies a full line of standard and custom components, modules, and instruments that manage and measure polarized light. Contact: Febian Bahari, Sales, sales@generalphotonics.com; Wajih Daab, Sales, sales@generalphotonics.com

### General Ruby & Sapphire Co.

#5641

11443 Challenger Ave, Odessa, FL, 33556 USA +1 888 361 5707; fax +1 888 965 9446 sales@generalruby.com; www.generalruby.com

Contact: Joseph Mills



# YOUR OPTICAL SOLUTIONS PARTNER



### **Genicom Co., Ltd./ Sales Team**

#4859

No 927 Tamnip-dong Yuseong-gu, Daejeon, 305-510 Korea, Republic of

+82 42 862 3982; fax +82 42 862 2982

uvsensor@geni-uv.com; www.geni-uv.com

### **Gentec Electro-Optics Inc.**

#1138

SPIE Corporate Member

445 Saint-Jean-Baptiste Ste 160, Quebec, QC, G2E 5N7 Canada +1 418 651 8003; fax +1 418 651 1174

info@gentec-eo.com; www.gentec-eo.com

### Featured Product: Pronto-Si handheld laser power meter with touchscreen for powers between 0.3 nW and 300 mW

Gentec-EO has more than 40 years of experience in the laser measurement field. Our product line includes a complete range of laser power and energy meters, photo detectors, OEM detectors, beam diagnostics, and diffractive optics. The range now includes THz detectors, ultra-fast pyro detectors that measure pulse-to-pulse energy up to 200 kHz, position sensing systems, ultra-sensitive fJ optical detectors, very sensitive and broadband radiometers and more. Contact: Claude Lachance, VP Sales & Marketing, clachance@gentec-eo.com; Don Dooley, General Manager, ddooley@gentec-eo.com

### Germany-Federal Ministry for Economic Affairs & Energy (BMWi)

Villemombler Strasse 76, Bonn, 53123 Germany +49 228 6150; fax +49 228 6154436

buero-vc4@bmwi.de: www.bmwi.de

Germany participates with a "German Pavilion" offering a professional brokerage service to help to establish contacts with German companies. It is presented by the Federal Ministry for Economic Affairs & Energy (BMWi); www.bmwi.de in cooperation with AUMA Association of the German Trade Fair Industry; www. auma-messe.de and supported by the associations: OptecNet and SPECTARIS; www.optence.de // www.spectaris.de.

#### Giai Photonics Co., Ltd.

#2011-D

#4629

1st Rd Jinlong Baolong Industry Zone, F2 blk C Shen Shang Gang Industrial Park, Longgang District Shenzhen, Guangdong, 518116 China

+86 755 89936799; fax +86 755 89663926 lincoln@giaitech.com; www.giaiphotonics.com

Giai photonics Co., Ltd. is a leading supplier of optics and precision optical components, designing and manufacturing a wide array of optical filters, multi-element lenses, and lens coatings. We do this with skilled technicians, expert engineers, modern optical fabrication equipment, and the latest metrology. Our objective is to offer the finest quality precision components, optics, and systems available to meet the service requirements and to exceed the expectations of our customers. Contact: Xinquan Lin, General Manager, linmaco@126.com; Xinbin Zhu, Sales Manager, Ism@giaitech.com

### **GiGa Concept**

#4355

11811 Suzor-Côté, Montreal, QC, H3M 2H8 Canada +1 514 745 8877; fax +1 514 626 6784 egirard@gigaconcept.com; www.gigaconcept.com

### Featured Product: GiGa Concept AnyWave Fiberbench polarization and mode controllers

Developers and manufacturers of patented modal control instruments with proven reliability and performance in telecom, scientific and medical applications. Polarization control, all fiber low loss SM 400 nm to 2000 nm, high resolution with simple control electronics and software. Are fully serviceable. Spatial mode scrambler, all fiber low loss MM 50µm to >400 µm, fully programmable. GiGa Concept products are customer inspired, fully customizable and modular for research labs and OEMs alike. Contact: Eric Girard, Sales and Engineering, egirard@gigaconcept.com

#### **Gitterwerk GmbH**

#4629

Moritz-von-Rohr-Str. 1a, Jena, 07745 Germany +49 36413161120; fax +49 36413161130 info@gitterwerk.com; www.gitterwerk.com

### Featured Product: High efficiency diffraction gratings for pulse compression and high energy applications.

We are a start-up company from Jena - a city with a long-standing tradition in optics and photonics. We are committed to one goal: making high-quality diffraction gratings available. Our new manufacturing process and design expertise allows us to develop gratings optimized for your individual application and transfer them directly into serial production. Gitterwerk offers the highest quality at any quantity. Contact: Frank Fuchs, Managing Director, frank.fuchs@gitterwerk.com; Lorenz Stuerzebecher, Managing Director, lorenz. stuerzebecher@gitterwerk.com

### Glass Fab, Inc.

#642

SPIE Corporate

257 Ormond St, Rochester, NY, 14605-3024 USA +1 585 262 4000; fax +1 585 454 4305 info@glassfab.com; www.glassfab.com

Manufacture of custom blanks. Products include fused quartz, fused silica, optical glasses, filter glasses and low/ultra-low expansions glasses. Capabilities include annealing, slumping, sawing, grinding, edging, drilling, waterjet cutting, CNC shaping and CNC generating. Contact: George Dean, Sales, g\_dean@glassfab.com; Daniel Saltzman, President, d\_saltzman@glassfab.com

### **Global Laser**

#5135

Unit 9/10 Roseheyworth Business Park, Abertillery Gwent, NP13 1SP United Kingdom

+44 0 1495 322309; fax +44 1495 214004 sales@globallasertech.com; www.global-lasertech.co.uk

#### **GLOphotonics**

#1123-D

1 avenue d Ester, Ester Technopole, Limoges Cedex, 87069 France +33 5 87 50 67 25

contact@glophotonics.fr; www.glophotonics.fr

GLOphotonics SAS (or 'GLO') is a French startup, set up to commercialize hollow-core photonic crystal fiber (HC-PCF) and their functionalised form Photonic Microcells™ (PMC). GLO products are built upon its proprietary and disruptive specialty fiber technology and gas photonics. GLO is extending the capabilities of the HC-PCF and PMC by working with laser developers and system integrators and with CNRS-University of Limoges joint Research Institute. Contact: Dominique BONNISSEAU, Business Development, dominquebonnisseau@glophotonics.fr; Jérôme ALIBERT, President and CEO, jeromealibert@glophotonics.fr

### GMT Global Inc., Changhua Branch #52

No 3 Ln 34 Minju St Shioushuei Township, Changhua County, 50442 Taiwan

+886 4 7688320; fax +886 4 7688314

sales@gmtglobalinc.com; www.gmtlinear.com

#### Featured Product: Mini-stage, motorized stage, XY table, linear slide and guide way, coupling and support unit

GMT mainly offers linear and rotation transmission products to create high add-valued related technology service for manufacturing industries. Our core competence is focused on key technical development and production manufacture in order to offer add-valued product outputs for customers and bring out the maximum profitability. Contact: Josephine Chang, sales@gmtglobalinc.com

### Gooch & Housego (Orlando)

#1831

4632 36th St, Orlando, FL, 32811 USA +1 407 422 3171; fax +1 407 648 5412

orlandosales@goochandhousego.com; www.GHinstruments.com

As a world leader in light measurement solutions, Gooch & Housego's instruments and systems provide accurate, repeatable, research-grade measurements in the UV-VIS-NIR-IR wavelength ranges. Used for research, academia, industry, and the military, our light measurement systems are designed to provide consistent, precise, and repeatable measurements. Contact: Alex Fong, Senior VP, afong@goochandhousego.com; Maureen Knowles, SIs/ Mktg Coordinator, mknowles@goochandhousego.com

### **Gooch & Housego PLC**

#1831

SPIE Corporate Member

Dowlish Ford, Ilminster Somerset, TA19 OPF United Kingdom +44 1460 256440; fax +44 1460 256441

sales@goochandhousego.com; goochandhousego.com

### Featured Product: Barle 25 mm SWIR lens for industrial and security applications

Gooch & Housego designs and manufactures photonic systems and components for the aerospace and defense, industrial, life science and scientific research sectors. With operations in the USA and UK, the company is a global leader in engineering, and manufacturing for harsh environments: terrestrial, marine, space, and aerospace. Contact: Adrian Chance, Marcomms Manager, sales@goochandhousego.com

### **Gould Fiber Optics**

#4859

1121 Benfield Blvd Stes J-P, Millersville, MD, 21108-2540 USA +1 410 987 5600; fax +1 410 987 1201 info@gouldfo.com; www.gouldfo.com

### Featured Product: Fused dual clad fiber coupler 2x2 and 2x1 with high coupling efficiency to multimode fiber for OCT

Designs, develops, manufactures and distributes passive fiber optic components for OCT, bio/medical, telecom, government, military, aerospace, gyroscope, and sensor market applications. Specializes in volume production of customized optical assemblies. Products include planar, PM products, SM, MM, dual clad fiber couplers/splitters, RGBV/multimode/pump combiners, WDMs, DWDMs, CWDMs, attenuators, isolators, circulators, connectors, cable assemblies, and filter-based products. ISO9001 certified. Contact: Saeed Pilevar, General Manager & VP, spilevar@gouldfo.com; Peter Smiley, Sales Specialists, psmiley@gouldfo.com

### **GPD Optoelectronics Corp.**

#2630

SPIE Corporate Member

7 Manor Pkwy, Salem, NH, 03079-2842 USA +1 603 894 6865; fax +1 603 894 6866 sales@gpd-ir.com

#### Entry Graphic Sponsor

#### **Gpixel Inc.**

#5443

No 588 Yingkou Rd, Changchun, Jilin, 130033 China +86 431 86176687; fax +86 431 86176683 info@gpixelinc.com; www.gpixelinc.com

### Featured Product: CMOS image sensor for professional applications

Gpixel Inc. is a company specialized in providing high-end customized and off-the-shelf CMOS image sensor solutions for industrial, medical, and scientific applications. Gpixel's standard off-shelf products include high resolution, fast frame rate sensor series (GMAX), high-end scientific CMOS image sensor series (GSENSE), and line scan imagers (GL). Gpixel is committed to provide more products and offer the latest technology to meet the ever-growing demand of the professional imaging market. Contact: Yanxia Zhang, Director of Marketing & Sales, yanxia.zhang@gpixelinc.com; Yang Meng, Technical Marketing Analyst, yang.meng@gpixelinc.com

### **Greenlight Optics, LLC**

#4439

SPIE Corporate Member

8940 Glendale-Milford Rd, Loveland, OH, 45140 USA +1 513 247 9777; fax +1 513 297 7919 info@greenlightoptics.com; www.greenlightoptics.com

### Featured Product: Custom design, prototyping, and manufacturing of optical systems

Greenlight Optics is a leading optical product development and manufacturing services company specializing in projection systems, imaging and sensor systems, LED and laser illumination, and plastic optics. With in-house optical and mechanical design, diamond turning, glass lens manufacturing, CNC machining, plastic optics molding, and advanced assembly and testing capabilities, Greenlight quickly turns ideas into prototypes and manufactured products. Contact: Michael O'Keefe, Managing Partner, mokeefe@ greenlightoptics.com; Todd Rutherford, Managing Partner, trutherford@greenlightoptics.com

### Coffee Break, Exhibition Map Sponsor

### greenTEG AG

#4356

SPIE Corporate

Technoparkstr 1, Zurich, 8005 Switzerland +41 44 632 04 20; fax +41 44 633 13 68 info@greenTEG.com; www.greenteg.com

### Featured Product: Our new power and position detector measures two of the most crucial parameters in a laser system.

greenTEG AG markets, produces, and develops novel thermoelectric laser power detectors. The gRAY detectors are especially suited for OEM applications and enable continuous, and fast, precise monitoring of laser power at all wavelengths. greenTEG develops customized solutions meeting the specific requirements of OEM customers. Beam positioning is a focus, as well. Contact: info@ greenteg.com

#### **Grintech GmbH**

#801

SPIE Corporate

Schillerstr. 1, Jena, 07745 Germany +49 3641 2276 0; fax +49 3641 2276 11 info@grintech.de; www.grintech.de

### Featured Product: Gradient index (GRIN) lenses and lens systems

GRINTECH manufactures gradient index (GRIN) lenses and lens systems for applications in sensor technology, fiber optics, biophotonics, medical imaging, telecommunication, and laser diode beam shaping tailored to your specific requirements. Rod and cylindrical lenses are fabricated by unique non-toxic silver ion-exchange technique in glass. Contact: Herbert Stuermer, Product Manager, info@grintech.de

### **G-S Plastic Optics**

#1001

SPIE Corporate Member

408 St. Paul Street, Rochester, NY, 14605-1788 USA +1 585 295 0200; fax +1 585 232 2314 info@gsoptics.com; www.gsoptics.com

#### **Featured Product: Precision polymer optics**

G-S Plastic Optics has a rich tradition of producing high-performance injection molded polymer optics and has produced significant volumes for military and civilian night-vision and visible-range sighting industries in addition to the consumer, medical, LED lighting, biomedical and analytical instrument marketplaces. It has the advanced metrology equipment needed to control quality and offers a strong internal engineering team to work alongside clients' technical resources to optimize outcomes. Contact: Will Beich, Director of Sales and Marketing, wbeich@goptics.com; John Hultz, Applications Engineer, jhultz@gsoptics.com

### **GT Crystal Systems**

#4545

27 Congress St, Salem, MA, 01970 USA +1 978 745 0088; fax +1 978 744 5059 sapphiresales@gtat.com; www.gtat.com

### Featured Product: Ti:Sapphire and Low Absorption Optical Sapphire

GT Crystal Systems is a division of GT Advanced Technologies Inc., a leading diversified technology company producing advanced materials and innovative crystal growth equipment for the global consumer electronics, power electronics, solar and LED industries. Its technical innovations accelerate the use of advanced materials, enabling a new generation of products across this diversified set of global markets. Contact: Bill Ripley, Sr. Sales Engineer, bill.ripley@ dtat.com

### **GTI Technologies, Inc.**

#2732

SPIE Corporate

6 Armstrong Rd, Shelton, CT, 06484-4780 USA +1 203 929 2200; fax +1 203 926 0074 info@gti-usa.com; www.gti-usa.com

### Featured Product: Takatori WSD-K3: new small wire saw with expanded envelope

GTI Technologies is the exclusive representative for Takatori multi wire saws and semiconductor products. Takatori wire saws are the industry standard for slicing sapphire, silicon carbide, glass, quartz, ceramics, and other crystalline materials. With R&D scale machines all the way to full production, we have the right saw for your needs. Stop by our booth to learn how a Takatori wire saw can lower your costs and maximize production. Contact: Patrick Frei, Director of Business Development, patrick@gti-usa.com; Bob Thron, VP of Sales, bob@gti-usa.com

#### **Guernsey Coating Labs., Inc.**

#4433

SPIE Corporate Member

1788 Goodyear Ave, Ventura, CA, 93003-8080 USA +1 805 642 1508; fax +1 805 642 1554 sales@gclinc.com: www.gclinc.com

### Featured Product: Coatings developed for plastic substrates and conductive ITO coatings are now available from GCL!

GCL is easy to work with, offering R&D prototypes to high volume production. For over 30 years, we have specialized in optical thin-films & offer durable metal coatings. Products include: mirror coatings (enhanced & protected silver, gold & aluminum), conductive ITO, high reflectors (laser mirrors), ND filters, beamsplitters (metallic & dielectric), broadband (anti-reflective), & high durability MgF2 & V-coats. We are 100% woman-owned. Contact: Robert Mendenhall, Director of Sales and Business Development, rmendenhall@gclinc.com; Ty Guernsey, Owner, ty@gclinc.com

### **Guild Optical Associates, Inc.**

#4135

11 Columbia Dr, Amherst, NH, 03031-2300 USA +1 603 889 6247; fax +1 603 889 8361 info@guildoptics.com; www.guildoptics.com

### Featured Product: Custom sapphire optics, windows, and lenses

Guild Optical Associates is a widely recognized leader in the manufacturing of custom sapphire windows and sapphire lenses. We set ourselves apart from other optics providers by doing our own manufacturing in-house using high quality U.S. sourced raw sapphire. The results are some of the best performing precision optics in the industry. Contact: Jonathan Lavoie, Sales/Marketing Manager, jlavoie@guildoptics.com; Corbin Breda, VP, cbreda@guildoptics.com

### **Gulf Photonics. Inc.**

#4332

SPIE Corporate

640 Brooker Creek Blvd. Ste. 460, Oldsmar, FL, 34677 USA +1 813 448 5220; fax +1 813 448 5224 sales@gulfphotonics.com; www.gulfphotonics.com

#### Featured Product: Deep UV specialists

Manufacturer of engineered, high-quality, quick turn fiber optic assemblies for spectroscopy, sensing, and light routing applications. Unique capabilities for DUV applications. Offering custom solutions for all environments. Serving the medical, academic, research and instrumentation manufacturer markets. Options include a wide range of fiber types, sheathing and terminations. Offering standard patch cables, bifurcated assemblies and reflection probes for general spectroscopy applications. Contact: Craig Vogeley, Business Development, sales@qulfphotonics.com

### **Gurley Precision Instruments, Inc.**

#613

514 Fulton St, Troy, NY, 12180 USA +1 518 272 6300; fax +1 518 274 0336 info@gurley.com; www.gurley.com

### Featured Product: 7700 miniature modular encoder system supporting resolutions to 23-bits, custom optics and coatings

GPI manufactures high-end optical encoders, components, and assemblies to the optics, medical, aerospace, and defense industries. From design phase to volume runs, we manufacture custom and catalogued components that are designed to meet your specific requirements. Our product line includes: linear and rotary encoders, lenses, windows, mirrors, prisms, reticles, and full coating services for most types of substrates. Stop by booth 613 or visit our website at www.gurley.com. Contact: Christopher Guiry, Director of Encoder Sales, c.guiry@gurley.com; Miner Simon, Director of Optics Sales, s.miner@gurley.com

### Haas Laser Technologies, Inc.

#5540

SPIE Corporate

37 Ironia Rd, Flanders, NJ, 07836 USA +1 973 598 1150; fax +1 973 598 1151 sales@haaslti.com; www.haaslti.com

#### Featured Product: BWA-CAM for real-time M2 measurements

Haas Laser Technologies, Inc. designs and manufactures custom laser beam delivery components and laser beam diagnostic equipment for all facets of industrial laser applications at its facility in Flanders, New Jersey. The company is recognized as an innovator and technology leader, providing one of the largest selections of laser beam delivery components available worldwide. Contact: Gilbert Haas, President, ghaas@haaslti.com; Michael Scaggs, Optical Engineer, mscaggs@haaslti.com

### Hagitec Co., Ltd.

#325

246-7 Dainichi, Yotsukaido, Chiba, 284-0001 Japan +81 43 423 8741; fax +81 43 423 8684 info@hagitec.co.jp; www.hagitec.co.jp

### **Hamamatsu City**

#4837

103-2 Motoshiro-cho Naka-ku, Hamamatsu City, Shizuoka, 430-8652 Japan

+81 53 457 2319; fax +81 50 3730 8899 sangyo@city.hamamatsu.shizuoka.jp; www.city.hamamatsu.shizuoka.jp

We, Hamamatsu City Government, organize our booth for our We, Hamamatsu City Government, organize our booth for our SMEs' business expansions in this field. Hamamatsu is the most advanced industrial city in Japan. Many famous international enterprises were founded and developed in Hamamatsu. Five of the greatest SMEs attend and exhibit in Photonics West 2016 from Hamamatsu, the City of Industry. Contact: sangyo@city.hamamatsu.shizuoka.jp

### Escalator Panels, Digital Signage, Featured Exhibitor Sponsor

### Hamamatsu Corp.

#1412

SPIE Corporate Member

360 Foothill Rd, Bridgewater, NJ, 08807-2932 USA +1 908 231 0960; fax +1 908 231 1539 usa@hamamatsu.com; www.hamamatsu.com

### Featured Product: MEMS-FPI sensor for NIR detection

Hamamatsu Corporation is the North American subsidiary of Hamamatsu Photonics K.K. (Japan), a leading manufacturer of devices for the generation and measurement of infrared, visible, UV light, and x-rays. These devices include photomultiplier tubes, photodiodes, image sensors, cameras, and light sources. Hamamatsu Photonics also offers specialized systems for select applications.

#### **SPIE INDUSTRY EVENTS**

Explore the Business Side of Photonics West
Free Seminars—open to all exhibitors, exhibition visitors, and conference attendees
Refer to pages 20-29.

### Hangzhou Freqcontrol Electronic Technology Ltd.

#2705

No 198 Wuxing Rd, 1106 Crystal International Business Ctr, Qianjiang New City Hangzhou, 310006 China +86 571 85803723; fax +86 571 85803724 sales@cqtgroup.com; www.csimc-freqcontrol.com

### Featured Product: Monocrystal wafer, fused quartz and fused silica, LN/LT wafer, glass wafers, single quartz wafer

Our company is the professional manufacturer of single crystals, materials, wafers, and substrates for lithographic process of MEMS and IF RF application purpose. With more than 20 years of experience lapping and polishing for single crystal materials guaranteed by flat master Veeco NT9100, we can supply the most excellent polished surface (better than 6A) quartz, lithium niobate, tantanlate wafers (1" 2" 3" 4") which are the main substrates for optical lithography and other applications. Contact: Tianhua Wu, General Manager, sales@cqtgroup.com; Lihua Jin, Assistant for G.M., sales@cqtgroup.com

#### Featured Exhibitor Sponsor

### Han's TianCheng Semiconductor Co., Ltd.

#4665

NO 8 Liangshuihe No 2 Street, 6th Floor, 17#Building Han's Enterprise Bay, Beijing, 100176 China +86 10 6780 8515; fax +86 10 6780 7949 sales@tc-semi.com; www.tc-semi.com

### Featured Product: High brightness fiber coupled diode laser modules for 400nm to 1550nm, from 10 Watts to 500 Watts

Founded in November 2011 in Beijing Development Area, China, Han's TianCheng Semiconductor Co., Ltd. is a subsidiary company of Han's Laser. We offer advanced research, technological infrastructure, and experience in the development and production of diode lasers with self-developed technology, especially in fiber coupled laser modules used in the fields of material processing, diode-pumped solid-state pumping, fiber laser pumping, laser display, medical application and scientific research. Contact: Xiaopeng Zhu, CEO, zxp@tc-semi.com; Shenglan Xuan, Product manager, xuanshenglan@tc-semi.com

#### **Haphit Inc**

#4349

SPIE Corporate

1201 N Orange St STE 7305, Wilmington, DE, 19801 USA +1 302 803 4106; fax +1 302 348 9018 usa@haphit.com; www.haphit.com

#### Featured Product: Passive fiber components/hybrid fiber device

Haphit provides a full range of passive fiber components, wavelength range from visible to 2000nm, specialized in high optical power and pulse optical power products, polarization maintaining fiber products, and also Large Mode Area (LMA) fiber products and PM-LMA Fiber products. Customized products and customer consigned fiber products are also available. Various hybrid devices now are available. Hybrid will integrate two or more product functions into one products, to save both cost and size. Contact: Kevin Jones, Director of Sales & Marketing, usa@haphit.com

### **Hardin Optical**

#2707

SPIE Corporate Member

87679 Kehl Rd, PO Box 219, Bandon, OR, 97411 USA +1 541 347 9467; fax +1 541 347 2611

optics@hardinoptical.com; www.hardinoptical.com

Founded in 1976, Hardin Optical manufactures precision optical components for commercial and defense applications. We fabricate custom optical elements used in UV, Visible, and IR applications. Our manufacturing facility includes CNC grinding and polishing, conventional grinding and polishing, diamond turning, and thin film coating capabilities. We take pride in our record of on-time delivery of quality products. Visit us at www.hardinoptical.com. Contact: Adam Henkel, Sales Manager, optics@hardinoptical.com

### **Harvatek Corporation**

#4361

No 18, Ln 522, Sec  $\overline{\bf 5}$ , Chung Hwa Road, Hsinchu City, 30094 Taiwan

+886 3 5399889; fax +886 3 5399227 sales@harvatek.com; www.harvatek.com

### **HC Photonics Corp.**

#4432

SPIE Corporate

Hsinchu Science Park, Hsinchu, 300 Taiwan +886 3 6662123; fax +886 3 6662124 service@hcphotonics.com; www.hcphotonics.com

### Featured Product: Full spectrum solutions of PPLN, PPLT, PPXX-technology, modules, and packaging service.

HCP develops and fabricates optical wavelength converters based on periodically poled nonlinear materials, MgO:PPLN/PPLT bulk and waveguide. With SHG/ SFG/ DFG/ OPG/ OPA/ OPO configurations, the wavelength range covered from UV to IR + THz enables full spectrum applications, like RGB display, bio-photonics, scientific, and others. HCP also assembles the chips into bulk and waveguide mixers as compact fiber delivery devices for plug and play solutions, improving conversion efficiency up to 50%. Contact: Ada Lin, Sales, service@hcphotonics.com; Karin Wu, Sales Director, service@hcphotonics.com

### **Headwall Photonics Inc.**

#2606

SPIE Corporate Member

601 River St, Fitchburg, MA, 01420-2968 USA +1 978 353 4100; fax +1 978 348 1864

information@headwallphotonics.com; www.headwallphotonics.com

Headwall produces high-performance hyperspectral and multispectral sensors at facilities in the U.S. and Europe for remote sensing, process vision, and medical/biotech applications. Design attributes include very high SNR, aberration-corrected optics, wide field of view, small and light, and outstanding spectral and spatial resolution. Spectral ranges including UV-VIS, VNIR, NIR, SWIR, MWIR and LWIR. UAV integration, like GPS/LiDAR, data processing, and full software, are also available. Contact: Tom Breen, Director of Global Sales, tbreen@headwallphotonics.com; Kirk Grim, Sales Manager, kgrim@headwallphotonics.com

### Hebei Plasma Diamond Technology Co., Ltd.

#4429

No 46 Youyi South St, Qiaoxi District, Shijiazhuang Hebei, 050081 China

+86 311 83034449

sales@hediamond.cn; www.hediamond.cn

Hebei Plasma Diamond Technology Co., Ltd. has specialized in CVD diamonds since 1991, and it only supplies high quality CVD diamonds. All CVD diamond products can be used for applications like thermal mounts, laser windows, and so on. The CVD diamond performance made by the company is very close to that of natural diamonds, so customers can now take full advantage of CVD diamond characteristics.

### Heidelberg Instruments Inc.

#4638

SPIE Corporate Member

2807 Oregon Ct Unit E2, Torrance, CA, 90503-2635 USA +1 310 212 5071; fax +1 310 212 5254

info@himt.us; www.himt.us

### Featured Product: MLA150, MLA100, DWL66+, DWL2000/4000, VPG systems, microPG101

With an installation base of over 600 systems in more than 50 countries, Heidelberg Instruments Mikrotechnik is a world leader in production of maskless lithography systems and maskless aligners. Our systems are used in some of the most advanced research, development and industrial applications for direct writing and photomask production by some of the most prestigious universities & industry leaders in the areas of MEMS, BioMEMS, nano technology, ASICS, TFT and many other related applications. Contact: Niels Wijnaendts van Resandt, Dir. Sales and Marketing, niels.wijnaendts@himt.de

### **HEIDENHAIN Corp.**

#4248

333 State Pkwy, Schaumburg, IL, 60173-5337 USA +1 847 490 1191; fax +1 847 490 3931

marketing01@heidenhain.com; www.heidenhain.com

HEIDENHAIN Corporation is the North American subsidiary of the German company Dr. Johannes Heidenhain GmbH, a leading international manufacturer of precision measurement and control equipment. This superior technology is utilized within high precision motion control and machining systems worldwide. The product lines include linear and angle encoders, rotary encoders, length gauges digital readouts (DROs), numerical controls (TNCs), and touch probes for demanding positioning tasks. Contact: Kevin Kaufenberg, Product Manager, kkaufenberg@heidenhain.com

### **HEIDSTAR CO., LTD.**

#4372

Albert House Torch Hi-tech Zone Huli District, N207 Weiye Bldg/ Xiamen Pioneering Park, Xiamen, Fujian, 361009 China +86 592 570 8071; fax +86 592 570 8071 x805 sales@heidstar.com; www.heidstar.com

### Featured Product: High precision motorized microscope stages and automated biological microscopes.

We make high precision motorized microscope stages and automated microscope systems affordable to all customers. Contact: Zhiping Wei, accountant, zhiping.wei@heidstar.com

#### **Heimann Sensor GmbH**

Maria-Reiche-Str 1, Dresden, 01109 Germany +49 351 888885 0; fax +49 351 888885 27

sales@heimannsensor.com; www.heimannsensor.com

### Featured Product: Infrared thermopile arrays with element numbers ranging from 8x8 and 32x32 to 80x64.

Heimann Sensor is a well-known manufacturer of infrared sensors and modules. Main applications are remote temperature measurement and gas detection in industrial, medical, automotive and consumer markets. Heimann Sensor is offering a wide range of thermopile arrays. In 2015, Heimann Sensor developed a new, small 32x32 thermopile array that fits into a TO39 housing. HTPA 32x32 will be available with 5 different integrated lenses, which results in field of view options from 90 to 23 degrees. Contact: Marion Simon, Sales Manager, sales@heimannsensor.com

#### Helia Photonics Ltd.

#1923

**#714** 

Kirkton Campus, Unit 2 Rosebank Park, Livingston, EH54 7EJ United Kingdom

+44 150 641 4800; fax +44 150 641 4070 enquiries@helia-photonics.com; www.helia-photonics.com

### Helioworks, Inc.

#714

1275 4th St Ste 614, Santa Rosa, CA, 95404-4057 USA +1 707 578 7200; fax +1 707 578 7200 info@helioworks.com: www.helioworks.com

### Featured Product: Steady state blackbody IR emitter in a TO-39 package with 2.4 W input power at up to 900C(1173K).

HelioWorks, Inc. has manufactured a wide range of infrared sources for over ten years. Products include pulsable sources utilizing tungsten and nichrome (NiCr) and steady state sources utilizing Kanthal and NiCr filaments. All are constructed in standard TO-5, TO-8 and TO-3 packages with gold plated reflectors to enhance output in the near infrared. Our products are used in near infrared (NIR) spectroscopy, non-dispersive infrared (NDIR) gas detectors, thermal beacons, and have many other uses. Contact: Donald Wood, CEO, info@helioworks.com; Mary Ann Schallar, Marketing Director, MA@helioworks.com

### Hellma USA, Inc.

#1907

SPIE Corporate

80 Skyline Dr, Plainview, NY, 11803 USA +1 516 939 0888; fax +1 516 939 0555 info.us@hellma.com; www.hellma.com

#### Featured Product: Zeiss CGS spectrometer unit

Manufacturer of Hellma optics, photometer cells, fiber optic immersion probes, photometric calibration standards, quartz microplates, calcium fluoride and more. Optics include cylindrical/flat optics, beam splitters and mirrors for laser and other applications. All types of standard and custom spectroscopy cells and accessories. CaF<sub>2</sub> raw material for VUV/DUV/UV/Vis and IR applications. U.S.A. supplier of Zeiss MMS/MCSPGS/CGS Spectrometers 190-2200nm and all types of Heraeus light sources. Contact: Evan Friedmann, Director of Sales - Americas, evan.friedmann@hellma.com

#### heracle GmbH

#5449

SPIE Corporate Member

Hans-Knöll-Str 6, Jena, 07745 Germany +49 36415277825; fax +49 32121415014 heracle@heracle.de; www.heracle.de

#### **Featured Product: Specialty Optical Fiber**

Contact: Peggy Baerenklau, CEO, peggy.baerenklau@heracle.de; Ralitsa Rosenow, Sales & Product Development, ralitsa.rosenow@heracle.de

### **Heraeus Noblelight America LLC**

#4130

1520 Broadmoor Blvd, Ste C, Buford, GA, 30518 USA +1 678 835 5681; fax +1 678 835 5766

info.hna.oa@heraeus.com; www.heraeus-noblelight.com

#### Featured Product: Optics and Analytics and Arc and Flash.

Heraeus Noblelight, a business segment of Heraeus, counts itself among market and technology leaders worldwide with their widest spectrum of specialty lamps from ultraviolet to infrared for industrial, scientific and medical applications. With locations in Germany, the UK, China, and the USA, they manufacture lamps for the printing industry, industrial heating processes, laser pumping, water disinfection and oxidation, analytical instrumentation, and many other custom photon delivery solutions. Contact: Mark Oesterle, Sales Director, mark.oesterle@heraeus.com; Christopher Hamby, Sales, christopher.hamby@heraeus.com

#### General Sponsor

### **Heraeus Tenevo LLC**

#2400

SPIE Corporate Member

100 Heraeus Blvd, Buford, GA, 30518-3456 USA +1 678 714 4350; fax +1 678 714 4355 sales.hqs.optics.us@heraeus.com; www.optics.heraeus-quarzglas.com

### Featured Product: Suprasil® high purity fused silica and specialty fiber products.

Heraeus is a leader in the manufacturing of high purity fused silica and fused quartz glass materials and components used in broad photonics applications. Contact: David Gritz, Director of Sales, Optics, david.gritz@heraeus.com; Robert Sawyer, Account Manager, robert.sawyer@heraeus.com

### **HG Optronics, Inc.**

#2001-D

18 Majiang Rd Mawei, 3F Bldg 4 M9511 Industrial Park, Fuzhou Fujian, 350015 China

+86 591 88023630; fax +86 591 88023637 sales@hgoptronics.com; www.hgoptronics.com

### Featured Product: YVO<sub>4</sub>, Nd:YVO<sub>4</sub>, Nd:GdVO<sub>4</sub>, TGG, YAG, Nd:YAG, Ce:YAG, Cr:YAG, Nd:Cr:YAG LBO, BBO, KTP, K\*DP, KDP, & LN

HG Optronics has IAD and IBS coating techniques to meet different needs, having a whole set of crystal inspection and manufacturing controlling equipment, such as: PCI-02, ZYGO, PE lambda950, interferometer, and microwave(40X). They are ISO9001:2008 certified by Best CERT Quality Registers, Ltd, and they ensure every piece of crystal is carefully inspected. Today, over 70% of HG's products are exported to the USA, Japan and other Asian markets, and Germany and other European countries.

### Hilger Crystals, Ltd.

#607

Unit R1 Westwood Est, Margate Kent, CT9 4JL United Kingdom +44 1843 231166

sales@hilger-crystals.co.uk; www.hilger-crystals.co.uk

Hilger Crystals produces a range of high quality synthetic crystal materials, such as Nal(TI), CsI(TI), CsI(Na), BGO, CdWO<sub>4</sub>, ZnWO<sub>4</sub>, LSO, and LYSO. Scintillation crystals are commonly used for x-ray and gamma ray detection, and these can be fabricated into pixelated arrays for imaging applications and detectors for routine monitoring applications. In addition, we also offer a range of optical materials. Typical applications are beam splitters and windows for FTIR spectroscopy. Contact: Chris Smissen, Sales Manager, chris. smissen@hilger-crystals.co.uk; Jim Telfer, Managing Director, jim. telfer@hilger-crystals.co.uk

### **Hinds Instruments, Inc.**

#### #2139

SPIE Corporate Member

7245 NW Evergreen Pkwy, Hillsboro, OR, 97124-5822 USA +1 503 690 2000: fax +1 503 690 3000 sales@hindsintruments.com: www.hindsinstruments.com

#### Featured Product: Microlmager for fast birefringence imaging out to 4000nm.

Hinds' product line includes Stokes and Mueller polarimeters, Exicor® birefringence measurement tools, and Microlmager for optical and biological stress analysis. A complete line of polarization components for researchers and OEMs includes photoelastic modulators (to modulate or analyze polarization), detector modules (Si, Ge, APD), high speed optical choppers (20-84kHz), analog lockin amplifiers, and pulse delay generators. Contact: Connie Wimmer, Technical Sales, cwimmer@hindsinstruments.com; Linda Hirschy, Sales & Marketing Manager, Ihirschy@hindsintruments.com

### **Hindsight Imaging**

#4043

SPIE Corporate Member

233 Harvard St Ste 316, Brookline, MA, 02446 USA +1 607 793 3762

info@hindsight-imaging.com; www.hindsight-imaging.com

#### Featured Product: The Bilby VNIR hyperspectral imager offers 475 resolved spectral channels over the 400-1000 nm range

Hindsight Imaging builds the next generation of hyperspectral imaging spectrographs. Based on the proprietary High Throughput Virtual Slit technology, Hindsight's spectral imagers offer more spectral channels in a smaller volume than can be achieved by conventional designs, all without compromising light-collecting power. Hindsight's solutions are ideal for use in fields ranging from remote sensing to airport security, precision agriculture to corridor mapping. Contact: Ed Gooding, Director of Sales & Marketing, ed.gooding@hindsight-imaging.com; Arsen Hajian, Founder and CEO, info@hindsight-imaging.com

### **Hi-Rel Group LLC**

#4664

16 Plains Rd, Essex, CT, 06426 USA +1 860 767 9031; fax +1 860 767 2842 info@hirelgroup.com; www.hirelgroup.com

Hi-Rel Group is a leading one-stop shop for customized precision metal piece parts and other packaging support components for opto- and microelectronics in the photonics industry. We offer hermetic package lids, getter solutions, thermal management materials, solder and braze preforms, and ring frames and lead frames. With three manufacturing facilities worldwide and 40 years of experience, our flexible and nimble company is well-equipped to meet your needs. Visit us at 4664. Contact: Joe Hale, Director, North America Sales, jhale@hi-rel.net; Chris Andrews, Director, International Sales, chris@hirel.co.uk

### **Hitachi High Technologies America**

#4606

5201 Great America Pkwy Ste 236, Santa Clara, CA. 95054-1130 USA

+1 408 986 4638

www.hitachi-hta.com

#### Featured Product: TE cooler, aspherical lens, ceramic package, heatsink, FPC, receptacles, isolator, micro optics, and more.

For more than 25 years, we, Hitachi High-Technologies, have been providing the benefits of highly knowledgeable services to the fiber optics world. Optical transceivers are constantly facing challenges and change to address the network evolution. We are uniquely positioned to support the growing market needs of integration and reduced power consumption. Please consider Hitachi High-Technologies as your total global solution provider. Contact: lan Fleming, Sales Account Manager, ian.fleming@hitachi-hta.com; Monica Degnan, Western Area Sales Manager, monica.degnan@ hitachi-hta.com

### Hitachi High-Technologies Corp.

24-14 Nishi-Shimbashi 1 Chome, Opto Communications, Minato-ku Tokyo, 105-8717 Japan

+1 408 982 4638

www.hitachi-hightech.com

#### Featured Product: TE cooler, aspherical lens, ceramic package, heatsink, FPC, receptacles, isolator, and micro optics.

For more than 25 years, we, Hitachi High-Technologies, have been providing the benefits of highly knowledgeable services to the fiber optics world. Optical transceivers are constantly facing challenges and change to address the network evolution. We are uniquely positioned to support the growing market needs of integration and reduced power consumption. Please consider Hitachi High-Technologies as your total global solution provider. Contact: lan Fleming, Sales Account Manager, ian.fleming@hitachi-hta.com; Monica Degnan, Western Area Sales Manager, monica.degnan@ hitachi-hta.com

### **HIWIN Corp.**

#5261

1400 Madeline Ln, Elgin, IL, 60124 USA +1 847 827 2270; fax +1 847 827 2291 info@hiwin.com; www.hiwin.com

Hiwin Corp. manufactures an extensive line of both linear motion components and complete solutions. With a goal of supplying superior quality at the most competitive prices, the company offers a variety of precision ground and rolled ballscrews, linear guideways, electric actuators, ballscrew-driven stages, and linear motors, with many fully integrated value-added features. Contact: Shawn Lawrence, Product Marketing Manager, tradeshows@hiwin.com

#### HJ3-W Inc. #2807

5F, 1 Block, Shenhuaye Industrial Park, Xiwei Crossingm Xixiang, Baoan, Shenzhen, 518128 China +86 755 27776599: fax +86 755 29706667 sales@hi3w.com: www.hi3w.com

### **HOLO/OR Ltd.**

#307

SPIE Corporate

PO Box 1051, Rehovot, 76114 Israel +972 8 9409687; fax +972 8 9409606 holoor@holoor.co.il; www.holoor.co.il

Contact: Michal Shechter, Admin

#### **HOLOEYE Photonics AG**

#2532

SPIE Corporate

Albert-Einstein-Str 14, Berlin, 12489 Germany +49 30 6392 3660; fax +49 30 63 92 36 62 contact@holoeve.com; www.holoeve.com

HOLOEYE Photonics AG and its US-subsidiary, HOLOEYE Corp., provide customized design, fabrication, and replication services of diffractive optical elements (DOE), as well as a broad range of standard DOEs. HOLOEYE also offers spatial light modulators (SLM) for phase or amplitude modulation, which are based on high-resolution translucent or reflective microdisplays, a variety of high resolution LCOS microdisplay types, and products for monochrome or color field sequential operations. Contact: Klaus von Guenner, Marketing Manager

### **Holographix LLC**

#4220

SPIE Corporate Member

577 Main St Ste 260, Hudson, MA, 01749-3054 USA +1 978 562 4474; fax +1 978 562 4182 info@holographix.com; www.holographix.com

### Featured Product: We specialize in building custom diffractive waveguides for HUD and head worn display applications.

Holographix is the industry leader in nano- and micro-replication. Our proprietary replication technology enables us to produce state-of-the-art structured surfaces and optical devices that are used in many industries. We have earned a reputation for providing customers with high performance, custom designed/manufactured photonic solutions for a range of applications. Our core products include custom diffraction gratings, diffractive waveguides, microlens arrays, and wafer-level micro-optics. Contact: David Rowe, President/CEO, david\_rowe@holographix.com; Todd Heimer, Technical Sales Manager, todd\_heimer@holographix.com

### Hong-Ming Technology Co., Ltd. #4361-M

No. 390, Sec. 1, Jhongshan Rd., Shulin District., New Taipei City, 23844 Taiwan

+886 2 8675 1543; fax +886 2 8675 1545 info@hmtech.com.tw; www.hmtech.com.tw

### Featured Product: Solar cell efficiency, transmittance, reflectance, and film thickness measurement system.

HMT is an active growing optical measuring company, which integrates and develops analytical instrumentation and test equipment in optical applications. This includes solar cell efficiency, transmittance, reflectance, and film thickness measurement systems. HMT also provides customized solutions for prototyping requirements to meet customers' needs in R&D and high-technology industry. Contact: Chad Chang, Manager, chad@hmetech.com.tw; Achyi Chang, Manager, achyi@hmetech.com.tw

### PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88-90 for complete times, schedules, and locations.

#### **HORIBA Scientific**

#1838; 1839

SPIE Corporate Member

3880 Park Ave, Edison, NJ, 08820-2417 USA +1 732 494 8660

info.sci@horiba.com; www.horiba.com/scientific

### Featured Product: MacroRAM: best in class sensitivity & software, new low cost, & compact bench-top macro Raman system

HORIBA Scientific is the leading manufacturer of OEM gratings, modular and miniature spectrometer systems with CCD, InGaAs and CMOS detectors, and spectrofluorometers. We offer scientific cameras: CCD and PDA mini spectrometers, deep-cooled CCD cameras, Raman, FLIM and EDXRF microscopy, cathodoluminescence for SEM, steady-state and lifetime fluorometers, AquaLog for CDOM, MicOS microscope optical spectrometer for luminescence, TCSPC components, laser diodes, and single-photon detectors. Contact: Nicolas Vezard, Vice President- Gratings & OEM Division, Nicolas.Vezard@horiba.com; Francis Ndi, Product Line Manager: Optical Spectroscopy, francis. ndi@horiba.com

### **Hotlight Systems**

#4041

121 Marcus Clarke St, ANU Technology Transfer Office, Canberra, ACT, 2601 Australia +61 261 259 242

innovation@anu.edu.au; www.anu.edu.au

### Featured Product: MIROPA-fs: Compact, turn-key, femtosecond mid infrared optical parametric amplifier.

HOTLIGHT SYSTEMS is a spin-out from The Australian National University, bringing together world-class researchers and research facilities from the University's Laser Physics Centre. During the development of its flagship product MIROPA, The Australian National University and HOTLIGHT SYSTEMS has been supported by CUDOS Centre of Excellence and the University's Discovery Translation Fund. HOTLIGHT SYSTEMS invents and develops laser devices in the mid-infrared spectrum, including MIROPA-fs. Contact: Neil Radford, Business Development Manager, neil.radford@anu.edu.au

### **HOYA Corp. USA - Optics Division**

#2437

SPIE Corporate Member

680 N McCarthy Blvd Ste 120, Optics Division, Milpitas, CA, 95035 USA

+1 408 654 2200; fax +1 408 654 2270 opticsales.hoyausa@hoya.com; www.hoyaoptics.com

### Featured Product: W series-sharp cut filters, UV-VIS-NIR color glass filters, and optical glasses in various forms.

HOYA Corp. USA, Optics Division is a leading supplier of filter, optical and specialty glasses in semi-finished and finished forms. We operate around a worldwide network of R&D, precision manufacturing, and mass scale production facilities, enabling HOYA to offer end-to-end solutions unmatched by our competitors. We have a large selection of standard stock and custom components, UV-VIS-NIR color filters, and optical and specialty glasses in various forms if lenses, blanks, strips and blocks. Contact: Sushama Apte, Sales Engineer, sushama.apte@hoya.com; Lynn Brown, Division Manager, lynn.brown@hoya.com

### **HTA Photomask**

#5643

SPIE Corporate Member

1605 Remuda Ln, San Jose, CA, 95112 USA +1 408 452 5500; fax +1 408 259 5505 sales@htaphotomask.com; www.htaphotomask.com

### Featured Product: Photomasks and Photoimaged Optical Components and apertures. We pattern all types of substrates.

HTA Photomask has been established since 1982. We have optical and laser write photolithography systems to make any type of pattern to resolutions in the submicron area. We pattern parts as small as .2 inches up to 12 inches in house. We can pattern on custom or standard substrates of any glass type or thickness. HTA will custom cut substrates to customer specifications. Contact: Kenneth Caple, President, sales@htaphotomask.com; Mykola Kulishov, Director Marketing, sales@htaphotomask.com

### **Huanic Corporation**

#4228

SPIE Corporate Member

No 67 Jinye Rd, Hi-tech Zone, Xi'an Shaanxi, Shaanxi, 710077 China

+86 29 81881001; fax +86 29 81881011 sales@huanic.com; www.huanic.com

### Featured Product: Different laser modules and laser sight for instrument and aiming.

Huanic Corporation is located at Xi'an's high-technology zone, which has more than 20 thousand square meters of working area. We produce more than 5 million pieces of laser modules annually, ranking us as one of the largest manufacturers for laser light source making in China. We have ISO9001 quality certification and ISO14001 environmental management system. We also can provide our customers with high quality products and excellent services. Contact: HUI YANG, SALES MANAGER, sales@huanic.com

#### **HÜBNER GmbH & Co KG**

#1039

Heinrich-Hertz Str 2, Kassel, 34123 Germany +49 56 1998 0; fax +49 56 1998 1515

terahertz@hubner-germany.com; www.hubner-photonics.com

The HÜBNER Terahertz Technology and Photonics division operates as a dynamic start-up within the globally active HÜBNER Corporation. In collaboration with renowned research institutes, we develop and market products based on laser, Terahertz and high-frequency technologies for applications in industry, research and science. A proof for the keen interest in our products: our tunable laser C-WAVE and our post-scanner T-COGNITION® were both awarded a Prism Award. Contact: Niklas Waasem, Sales Engineer, niklas.waasem@hubner-germany.com

### **Hyperion**

#4448

89 Angus Glen Blvd, Markham, ON, L6C 1Z4 Canada +1 416 873 9431; fax +1 647 729 8988

info@hyperionsensors.com; www.hyperionsensors.com

### $\label{thm:continuity} \textbf{Featured Product: Distributed fiber sensor for transformer monitoring.}$

Hyperion was founded with a vision to take the advantages of fiber optic sensing into the high voltage electrical domain. Currently, the only sensors capable of monitoring temperatures inside a transformer core are 'spot' sensors, which only monitor a very limited area or spot (defined by the size of the sensing element). Hyperion's Distributed Fiber Sensor allows realtime monitoring of the core and coil so that common transformer faults can be detected and mitigated prior to failure. Contact: Anselm Viswasam, CEO, anselm@hyperionsensors.com; Gerald Manuelpillai, CTO, gerald@hyperionsensors.com

#### **Ibsen Photonics**

#1043

SPIE Corporate Member

Ryttermarken 15-21, Farum, 3520 Denmark +1 45 44 34 7000

inquiry@ibsen.dk; www.ibsenphtonics.com

### Featured Product: EAGLE Raman-S, our new high performance, low f-number, compact and robust spectrometer.

Ibsen Photonics is a global leader in transmission gratings and OEM spectrometer modules for a wide range of telecom., analytical, sensing, and laser markets. Their spectrometer products are: FREEDOM for ultra-compact size, ROCK for high throughput, EAGLE for high resolution, and I-MON interrogation monitors for FBG sensing. Their grating products include: phase masks for FBG writing, PCG for laser pulse compression, PING for telecom WSS, tunable filters, and OCM's, and spectrometer gratings. Contact: Pernille Kennedy, Sales & Marketing Coordinator, pernille.kennedy@ibsen.dk

#### ICA Corp.

#1743

12130 Brockton Ln, Maple Grove, MN, 55369 USA +1 763 428 2800; fax +1 763 428 4230 info@icacorp.com; www.icacorp.com

### Featured Product: Close tolerance machined parts and assemblies

ICA Corp. provides complex machined components (milling, turning, 5-axis machining), 3D printing, sheet metal fabrication, custom enclosures, mechanical/electro-mechanical assembly, to the optics, imaging, defense, analytical instrumentation industries. We work with a variety of materials from aluminum to plastics to molybdenum and titanium. See why our customers cite our service and support to be as important as quality and delivery. Contact: Susan Goran, National Sales Manager, sgoran@icacorp.com

### ICAMR - International Consortium for Advanced Manufacturing Research #2204

400 W Emmett St, Kissimmee, FL, 34741 USA +1 407 742 4253; fax +1 407 847 0886 icamr@ucf.edu; www.icamr.net

### Featured Product: Manufacturing development consortium for advanced sensors & photonic devices

ICAMR is the only manufacturing development center focused on the integration of semiconductor based processes and materials into smart sensors & photonics devices. ICAMR serves as an open-innovation platform for the development of these devices through collaborative programs & deposition of III-V materials on silicon wafers via state-of-the-art process equipment. ICAMR will operate the \$200 million Florida Advanced Manufacturing Research Center in a new tech park located in central Florida. Contact: Fran Korosec, Director, Business Operations, fran.korosec@ucf.edu; Dan Holladay, Executive Director, dan.holladay@ucf.edu

#### ID Quantique

#714

Chemin de la Marbrerie 3, Carouge Geneva, 1227 Switzerland +41 22 301 83 71; fax +41 22 301 83 79

info@idquantique.com; www.idquantique.com

### Featured Product: ID230: 200Hz dark count rate infrared photon counter at 20% quantum efficiency!

IDQ offers visible photon-counters based on avalanche photodiodes (Geiger mode) for the visible and infrared regions. In addition, we provide the best superconducting nanowires commercially available: 50% quantum efficiency, 100Hz dark count rate and 70ps timing jitter. Build your complete set-up using our ID350 single-photon source and our ID800 Time to Digital Converter with 81ps bin size. Contact: Michael Desert, Head of photon couting division, michael. desert@idquantique.com



#### Floor Graphic Sponsor

### **IDEX Optics & Photonics**

#1113

#1113

SPIE Corporate Member

200 Dorado Pl SE, Albuquerque, NM, 87123-3605 USA +1 505 296 9541; fax +1 505 298 9908

mpbcommunications.com phone: +1 514-694-8751

iopmarketplace@idexcorp.com; www.marketplace.idexop.com

### Featured Product: Coatings, filters, lasers, laser systems, shutters, optics components and systems

We provide an optimal way to specify and purchase a carefully selected range of industry-leading optical component brands with best-in-class performance, value and reliability. Our standard product offerings are designed for rapid delivery. The semi-custom product offerings add additional size or format options, while minimizing delivery. Our commitment is to provide you the products you need, the highest level of customer service, and extensive technical expertise and support.

### **IDEX Health & Science**

619 Oak St, Oak Harbor, WA 98277 USA +1 800 426 0191; fax: +1 360 679 3830

CustomerService.hs@idexcorp.com; www.idex-hs.com

Featured Exhibitor, Meter Board, Exhibition Map Sponsor

### **II-VI Incorporated**

#2223

375 Saxonburg Blvd, Saxonburg, PA, 16056-9430 USA +1 724 352 1504; fax +1 724 352 4980 info@ii-vi.com; www.ii-vi.com

BIOS-#8717 PHOTONICS WEST-#2333

### Featured Product: Laser Enterprise: high power diode & VCSEL portfolio, Infrared: CO optics & 1 µm laser optics

II-VI Incorporated, a global leader in engineered materials and opto-electronic components, is a vertically integrated manufacturing company that develops innovative products for diversified applications in the industrial, optical communications, military, life sciences, semiconductor equipment, and consumer markets. Headquartered in Saxonburg, Pennsylvania, the company produces a wide variety of application-specific photonic and electronic materials and components. Contact: John Ryan, V.P. Sales & Marketing, John.Ryan@II-VI.com; Tom Neff, Regional Manager Americas, Tom.Neff@II-VI.com

### **IKO International, Inc.**

#5561

1500 Wyatt Dr Ste 10, Silicon Valley Sales Office, Santa Clara, CA, 95054-1522 USA

+1 408 492 0240; fax +1 562-941-4027 wco@ikonet.co.jp; www.ikont.com

### Featured Product: Linear motion guides, precision positioning tables and needle roller bearings

With more than 60 years of experience, IKO specializes in quality needle bearings, linear motion rolling guides, precision positioning tables and machine components. IKO guides, bearings and tables are used in a wide range of applications: lasers, photonics, optics, semiconductor, packaging, medical, CNC machines, automation, etc. At IKO, we offer our patented C-Lube technology in many of our products. This built-in lubrication system remains maintenance-free for five years or 12,500 miles. Contact: Mune Miyanaga, Sales Office Mgr., mmiyanaga@ikonet.co.jp; Christian Buquid Jr., Regional Sales Mgr., cbuquid@ikont.com

### **ILX Lightwave/A Newport Company**

#1400

31950 E Frontage Rd, Bozeman, MT, 59715-8642 USA +1 978 657 6410; fax +1 978 657 6056

sales@ilxlightwave.com; www.newport.com/ilxlightwave

ILX Lightwave, part of the Newport family of world-class photonics brands, is a market and technology leader providing high performance test and measurement solutions for laser diodes and other photonic components. ILX Lightwave develops, manufactures, and markets laser diode instrumentation, laser diode test systems, and optical power meters Contact: Ben Brown, Manager, Product Marketing, ben.brown@newport.com

### **Imagine Optic Inc.**

#1817

50 Milk St, 16th Fl, Boston, MA, 02109 USA +1 617 401 2198

contact@imagine-optic.com; www.imagine-optic.com

### Featured Product: HASO4 B high-resolution, Lambda/100 rms: large dynamic range, 350-1100nm calibration

Imagine Optic is a leader manufacturer of wave-front sensors and adaptive optics systems for metrology, laser and microscopy. For over nearly 20 years Imagine Optic has innovated and provided cutting edge instruments and solutions to research and industry. Contact: Jerome Ballesta, US Sales Manager, jballesta@imagine-otic.com; samuel Bucourt, President and CEO, sbucourt@imagine-optic.com

### **Imaging Solutions Group**

#628

SPIE Corporate Member

1387 Fairport Rd Ste 890, Fairport, NY, 14450 USA +1 585 388 5220; fax +1 585 388 5223 sales@isgcameras.com; www.isgcameras.com

#### Featured Product: Lightwise Allegro USB3 CMV-12000 12MP/ Lightwise Allegro IMX-250 5.1 MP

Imaging Solutions Group designs cameras and vision systems for OEM's and end users employing "smart camera" technologies to reduce cost, size, and complexity of existing/future solutions. Defense, machine vision, medical, metrology, and traffic are all markets where ISG vision systems are employed to obtain the fastest, cleanest and most accurate images. Custom solutions are our forte, while the Lightwise Allegro cameras utilizing the newest Sony and Cmosis sensors offer superior results. Contact: Shawn Wright, Director of Business Development, swright@isgcameras.com

#### **IMEC**

#4144

SPIE Corporate Member

Kapeldreef 75, Heverlee, 3001 Belgium fax +32 16 22 94 00

jerome.baron@imec.be; www.imec.be

### Featured Product: CMOS based hyperspectral imaging system. Both a line scanner and a snapshot system will be showcased

IMEC, based in Belgium, performs world-leading research in nanoelectronics. Leveraging on our strong background in heterogeneous integration, CMOS imagers, image processing and system design, prototyping and our flex-fab environment geared towards lowvolume manufacturing, IMEC develops compact, low-cost and fast hyperspectral imager systems. IMEC also offers a design-ondemand service for high-end specialty imagers and low-volume manufacturing in its on-site 200mm cleanroom. Contact: Jerome Baron, Business Development Manager, jerome.baron@imec.be

#### **IMM Photonics GmbH**

#4629

Ohmstr 4, Unterschleissheim, 85716 Germany +49 89 3214 120; fax +49 89 3214 1211 sales@imm-photonics; www.imm-photonics.de

IMM Photonics GmbH has evolved and established itself as a manufacturer, distributor and service provider in the fields of laser technology, optoelectronics, fiber optics and bio-photonics. As a manufacturer and service provider we develop and produce laser diode modules and collimators, fiber testers and fiber-optical components and LED light sources. As distributor for selected companies, we sell laser diodes, optics, UV products, optoelectronic components as well as fiber optic equipment. Contact: Christian Raith, Director Sales, sales@imm-photonics.de

#### Escalator Panel Sponsor

### IMRA America. Inc.

#2217

SPIE Corporate Member

1044 Woodridge Ave, Ann Arbor, MI, 48105-9748 USA +1 734 930 2560; fax +1 734 930 9957 lasers@imra.com; www.imra.com

### Featured Product: FCPA micro-Jewel Lasers- fs fiber lasers up to 50 micro-Joule energy and 20 W average power

The most experienced femtosecond fiber laser company has provided compact, reliable products since 1990. Pioneering technologies, rigorous quality control, and high volume manufacturing operation make our lasers the sound choice for scientific, OEM and industrial use. Applications include processing of transparent materials, thin film ablation, waveguide writing, pulsed laser deposition, multiphoton microscopy, non-linear spectroscopy, terahertz generation, and refractive surgery. Contact: Jason Alexander, jalexand@imra.com; I IMRA Laser, lasers@imra.com

#### IMT Masken und Teilungen AG

#541

Im Langacher, Greifensee, 8606 Switzerland +41 44 943 1900; fax +41 44 943 1901 info@imtag.ch; www.imtag.ch

### Featured Product: Flow cells, micro-channels, nano-wells, reticles, calibration standards, coated optics

IMT is a world leader in coating technology and microlithography. Contact us with your needs for flow cells, micro-channels and nano wells for biomedical devices, reticles and calibration standards, and coated optics. With over 50 years' experience and highly automated Semiconductor-grade equipment and processes, high quality and repeatability are guaranteed. We truly are "precision on and in glass". Come and see what we can do for you. Contact: Jürgen Rieck, Area Sales Manager, jrieck@imtag.ch; Markus Kleeb, Head of International Sales, mkleeb@imtag.ch

### **Infinite Graphics Incorporated**

#4211

4611 E Lake St, Minneapolis, MN, 55406-2305 USA +1 612 721 6283; fax +1 612 721 3802 sales@igi.com; www.igi.com

### Featured Product: Photomasks services, 3D Micro-structures, MLAs, Software Solutions - CAD CAM, Imaged Glass Products

Infinite Graphics Incorporated (www.IGI.com) is redefining precision quality imaging by solving phototooling challenges where size, substrate and dimension are unique. Stop by our booth to discuss your projects requiring incomparable quality photomasks, photolithography, 3D sculptured microstructures and sophisticated software editing, just to name a few. Contact: Suzi McDonough

### Infinite Optics Inc.

#4612

1712 Newport Cir Ste F, Santa Ana, CA, 92705-5118 USA +1 714 557 2299; fax +1 714 557 2170

info@infiniteoptics.com; www.infiniteoptics.com

Infinite Optics specializes in optical thin-film coatings ranging from 193nm's to 20 microns. We support astronomical, industrial, medical and military markets by fabricating and coating optics required for telescopes, lasers and optoelectronic devices. Our services include special applications, development, production runs and quality control. We are DDTC registered and ITAR compliant. Contact: Stan King, Sales, stan@infiniteoptics.com; Geza Keller, Sales, geza@infiniteoptics.com

INFRAMET #4204

24 Graniczna Street, Stare Babice, 05-082 Poland +48 22 666 87 80 info@inframet.com; www.inframet.com

### InfraRed Associates, Inc.

#5057

2851 SE Monroe St, Stuart, FL, 34997-5913 USA +1 772 223 6670; fax +1 772 223 6671 irassoc@gate.net; www.irassociates.com

### Featured Product: Extended wavelength and optically enhanced MCT detectors

Manufactures PV InSb and PC HgCdTe infrared detectors. HgCdTe detectors are available as single element or multi-element arrays. Cooling options include LN2 dewars, sterling coolers and TE cooled detectors. Accessories include matched preamplifiers, TE cooler temperature controllers, power supplies, heat sinks and vacuum alive operators. Custom detector sizes and wavelength responses up to 25um. Contact: Irwin Kudman, Director Sales & Marketing, irassoc@irassociates.com; Fred Rothe, President, irassoc@irassociates.com

### Infrared Materials, Inc.

#4221

SPIE Corporate Member

399 Business Park Ct Ste 514, Windsor, CA, 95492 USA +1 707 620 0160

info@irmatl.com: www.infraredmaterials.com

### Featured Product: Lead Sulfide (PbS) and Lead Selenide (PbSe) Infrared Detectors and Arrays.

Infrared Materials, Inc. is a manufacturer of PbSe & PbS IR detectors & arrays, sensitive from 1-5.5 microns, used in medical, imaging, spectroscopic, gas & moisture analysis instruments, non-contact temperature measurement, flame detection and combustion control. The detectors are offered in standard & custom packages in single element, multi-element, and array configurations. Options include IR filters, TE coolers, & temperature sensors. The detectors are manufactured in Northern California.

### **Infrared Systems Development Corp.**

#2207

SPIE Corporate Member

7319 Sandscove Ct Ste 4, Winter Park, FL, 32792-6979 USA +1 407 679 5101; fax +1 407 679 5520

sales@infraredsystems.com; www.infraredsystems.com

### Featured Product: Ultra-fast pulse spectrometer. Turnkey solution for femtosecond pump-probe vibrational spectroscopy

Designs and manufactures heated and cooled blackbody sources of all sizes and temperature ranges, detector array processors, high-speed integrator and custom electro-optical systems for all aspects of infrared analysis. Femtosecond laser pulse spectroscopy system, multispectral target simulators, low noise detector preamplifier, infrared detector and FPA test stations. Spectral and multichannel discrete radiometer system for R&D, production and field testing of IR targets and countermeasures. Contact: Kimberly Darrah, Sales Manager, kimberly@infraredsystems.com; Andrew Duran, President, andrew@infraredsystems.com

### Infratec Infrared LLC

#4455

SPIE Corporate

5048 Tennyson Pkwy Ste 250, Plano, TX, 75024 USA +1 877 797 6748; fax +1 877 389 2668 info@infratec-infrared.com; www.infratec-infrared.com

### Featured Product: Pyroelectric four channel detector with low power consumption for gas analysis

With headquarters in Dresden/Germany, InfraTec GmbH Infrared Sensor and Measurement Technology is focused on quality products and services based on its vast expertise in the infrared technology. Founded in 1991 InfraTec has its own development and production facilities and employs more than 100 professional employees in Dresden and its European subsidiaries. The Sensor division develops and manufactures customer-specific components in particular pyroelectric infrared detectors. Contact: Benjamin Du, Application Manager, b.du@infratec.de

### **INGENERIC GmbH**

#941

SPIE Corporate Member

Dennewartstr 25-27, Aachen, 52068 Germany +49 241 963 13 40; fax +49 241 963 13 49 contact@ingeneric.com; www.ingeneric.com

### Featured Product: BeamProp with 400 µm-pitch for highest fiber coupling efficiency

INGENERIC develops and manufactures standard or customized refractive micro-optics, beam transformation optics, lens arrays and aspheres as well as well as sophisticated optical systems and laser systems. The company was established in 2001. Headquarters and production are located in Aachen, Germany. For its worldwide customer base INGENERIC offers the complete process chain starting from lens and system design over prototyping and practical evaluation up to large series manufacture. Contact: Sabrina Koelpin, Manager, Marketing and Sales

#### **Inlight Precision Optics Co., Ltd.**

#4425

1902 Global Gateway Tower, 63 Wing Hong Street, Cheung Sha Wan Hong Kong, China

+852 2887 6018; fax +852 2887 6301

inlight@inlightcn.com; www.inlightcn.com

### Featured Product: UV-VIS-IR optics, opto-mechanical assembly, broad band multi-layer thin film coating

Inlight is a precision optics and machinery manufacturer for UV-VIS-IR optics. We manufacture precision custom and catalogue lenses (cylindrical, parabolic, toroidal), domes, rods, Ge, Si, IG6 lenses, transmission sphere etc, and provide a variety of board band AR and mirror coatings. We are equipped with sophisticated interferometers (ZYGO, Fujinon), spectrophotometers, etc to ensure the quality of our lenses in our metrology laboratories. Our quality are certificated with ISO9001 and ISO14000. Contact: Mos Yip, inlight@inlightcn.com

#### **InnoLas Laser GmbH**

#811

9 Trinity Dr, West Springfield, MA, 01089 +1 413 562 4040; fax +1 413 562 6167 info@innolas-laser.com; innolas-laser.com

Innolas is a leading German manufacturer of pulsed Nd:YAG lasers for scientific and industrial markets. Innolas offers models from 200-2000mJ, available in flash lamp or diode pumped lasers in order to go up to 200Hz. SHG, THG, FSG, OPO combos, seeding and PIV systems as well as many industrial models with KHz operation and small packages. Contact: Alain Bourdon, US Sales, arb@ alliedlasersolutions.com

### **InnoLas Photonics GmbH**

#723

Justus-von-Liebig-Ring 8, Krailling, 82152 Germany +49 89 899 360 x1200; fax +49 89 899 360 x1299 www.innolas-photonics.com

#### Featured Product: Mosquitoo X, compact 355nm, DPSS laser

InnoLas Photonics designs and manufactures industrial lasers for high precision micro-machining applications like PV, Electronic manufacturing and laser marking, soldering, and plastics welding. Contact: Philip Crowley, Sales, phil@markettechinc.net

#### Digital Signage Sponsor

#### **Innolume GmbH**

#4772

SPIE Corporate

178

Konrad-Adenauer-Allee 11, Dortmund, 44263 Germany +49 231 4773 0200; fax +49 231 4773 0250 info@innolume.com; www.innolume.com

Innolume is the premier manufacturer of 'quantum dot'-based diode lasers and laser modules. Our natural lasing wavelengths cover the spectral window from 780 nm to 1340 nm. This coverage enables novel industrial, medical, and communications applications. Innolume's product list includes epitaxial wafers, laser diode chips/bars, and fiber-coupled modules. Contact: Alexey Shkolnik, Business Development Manager

### inno-spec GmbH

#4629

Sigmundstr 220/B7, Nürnberg, 90431 Germany +49 911 3766910; fax +49 911 37669110 info@inno-spec.de; www.inno-spec.de

### Featured Product: The RedEye1.7 is a hyperspectral imaging system in the NIR wavelength range.

inno-spec is a developer and manufacturer of spectral imaging systems. Our products include spectral imaging systems, respective lighting, imaging spectrographs, cameras and accessories for imaging applications. We offer customized systems, as well as standard products, with our products covering the wavelengthrange from UV to NIR (200-2200 nm). Our systems are designed to tolerate harsh conditions and are therefore well suited for industrial applications like process analysis or sorting. Contact: Sarah Doneleit. Marketing, sarah.doneleit@inno-spec.de

### Innovations in Optics, Inc.

#2603

SPIE Corporate

82 Cummings Park, Woburn, MA, 01801 USA +1 781 933 4477; fax +1 781 933 0007 sales@innovationsinoptics.com; www.innovationsinoptics.com

### Featured Product: Multi-wavelength LED illuminators for fluorescence microscopy and endoscopy

Innovations in Optics, Inc. offers high power LED light sources for science and industry that provide maximum photon delivery, illumination uniformity, and stable optical power. Products offer system-level advantages over lasers and arc lamps in OEM equipment for many applications. Available LED wavelengths range from UV 365 nm through the near-infrared, including broadband white and multiband options. System accessories include thermal management devices, wire harnesses and driver/controllers. Contact: Kevin Carr, VP Business Development, kevinc@innovationsinoptics.com; Margaret Johnson, Sr. Administrator, margaretj@innovationsinoptics.com

### **Innovative Optics, Inc.**

#5335

6812 Hemlock Ln, Maple Grove, MN, 55369 USA +1 763 425 7789; fax +1 763 425 6689 andy@innovativeoptics.com; www.innovativeoptics.com

#### **Featured Product: Laser eye protection**

Innovative Optics is a leading manufacturer of laser and IPL eyewear. We specialize in the manufacturing and distribution of protective glasses, goggles and eye shields for clinicians and patients. We also offer a wide variety of laser safe products including barriers, windows, sheets and signs. Our products are found in the healthcare, dental, and industrial markets world-wide. Custom made products include the patented Laser Clip-In which is worn with magnification. Contact: Andy Barrows, Vice President, andy@innovativeoptics.com; Tom Barrows, President, tom@innovativeoptics.com

### **Innovative Photonic Solutions**

#817

SPIE Corporate Member

4250 US Hwy 1 Ste 1, Monmouth Junction, NJ, 08852 USA +1 732 355 9300; fax +1 732 355 9302

sales@innovativephotonics.com; www.innovativephotonics.com

### Featured Product: Ultra-stable diode laser module with <1 MHz long term linewidth for metrology and interferometry

IPS specializes in the manufacture of high performance wavelength stabilized lasers and custom systems for use in Raman spectroscopy, sensing, metrology, fiber laser seeding, and other applications. Our technology enables us to lock the laser to any wavelength without complex feedback mechanisms. Products include multi-mode and single frequency lasers spanning the 405 nm-2400 nm range and are available in OEM packages or turn-key modules with integral laser and temperature control electronics. Contact: Scott Rudder, VP Marketing & Sales, srudder@ipslasers.com; Tina Gong, Sales Associate, tgong@ipslasers.com

### Innowit Co., Ltd.

#2001-F

No 2600 Yingxiu Rd High Tech Zone, Jinan, Shandong, 250101 China

+86 531 85198982; fax +86 531 88873658 sales@innowit.com: www.innowit.com

### $Featured\ Product:\ NLO\ crystals,\ laser\ crystals,\ q-switch,\ E-O\ \&\ A-O\ crystals,\ optics\ KTP/KTA/BBO/LBO/DKDP/Nd:YAG/Cr:YAG/LN$

Ilnnowit Co. Ltd. was founded in 1990 by Coretech Crystal Co. and Wit Crystal, a department of Shandong Shanda Wit Science & Technology Co. Ltd. (Listed company in Shenzhen Stock Exchange) at the end of 2007. Both Coretech and Wit Crystal companies have evolved primarily from the National Key Laboratory-Institute of Crystal Material (ICM) Shandong University, one of the earliest crystal research institutes in the world. Supported by ICM we have a competitive technical force and a very strong R&M team. Contact: Ji Feng, Sales, sales@innowit.com; Peixuan Liu, Sales, sales@innowit.com

INO

#4442

SPIE Corporate Member

2740 rue Einstein, Quebec City, QC, G1P 4S4 Canada +1 418 657 7006; fax +1 418 657 7009 info@ino.ca; www.ino.ca

### InPhenix, Inc.

#506

SPIE Corporate

250 N Mines Rd, Livermore, CA, 94551-2238 USA +1 925 606 8809; fax +1 925 606 8810 info@inphenix.com; www.inphenix.com

### Featured Product: 880nm-1550nm SOA, 700nm-1650nm SLD, broadband light source, swept light source, DFB laser & FP laser

InPhenix: super-luminescent diode and semiconductor optical amplifier manufacturer. InPhenix Corporation is a leading developer and manufacturer of indium-phosphide (InP) and gallium arsenide (GaAs) based active optoelectronic chips, devices and modules for the telecom, datacom, defense, biomedical and industrial markets. InPhenix's products include semiconductor optical amplifiers (SOAs), super-luminescent diodes (SLDs), Fabry-Perot lasers and swept light sources. Contact: Wei-Wei Zhang, Sales Manager, wzhang@inphenix.com; Steve Vitkovsky, Sales Manager, svitkovsky@inphenix.com

#### Meter Board Sponsor

### **Inrad Optics**

#1739

SPIE Corporate Member

181 Legrand Ave, Northvale, NJ, 07647 USA +1 201 767 1910; fax +1 201 767 9644 sales@inradoptics.com; www.inradoptics.com

### Featured Product: Inrad Optics is displaying X-ray monochromators using precision curved crystal technology

Inrad Optics manufactures exceptional crystalline materials, precision glass and metal optical components, and photonic devices. Vertically integrated from growth through systems, products include non-linear crystals, Q-Switches, UV filters, neutron scintillators, x-ray monochromators, large transmission flats, windows, mirrors, wave plates, aspheric mirrors, polygons, and electro-optical assemblies. Contact: Sales, sales@inradoptics.com

#### Insaco Inc.

#342

1365 Canary Rd, Quakertown, PA, 18951-3880 USA +1 215 536 3500

sales@insaco.com; www.insaco.com

### Featured Product: Sapphire machining services. Also custom precision ceramic parts.

A precision machining/diamond grinding company that fabricates exceptional parts from sapphire and many ceramic materials. Development through efficient series production capabilities. Earning trust since 1947. Extensive inspection capabilities on top of 80,000 sq ft manufacturing assure that parts are documented to meet agreed requirements or they do not ship. Engineers welcome your call to discuss material options and how your design features will affect manufacturability. Contact: Scott Mittl, Sales Engineer, sdm@insaco.com; Geary Leatherman, Sales Engineer, gll@insaco.com

### **Insight Photonic Solutions, Inc.**

#741

SPIE Corporate

300 S Public Rd, Lafayette, CO, 80026 USA +1 303 605 5160; fax +1 720 890 5904 info@sweptlaser.com; www.sweptlaser.com

### Featured Product: Akinetic™ Swept Source Lasers.

Insight Photonic Solutions provides unique high-speed sweeping laser solutions for optical coherence tomography, fiber sensing, precision spectroscopy, general interferometry, and interferomic reflectometry. Insight's laser technology is akinetic and all semiconductor, providing unprecedented levels of linearity, tri-level repeatability, low noise, and programmability. Contact: Simon Gray, Worldwide Sales Manager, sgray@sweptlaser.com

### **INSION GmbH**

#4629

Weipertstr. 8 - 10, Heilbronn, 74076 Germany +49 7131 973606 0; fax +49 7131 973606 99 info@insion.de: www.insion.de

### Featured Product: Monolithic customized micro spectrometers and spectral sensors for OEM applications from 200-2000 nm

INSION is the leading manufacturer of monolithic micro spectrometers and spectral sensors for OEM applications. We offer solutions for the complete sample centered optical signal path design including light source, free-space or fiber sampling optics. We deliver design and production services, feasibility studies, final product process consulting, and life cycle management. As an application development service, INSION offers support for spectral analysis and chemometrics. Contact: Reinhold Wagensohn, Head of Business Development, reinhold.wagensohn@insion.de

### Instrument Technology Research Ctr. #4457

20 R&D Rd VI Hsinchu Science Park, Hsinchu City, 30076 Taiwan +1 886 3 577 9911; fax +1 886 3 577 3947 service@itrc.narl.org.tw; www.itrc.narl.org.tw

### Featured Product: Precision optics and machining, vacuum technology and nanofabrication, customized optical instrument

Instrument Technology Research Center (ITRC) is a government funded research institute pioneering in instrument related frontier researches foreseen in Taiwan. Aiming to improve the quality of life for the public, ITRC has built cooperation agreements with and has provided technical services to the industry and academia. Contact: Jyun-Yi Lai, Assistant Researcher

#### **Instytut Fotonowy**

#4204

9/8 Towarowa Street, Kraków, 31-403 Poland +48 666 059 798 office@fotonowy.pl; www.fotonowy.pl

### **Intane Optics**

#4149

108 East of Gan Jia Bian, Qixia District Nanjing City, Jiangsu, 210046 China

+86 25 85282549; fax +86 25 85282539 sale@intaneoptics.com; www.intane-optics.com

### Featured Product: Medium to large size precision flats, spheres and aspheres, lens assembly, collimators

Intane Optics is a leading manufacturer of customized high-quality precision optics in China. We specialize in client-specific, high precision optical components, especially medium to large size precision flats, spheres and aspheres. We offer optics made from optical glasses, UV fused silica, and sapphire. Our lenses, prisms, windows, beamsplitters, mirrors, filters, and coatings are used widely in laser industry, defense, science, education, and medical instruments. Contact: Jerry Zhou, CEO, jerry@intaneoptics.com; Alice Hsia, Marketing manager, sale@intaneoptics.com

#### **Integrated Optics**

#2511

Kalvariju Str 125B, 2nd Fl Xl Bldg, Vilnius, Vilniaus, 08221 Lithuania +370 602 24642

sales@integratedoptics.com; www.integratedoptics.com

### Featured Product: MatchBox2 lasers: a series of ultra-compact CW diode and DPSS lasers covering over 25 wavelengths

Company is a manufacturer of world's most compact CW lasers. Proprietary technology allows tight integration of optics and electronics. MatchBox2 series consists of direct diode and DPSS lasers covering over 25 wavelengths. These lasers feature superior power stability, fiber coupling options and thermally stabilized optics. The lasers are used in such life science applications as Raman spectroscopy, fluorescence imaging, food sorting and diagnostics. Currently selling to 22 different countries. Contact: Evaldas Pabreza, CEO, e@integratedoptics.com; Laimonas Gabrialavicius, Technical Sales, sales@integratedoptics.com

### **Interfiber Analysis**

#6033

8 Manns Hill Cres, Sharon, MA, 02067 USA +1 781 806 0659; fax +1 973 488 7134

in fo@interfiber analysis.com; www.interfiber analysis.com

#### Featured Product: IFA-100 optical fiber refractive index profiler

Interfiber Analysis manufacturers industry leading optical fiber test and measurement equipment including the IFA-100 multi-wavelength optical fiber refractive index profiler and the FMA-100 fiber mode analyzer for quantifying the modal content of an optical fiber. Contact: Andrew Yablon, President/Founder, info@interfiberanalysis.com

#### Conference Bag Insert Sponsor

### International Light Technologies, Inc. #2735

10 Technology Dr, Peabody, MA, 01960 USA +1 978 818 6180; fax +1 978 818 6181

ilsales@intl-lighttech.com; www.intl-lighttech.com

### Featured Product: ILT2400 Hand held optical meter, touch screen display, FREE APPS, UV-IR measurement, 8 GB storage.

International Light Technologies has upgraded their light measurement products line with releases of NEW hand held touch screen and research grade radiometers/optical meters, and spectroradiometers for measuring from UV to IR. The Light Sources Division provides off-the-shelf and customized solutions across the full spectrum from UV to IR including UV & plant growth LEDs, NDIR, miniature lamps, tungsten halogen lamps, instrument replacement lamps, reflectors, neons, LEDs, & holders. Contact: Jill Fowler, Sales Mgr., ilsales@intl-lighttech.com

### **International Optoelectronics**

#3088

3077 New Williamsburg Dr, Schenectady, NY, 12303 USA +1 203 745 8289

intloptoelectronics@gmail.com; www.iopeusa.com

### Featured Product: Nonlinear optical electro-optic crystals: KTP BBO Nd:YVO4 Nd:YAG KDP, film coating, optical component

International Optoelectronics LLC was established in NY, USA. Our team of scientists and professional engineers offers advanced manufacturing and characterization capabilities, providing electro-optic devices, non-linear optical crystals, and optical components to customers worldwide. Our products can be highly customized and services include optical thin-film design and film coating. We work closely with academic and industry clients building vacuum processing systems and measurement setups. Contact: Louis Liu, General Manager, intloptoelectronics@gmail.com

### **International OptoIndex**

#5241

Papiermuehlenweg 74, Ratingen, 40882 Germany +49 2102 1678 0; fax +49 2102 1678 28 info@opto-index.de/ot; www.opto-index.de/ot

#### Featured Product: International OptoIndex 2016

The proliferation of photonics creates the imperative need for an index. This work of reference, International OptoIndex, offers a comprehensive data source for companies and products in this sector. The catalogue and our website, www.opto-index.de/ot, will help you to find the answers. Updated annually, the International OptoIndex is published in English. Contact: Constanze Classen, Media Consultant, constanze.classen@opto-index.de

#### Intivac

#632

SPIE Corporate Member

1845 Maryland Ave, Niagara Falls, NY, 14305 USA +1 716 284 0830; fax +1 716 284 0842 sales@intlvac.com; www.intlvac.com

Intlvac offers systems for optical thin film deposition by reactive sputtering, plasma assisted chemical vapor deposition, and ion assisted electron beam evaporation. Coatings are also offered for evaluation and in engineering quantities such as: band pass and edge filters, dielectric and dichroic, cold and hot mirrors, broadband and ultra-broadband AR, bare and protected metal coatings such as gold, platinum, silver, aluminum, transparent conductive films, and diamond like carbon.

IntraAction Corp.

#4762

#1523

SPIE Corporate Member

3719 Warren Ave, Bellwood, IL, 60104-2055 USA +1 708 547 6644; fax +1 708 547 0687 sales@intraaction.com; www.intraaction.com

Invenios #4530

320 N Nopal St, Santa Barbara, CA, 93103-3225 USA +1 805 681 9500; fax +1 805 681 9534 moreinfo@invenios.com; www.invenios.com

### Featured Product: 818 AF and OIS fluidic/liquid lens high precision, nanometer RA, hot emboss, all-glass lens molding

Invenios is a world leader in the design and manufacture of microfluidic gene-sequencing chips and medical devices. Invenios' breakthrough IP protected room temperature bonding equipment provides permanent bonding solutions with a wide range of different and incompatible materials (glass, silicon, plastic, III-V, ceramics, metals). It is now possible to bond materials with mismatched CTE's or thermally sensitive materials, enabling customers with new material choices and enhanced product cap Contact: Berkeley Johnson, CFO, b.johnson@invenios.com; Ellen Karam, DM, ellenk@invenios.com

### **IO Industries, Inc.**

#4247

SPIE Corporate

15940 Robin's Hill Road, London, ON, N5V OA4 Canada +1 519 663 9570; fax +1 519 663 9571 admin@ioindustries.com; www.ioindustries.com

### Featured Product: High-speed CoaXPress camera and recording system

The DVR Express Core2 CXP is the flagship in IOI's new DVR line-up. It can record at full rate from a quad-6.25Gbps CoaXPress camera. Images are recorded uncompressed directly to solid state storage. This storage can be removed for swapping, archiving, or exporting on a download station. A good pairing for this recorder is the 12MP, 180fps Flare CXP camera. Check out a demo at the IO Industries booth at Photonics West. Contact: Adam Little, Regional Sales Manager, alittle@ioindustries.com

### IOP Publishing

#5145

Temple Way, Temple Circus, Bristol, BS1 6HG United Kingdom +44 117 929 7481; fax +44 117 929 4318

custserv@iop.org; www.ioppublishing.org

IOP Publishing provides a range of journals, books, websites, magazines, conference proceedings and services through which leading-edge scientific research is distributed worldwide. IOP Publishing is central to the Institute of Physics, a not-for-profit society. Any financial surplus earned by IOP Publishing goes to support science through the Institute's activities. Contact: Fiona Walker, Global Exhibition Manager, fiona.walker@iop.org; Christopher Thomas, Group Advertising Manager, chris.thomas@iop.org

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88–90 for complete times, schedules, and locations.

### IPG Photonics Corp.

SPIE Corporate

50 Old Webster Rd, Oxford, MA, 01540-2706 USA +1 508 373 1100; fax +1 508 373 1103 sales.us@ipgphotonics.com; www.ipgphotonics.com

#### **Featured Product: IPG photonics**

IPG Photonics manufactures active fiber lasers, direct diodes and amplifiers operating at 0.5-2 microns for applications in materials processing, advanced technologies and scientific research. Industrial lasers operating at 1 micron are available from 10 w to >50 kWs. These devices feature low divergence, air-cooling, high electrical efficiency and unparalleled diode life. IPG Photonics is based in Oxford, MA with additional facilities worldwide including Germany and Russia. Contact: Mike O'Connor, Director Sales Gvmt/ Special Applications, moconnor@ipgphotonics.com; Beth Cohen, Marketing Communications, bcohen@ipgphotonics.com

IQE IR #317

Pascal Close, St Mellons Cardiff, CF3 OLW United Kingdom +44 2920 839 400; fax +44 2920 839 401 sales@igep.com; www.igep.com

### Featured Product: Fiber optics and accessories, nanotechnology products, optical components: lenses, solar

IQE is the leading global supplier of advanced wafer products that cover a diverse range of applications. The group offers the industry's broadest product portfolio, with a choice of technology platforms from multiple global manufacturing facilities across Europe, Asia, and the USA. The company is able to provide a 'one stop shop' for the wafer needs of the world's leading compound semiconductor manufacturers. Contact: sales@iqep.com

#### Iradion Laser, Inc.

#5346

SPIE Corporate

51 Industrial Dr, North Smithfield, RI, 02896 USA +1 401 762 5100; fax +1 401 762 5111 pbrak@iradion.com; www.iradionlaser.com

#### Featured Product: Ceramic core CO<sub>2</sub> lasers

Iradion Laser, Inc. is focused on the design and manufacturing of patented, RF excited, ceramic core  $CO_2$  lasers. Our ceramic core  $CO_2$  laser provides a significant technical edge when compared to other all-metal lasers on the market. Our RF-driven, sealed  $CO_2$  lasers are available in power ranges for 30W-250W. Contact: Philippe Brak, Sr. VP of Sales, pbrak@iradion.com; Kathy Smith, Logistics, ksmith@iradion.com

#### IRCameras, LLC

#5554

SPIE Corporate Member

30 S Calle Cesar Chavez Ste D, Santa Barbara, CA, 93103-5652 USA +1 508 668 5650; fax +1 508 668 5054 sales@ircameras.com; www.ircameras.com

### Featured Product: QuazIR high definition 1280x1024 MWIR high operating temperature camera cores

IRCameras provides the most technologically advanced infrared imaging systems available for scientific, industrial, and military applications. In addition to our extensive array of standard commercial infrared cameras and IDCAs, we offer custom design and build services to meet unique optical, packaging, and space-constrained requirements. IRCameras is a subsidiary of Santa Barbara Infrared, a long-time leader in the design and manufacture of electro-optical test and calibration instrumentation. Contact: Elliott Rittenberg, VP/Sales & Marketing, elliott@ircameras.com; Arn Adams, Technical Director, arn.adams@ircameras.com

IRD Glass

SPIE Corporate Member

810 E St Paul St, Litchfield, MN, 55355 USA +1 320 693 7217; fax +1 320 693 7216 ird@irdglass.com; www.irdglass.com

### Featured Product: Custom precision glass, ceramic, sapphire, silicon components.

Your glass experts for over 34 years, IRD does things no one else in the world does with glass. Count on IRD to build your custom glass or ceramic components to your specs, and deliver it on time, with you fully engaged. IRD Glass provides a full spectrum of custom manufacturing capabilities, including laser reflectors, mirrors, filters, precision tubes, cylinder lenses, prisms, wedges, windows, assemblies & coatings and the metrology to verify our processes. IRD: Making the impossible possible. Contact: Michelle deCastro, National Sales Manager, michelle.decastro@irdglass.com; Todd Anderson, VP Sales & Marketing, todd@irdglass.com

### **IRflex Corporation**

#5146

#4025

SPIE Corporate Member

300 Ringgold Industrial Pkwy, Danville, VA, 24540-5548 USA +1 434 483 4304; fax +1 434 793 9200 irflex@irflex.com; www.irflex.com

#### Featured Product: Chalcogenide glass based nonlinear midinfrared fibers for wavelength from 1.5 to 10 micron

IRflex is the only US company totally dedicated to the development and manufacture of mid-infrared fibers and devices for wavelength 1.5 to 10 µm. Our standard and customized mid-IR fibers are manufactured from extra high purity chalcogenide glass, whose proprietary fiber technology and know-how support the production of fiber-based devices: mid-IR transmission cables, fiber switch, fiber combiner, and fiber bundle imager serving industrial, sensing, defense, medical, and scientific research. Contact: Helen Gu, Sales & Marketing Manager, helen.gu@irflex.com

### Iridian Spectral Technologies Ltd.

#505

2700 Swansea Crescent, Ottawa, ON, K1G 6R8 Canada +1 613 741 4513; fax +1 613 741 9986 sales@iridian.ca; www.iridian.ca

### Featured Product: Optical filters and coatings for telecom, spectroscopy, MWIR, entertainment, remote sensing

Iridian offers industry leading optical filter solutions and coatings for a wide range of applications from the UV (300nm) to LWIR (10um) addressing needs in telecom, spectroscopy, sensing, entertainment eyewear, display, and more. Our filter solutions can be tailored to address the most demanding technical needs: high in-band transmission (>90%), multiple transmission bands expertise, high contrast, low cross-talk, steep edges and deep blocking to provide "more signal with less background." Contact: Jason Palidwar, Account Manager, jason.palidwar@iridian.ca; Hongbai Lao, Sales Engineer, hongbai.lao@iridian.ca

Iris AO, Inc.

#326

SPIE Corporate

2680 Bancroft Way, Berkeley, CA, 94704-1717 USA +1 510 849 2375; fax +1 510 217 9646 info@irisao.com; www.irisao.com

Iris AO, Inc. manufactures small scale, micro-electro-mechanical (MEMS) based adaptive optics (AO) systems that offer radical advantages in cost, size, power consumption, durability, and flexibility. Iris AO systems make AO practical for a host of new applications, including retinal and biomedical imaging, portable laser communications, laser micromachining, and horizontal imaging. Contact: Michael Helmbrecht, CEO, Founder, info@irisao.com; Franck Marchis, Senior AO Application Scientist, info@irisao.com

**IRnova AB** 

SPIE Corporate Member

Electrum 236, Kista, 164 40 Sweden +46 8 793 66 00; fax +46 8 519 02518

info@ir-nova.se: www.ir-nova.se

IRnova develops and supplies high quality, high performance infrared detectors and related components to infrared module, camera, and system manufacturers all over the world. IRnova offers various types of IDCAs (Integrated Detector Cooler Assembly), compact integral solutions for small size/weight applications, as well as long life split cooler assemblies. IRnova has a long track record with thousands of supplied detectors and well established manufacturing with high yield and capability. Contact: Karin Pagard, Business Administrator, karin.pagard@ir-nova.se; Lars Karlsson, Sales Manager, lars.karlsson@ir-nova.se

#### Banner Sponsor

### IRTronix, Inc.

#4619

SPIE Corporate

635 Hawaii Ave, UVLED, Torrance, CA, 90503 USA +1 310 787 1100; fax +1 310 787 1166 cfunk00@irtronix.com: www.irtronix.com

#### Featured Product: LG Innotek UVLEDs

With over a decade of industry experience, IRTronix is one of the fastest growing agencies of UV LED, LED, and Prower semiconductor components with embedded technology. We accelerate our partners' success by connecting the world's leading technology suppliers with a broad base of customers to provide cost-effective, value-added services and solutions and working with our integration members to leverage their expertise throughout every stage from design to manufacturing. Contact: Claudia Funk, Sales Executive, cfunk00@irtronix.com; Danny Oh, President, cfunk00@irtronix.com

### Irvine Valley College (IVC) Photonics Technology Program

#1144

15445 Lansdowne Road, Tustin, CA, 92782 USA +1 949 282 2706

IVCphotonics@IVC.edu;

academics.ivc.edu/physci/photonics/Pages/default.aspx

Irvine Valley College (IVC) has its first NSF grant, a three-year ATE award to fund the IVC Photonics Initiative. The primary focus of the initiative is on preparing students for employment in photonics, a rapidly growing field that covers the science and engineering of devices that interact with light. In addition, instructors will work with the local business and education community, providing on-site demonstrations to increase awareness of the diverse opportunities in the field of photonics.

### **Island Optics Limited**

#516!

2 Ackerman Crt, Balthane Industrial Est, Ballasalla, IM9 2AQ United Kingdom

+1 624 829 435

sales@island-optics.com; www.island-optics.com

Island Optics Ltd manufactures precision flats such as mirrors, windows, beamsplitters, polarisers, etc. We provide a friendly and professional service, manufacturing high quality optics at a reasonable price and with a fast delivery. Our team of highly skilled opticians, several with more than 35 years experience, can supply you with one off or production quantities of top quality optics. We also offer a refurbishing service enabling you to have a part reworked instead of throwing it away. Contact: Gary Thomas, Managing Director, gary@island-optics.com; Bill Callow, General Manager, bill@island-optics.com

#4231

**Isomet Corporation** 

#2615

SPIE Corporate

Isuzu Glass, Inc.

+1 310 517 1866: fax +1 310 517 1869

sales@isuzuglas.com; www.isuzuglass.com

#4404

SPIE Corporate Member

5263 Port Royal Rd, Springfield, VA, 22151-2103 USA +1 703 321 8301; fax +1 703 321 8546 isomet.com: www.isomet.com

Featured Product: iMS4, the latest in high speed programmable synthesizers for use with Acousto-optic devices

Isomet designs and manufactures a comprehensive range of acousto-optic devices for UV-VIS-IR wavelengths, offering TeO2 & PbMoO4 crystal (grown in-house) and optical fab services. AO devices include modulators, deflectors, frequency shifters, Q-switches, tuneable filters, fiber-coupled options and a full range of supporting RF drive electronics. We also provide custom/OEM design of specialized units and sub-systems for industrial and scientific applications. Contact: Michael Hillier, CEO, mikeH@isomet.co.uk; Roman Yasinsky, Dir. of Sales and Marketing, ryasinsky@isomet.com

Featured Product: Heat absorbing color filter glass, molded optics. micro-lens arrays

23505 Crenshaw Blvd Ste 130, Torrance, CA, 90505-5225 USA

Isuzu Glass is manufacture of molded optics and color filter glass. Isuzu Glass has been around for 110 years and has been developing original techniques and know-how and supplying a variety of optronics products to customers using unique manufacturing methods. The products manufactured by our state-of-the-art technologies are used in various fields requiring high reliability, and our company supplies the products in a variety of markets such as projectors, lasers, medical devices, sensors, etc. Contact: Sean Wilson, Business Development

**ISP Optics Corp.** 

#2341

#4935

SPIE Corporate Member

50 S Buckhout St, Irvington, NY, 10533-2203 USA +1 914 591 3070; fax +1 914 591 3715 sales@ispoptics.com; www.ispoptics.com

### Featured Product: Standard and custom optical components and lens assemblies for SWIR, MWIR, and LWIR

ISP Optics – THE Infrared Company - is a vertically integrated manufacturer of IR optical components and lens assemblies. We manufacture in-house precision optical components including spherical, aspherical and diffractive coated IR lenses. ISP Optics also offers catalog optics, custom Lens Assemblies, Optical Coatings and Diamond Turning services. We manufacture optics from various IR crystals such as: Ge, Si, ZnSe, IG6, GaAs, Amtir, ZnS, and many more. Contact: Matt Brown, Sales Engineer, mbrown@ispoptics.com; Jacob Oh, Sales Director, joh@ispoptics.com

Featured Product: Advanced and unique products and technologies of Itabashi optical companies

2-65-6 Itabashi, Itabashi-ku, Tokyo, 173-0004 Japan

Itabashi City is said to be one of the birthplaces of the optics industry in Japan. Even now, Itabashi City remains successful in the optical and precision instrument industry, where a number of technologies continue to advance day by day. At Photonics West 2016 we introduce advanced and unique products and technologies of the following 4 companies: ASO Corp., Luceo Co., Ltd., Okabe Manufacturing Co., Ltd., and NTKJ Co., Ltd. Contact: sg-senryaku@city.itabashi.tokyo.jp

sg-senryaku@city.itabashi.tokyo.jp; www.city.itabashi.tokyo.jp

### **ISP System**

#1223-H

ZI la Herray BP 10047, Vic en Bigorre, 65500 France +33 5 62 33 44 44; fax +33 5 62 33 44 45 contact@isp-system.fr; www.isp-system.fr

### Featured Product: Large aperture mechanical adaptive optics for intense laser, nano-positioning linear stage

ISP SYSTEM is a comprehensive program of precision engineering in micro-nanometric opto-mechanics such as: deformable mirror for intense laser and spatial telescope, active bender for synchrotrons, motorized mount, customized linear & rotary stage (miniature to large size), multi-axis positioner, associated products: electronic driver, vacuum vessels, and providing highly innovative and custom solution is our commitment. Contact: Laurent ROPERT, Export Project Manager, laurent.ropert@isp-system.fr; Marine LAMAMY, Business Developer North America, marine.lamamy@isp-system.fr

### ITF Technologies Inc.

#4505

SPIE Corporate Member

**Itabashi City** 

+81 3 3579 2193

400 Montpellier Blvd, Montreal, QC, H4N 2G7 Canada +1 514 748 4848; fax +1 514 744 2080 info@itftechnologies.com; www.itftechnologies.com/ITF/Home. php?locale=en

ITF Technologies Inc. is a leading provider of innovative optical products and solutions for telecom, laser, sensor, industrial and defense markets. We design, manufacture and market high reliability active and passive optical components and modules for the telecom, industrial, security and defence, medical and R&D applications. We develop ultra-reliable fiber optic systems including high-power fused components, optical fiber sensors and fiber laser components. Contact: Julien Tremblay, Product Line Manager-Optical Components, jtremblay@itftechnologies.com; Hélène Stievenard, Sales Manager-Americas, hstievenard@itftechnologies.com

ISS, Inc.

#5365

1602 Newton Dr, Champaign, IL, 61826-6930 USA +1 217 359 8681; fax +1 217 359 7879 iss@iss.com; www.iss.com

#### Featured Product: Q2 laser scanning nanoscope

ISS activities include two product lines: the fluorescence analytical division manufactures and markets spectrofluorometers for time-resolved and steady-state fluorescence measurements and FLIM/FCS confocal microscopes; the medical division provides instruments for the absolute measurements of oxygen saturation in tissue (brain and muscle), metabolic rate of oxygen consumption and functional brain imaging. Contact: Beniamino Barbieri, Marketing, beniamino.barbieri@iss.com; Eugene Povrozin, Fluorescence Applications Manager, eugene.povrozin@iss.com

ITME #4204

133 Wolczynska Street, Warsaw, 01-919 Poland +48 22 835 3041; fax +48 22 864 5496 itme@itme.edu.pl; www.itme.edu.pl

+1 360 676 3290 · help@spie.org · #PhotonicsWest

IXBlue #5438

34 rue de la Croix de Fer, St Germain en Laye, 78100 France +33 1 30089888

info@ixblue.com; www.ixblue.com

iXBlue Photonics results from the acquisition and merging of the former companies iXFiber and Photline within iXBlue company. iXBlue Photonics helps photonics engineers to get the most out of the light by providing high performance, innovative and reliable photonic solutions. We offer specialty fibers, Bragg gratings and optical modulation solutions for a variety of applications including optical communications, fiber lasers and amplifiers, photonic sensors, space and sciences. Contact: Philippe Leroux, Sales Manager, philippe.leroux@ixblue.com; Philippe Griveau, Sales Manager, philippe.griveau@ixblue.com

### J & M Analytik AG

#4629

Willi-Messerschmitt-Str 8, Essingen, 73457 Germany +49 7361 9281 0; fax +49 7361 9281 12 info@j-m.de; www.j-m.de

### Featured Product: Spectroscopy from Lab to Prozess

We are experts for UV/VIS to MIR spectroscopy with optical fibres. We are highly specialized in development, production and sales of Diode Array based Sensors and Spectroscopic Solutions from Laboratory to Prozess. Our products are Photometers and Diode Array Spectrometer Systems, In-/On-/At-line Process Analyzers for Production Process and OEM Components for System Integration. Contact: Harald Nitsche, CEO, nitsche@j-m.de; Kathrin Grau, Sales Manager, grau@j-m.de

#### J. Hauser GmbH & Co. KG

#4629

Steinstr 4a, Solms, 35606 Germany +49 6442 938830; fax +49 6442 9388310 info@hauser-optik.de; www.hauser-optik.de

### Featured Product: Ball lenses, aspherical and spherical lenses made by one-sided moulding, mirror, protective plates

Our company specializes in the production of following products: precision spheres, highest-quality precision spheres with diameters ranging from less than 0.5 mm to 100 mm made from materials such as fibre-optic couplings, laser and micro-optics, as well as many other optical and electronic applications. Aspherical and spherical lenses are made by one-sided moulding. Contact: Stefan Hauser, CEO, info@hauser-optik.de

### J.A. Woollam Co.

#4766

645 M St Ste 102, Lincoln, NE, 68508-2243 USA +1 402 477 7501; fax +1 402 477 8214 sales@jawoollam.com; www.jawoollam.com

For all of your ellipsometry needs, from measuring thin film sample to the installation and training of your very own ellipsometer, the J.A. Woollam Company is here for you every step of the way. We provide a wide variety of ellipsometers to help you characterize your thin films, covering spectral ranges from vacuum ultra-violet to far infrared. We have over 25 years of experience and support in both the research and manufacturing industry. Contact us today at sales@jawoollam.com to learn more.

#### Janos Technology

#319

55 Black Brook Rd, Keene, NH, 03431-5044 USA +1 603 757 0070 contact@janostech.com; www.janostech.com

### **Jasper Display Corporation**

#4361-F

SPIE Corporate Member

7F-16, No. 81, Shui-Lee Rd., Hsinchu, Hsinchu City, 30059 Taiwan +886 3 5752768; fax +886 3 5752628

info@jasperdisplay.com; www.jasperdisplay.com

#### Featured Product: Wafer, Microdisplay, SLM SDK, EDK

Jasper's Display Corporation is dedicated to the design, development and fielding of innovative liquid crystal on silicon (LCOS) spatial light modulators (SLM) that sit at the interface between the world of electronics and the world of light. JDC has set as its goal the development of world leading "On Silicon" designs and products beyond the initial LCOS products. Contact: Deborah Chung, deborah.chung@jasperdisplay.com

### **JAYCO Cleaning Technologies**

#4419

SPIE Corporate Member

8812 Beckett Road, West Chester, OH, 45069 USA +1513 737 9600; fax +1513 892 3938 info@jaycoclean.com; www.jaycoclean.com

#### Featured Product: ELMA ultrasonic cleaning systems for precision optics: in-process & final cleaning

Manufacturing of precision and IR lenses requires numerous grinding, polishing and centering stages. Lenses are fixed for these processes by means of pitch. Also, lacquers are used to protect the finished surfaces. Elma's core competence is developing of a perfect cleaning process which allows for different glass types. Final cleaning before coating is prerequisite for successful vacuum coating. Contact: Jay Griswold, President, jnawani@jaycoclean.com; Steve Cramer, VP/Senior Applications Engineer, scramer@jaycoclean.com

#### JCMwave GmbH

#4629

Bolivarallee 22, Berlin, 14050 Germany +49 30 84185 480

info@jcmwave.com; www.jcmwave.com

#### Featured Product: JCMsuite V2.18: The most efficient finiteelement (FEM) solver for nano-optics simulations.

JCMwave offers software for precise optics simulations. Application areas include silicon optics, solar cells, optical lithography, optical metrology, nano- or micro-structured laser and LED light sources, photonic crystal fibers, plasmonics, metamaterials, resonators, and others. In simulation benchmarks with competing methods JCMwave's products are superior in accuracy and speed by several orders of magnitude. This is due to implementation of most advanced finite-element technology.

### **JENOPTIK I Optical Systems**

#1823

SPIE Corporate Member

Goeschwitzer Str 25, Jena, 07745 Germany +49 3641 652279; fax +49 3641 653658 info.os@jenoptik.com; www.jenoptik.com/os

### Featured Product: High-precision opto-electronic systems, modules and components

Jenoptik offers opto-mechanical and -electronic systems, modules and assemblies. It is development and production partner for optical, micro-optical and coated optical components made of optical glass, IR materials and polymers. Jenoptik possesses outstanding expertise in beam shaping optics and microoptics for the semiconductor industry and laser material processing. It also offers solutions in safety engineering & defense technology, medical technology, automotive, digital imaging & lighting. Contact: Ray Malcom, VP Sales & Marketing, ray.malcom@jenoptik-inc.com; Rolf Brand, Head of Marketing & Communications, rolf.brand@jenoptik.com



Booth # 4355



### LIGHT IS THE QUINTESSENTIAL MESSENGER

The Quebec Photonic Network is an association that brings together Quebec-based businesses, research centres and institutions working in the optics-photonics sector. It speaks for the entire optics-photonics community in Quebec and is the gateway for access to their expertise.

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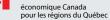
Cornctive # 2722	doric lenses # 4355	<b>gentec-ۥ</b> ) # 1138
GIGACONCEPT.COM # 4355	# 4442	Technologies A member of U-Net Group # 4505
LASER COMPONENTS  # 2023	MPB Communications Inc. # 2333	NORPIX Digital Video Recording Software  # 4355
camēras # 4355	# 3082	⊖sela # 1038
Photon S A spectrum of solutions # 537	Photronics # 4355	<b>O-m6</b> # 4355
Raytheon Integrated Defense Systems # 4355	Remap Referred Manufacturing Acceleration for Enablication des processes de habitication des processes de habitication Acceleration Process  # 4355	TeraXion # 2706

### Thanks to our partners











#### JENOPTIK Laser GmbH

#1823

Göschwitzer Str 29, Finanzbuchhaltung, Jena, 07745 Germany +49 3641 65 3053; fax +49 3641 65 4011 info.lm@jenoptik.com; www.jenoptik.com

#### Featured Product: The high performance ultra-short pulse laser JenLas\* femto 10 for micro- & macro-machining.

Jenoptik is one of the leading providers of laser technology and provides solutions along the entire value-added chain of industrial laser material processing from components up to complete laser systems. Being acknowledged as a worldwide leader in quality high-power diode lasers, the company also offers customized semiconductor laser solutions, ultra-short pulse lasers as well as innovative solid-state lasers, such as thin-disk and fiber lasers. Contact: Klaus Buesselmann, Head of Sales, klaus.buesselmann@ienoptik.com

### **JENOPTIK Optical Systems, LLC**

#1823

SPIE Corporate

16490 Innovation Dr, Jupiter, FL, 33478-6428 USA +1 561 881 7400; fax +1 561 881 1947 sales@jenoptik-inc.com; www.jenoptik-inc.com

### JETSEAL, Inc.

#5648

1024 N Ralph St, Spokane, WA, 99202 USA +1 509 467 9133; fax +1 509 467 9028 roliveira@jetseal.com; www.jetseal.com

#### **Featured Product: Metallic seals**

Whether your company is seeking a standard metal seal or a custom metallic seal assembly, JETSEAL solves difficult sealing issues. In addition to high temperature and high pressure metal E-Seals and C-Seals, JETSEAL produces specifically engineered seals to meet your specific sealing requirements. JETSEAL's resilient metal seals comprise a complete selection of cross-sections, sizes, shapes and materials capable of satisfying a vast variety of demanding applications.

### Jiangsu Wavelet Science Technology Development Co.,Ltd.

#4649-1

No.8 Dongjin Avenue, Dongtai, Jiangsu, 224200 China +86 515 85822069; fax +86-515-85822022 yxhdd@163.com; www.szgfl.com.cn

### Featured Product: Any kind sapphire manufacturing

Wavelet is a leading technology company dedicated to sapphire glass manufacturing. Product applications include medical, military, optical communication, optics, new energy resources, etc. Established in 2009. Located at Jiangsu Dongtai of China. Contact: Michael Yang, GM, yxhdd@163.com

### Jiangsu Yudi Optical Instrument Co., Ltd. Tongzhou Branch #4136

188th Pingwu Rd Pingchao Town Nantong, Tongzhou Branch, Nantong Jiangsu, 226362 China +86 513 846 18671; fax +86 513 846 11868 www.yudi.com.cn

### Jinan Jingzheng Electronics Co., Ltd.

SPIE Corporate

750 Shunhua Rd Jinan High-tech Zone, B105, Jinan, Shandong, 250101 China

+86 531 66956298; fax +86 531 88809907 info@nanoln.com; www.nanoln.com

### Featured Product: lithium niobate or lithium tantalate thin films from 50nm to 50um on LN, Si or Quartz substrate

Nanoln is a company specialized in producing single crystal lithium niobate or lithium tantalate thin films. We produce 3 to 6 inch diameter wafers at a thickness of 50nm to 50um. Our single crystal thin films include LN or LT films on Silicon substrate, LN thin films on LN substrate, etc. Our thin film wafers are used for RF filters, IR detectors, optical modulators, etc. The thin films will be of great interest for developing high-speed, wide-bandwidth and high-efficiency devices. Contact: Cathy Zhang, Sales Manager, cathy@nanoln.com; Mabel Wei, Sales Manager, mabel@nanoln.com

### Digital Signage Sponsor

### **JML Optical Industries. LLC**

#624

#5535

820 Linden Ave, Rochester, NY, 14625-2710 USA +1 585 248 8900; fax +1 585 248 8924 jml@jmloptical.com; www.jmloptical.com

### Featured Product: Engineered optical components and systems, including custom cylinders and apsheres

JML Optical Industries is an engineered optical solutions provider with a broad range of services and capabilities designed to support highly engineered customer programs. We offer design services as well as program management with the goal of assisting our customers on their programs from initial design through prototype and production. We offer fabrication of flat, spherical, aspherical and cylinder lenses in our Rochester office and also offer quick turn capability for lenses and assemblies Contact: Michael Jones, VP Business Development, michaelj@jmloptical.com

### Joanneum Research Forschungs GmbH #5065

Leonhardstr 59, Graz, 8010 Austria +43 316 876 5000; fax +43 316 876 5010 digital@joeanneum.at; www.joanneum.at/en/digital.html

#### **JULABO USA. Inc.**

#5265

884 Marcon Blvd, Allentown, PA, 18109-9558 USA +1 610 231 0250; fax +1 610 231 0260 serviceusa@julabo.com; www.julabo.com Contact: Leah Singer, Marketing Coordinator

### Kapteyn-Murnane Labs., Inc.

#2301

SPIE Corporate Member

1855 S 57th Ct, Boulder, CO, 80301-2811 USA +1 303 544 9068; fax +1 419 821 2284 sales@kmlabs.com: www.kmlabs.com

### Featured Product: The eXtreme Ultraviolet Ultrafast Source (XUUS4) is our 4th generation EUV source.

KMLabs is a manufacturer of high-performance, ultrafast femtosecond laser systems. Fiber lasers feature sub-150 femtosecond pulse widths and 0.5 micro joules or 5 micro joules pulse energy. Regenerative and multi-pass Ti:Sapphire amplifiers include a single-stage series, systems capable of tunable repetition rates from 1 kHz to 1 MHz, and multistage systems up to 50 W or 30 mJ. We also produce the world's only production-grade test instrument for measuring group delay dispersion. Contact: sales@kmlabs.com

#### Kaufman & Robinson, Inc.

#3066

1330 Blue Spruce Dr, Fort Collins, CO, 80524 USA +1 970 495 0187; fax +1 970 484 9350 info@ionsources.com; www.ionsources.com

### Featured Product: Gridded ion sources, grid-less ion sources, plasma sources, electron sources

Kaufman & Robinson is an established 40 year old company focused on providing world class ion source products for the vacuum process community. Focused on ion/plasma sources, electron neutralizers and power supply controllers needed in critical deposition and etching processes such as ion assisted deposition, in-situ pre-clean & ion beam sputtering. Our product technology includes high current grid-less plasma sources, filament-less RFICP gridded sources and low energy electron sources. Contact: Chris Griffith, Director of Sales, griffith@ionsources.com; Kent Rennie, Sales & Marketing Manager, rennie@ionsources.com

### **Kelvin Nanotechnology**

#192

Oakfield Ave, Rankine Bldg, Glasgow, G12 8LT United Kingdom +44 141 330 4869; fax +44 141 330 3726 enquiries@kelvinnanotechnology.com; www.kelvinnanotechnology.com

### Featured Product: We provide nanofabrication solutions to industry and academia.

We specialise in high resolution, large area, multi-level electron beam lithography for applications such as laser gratings, imprint masks, optical elements, photonic crystals, nanotextured surfaces and many more. Core capabilities include: High resolution electron beam lithography; Nano imprint lithography masks; DFB laser grating lithography; Large area gratings; Diffractive optical elements; Photonic crystals; Device prototyping; Functionalised SPM probes. Please contact us to discuss your needs. Contact: David Burt, Business Development Manager, enquiries@kelvinnanotechnology.com

Kentek Corp.

#5558

SPIE Corporate Member

32 Broadway St, Pittsfield, NH, 03263-3800 USA +1 603 223 4900; fax +1 603 435 7441

info@kenteklaserstore.com; www.kenteklaserstore.com

#### **Featured Product: Laser beam detector**

Visit Kentek at Booth #5558 to see a demonstration of our new laser beam detection device. We can now detect stray or diffuse reflections of laser energy in the visible and infrared regions. This breakthrough technology will integrate with any interlock system and may be applied to any surface. Kentek continues to develop and manufacture the best in laser safety equipment. Stop by and learn how the laser people at Kentek can help you. Contact: Tom MacMullin, President

**Keopsys Inc.** 

#5049

SPIE Corporate Member

1541 Alta Dr Ste 205, Whitehall, PA, 18052 USA +1 610 758 8428; fax +1 610 758 8426 websales@keopsys.com; www.keopsys.com

### Featured Product: 30W continuous fiber laser at 1550nm with MHZ linewidth, linear polarization, totally air-cooled

Keopsys is a leading manufacturer of high performances fiber lasers and amplifiers for LIDAR, scientific and defense applications. Keopsys is a Keopsys Group company, with 130 people based in France and United States. Lea-Photonics is also a Keopsys Group company, manufacturing fiber lasers and amplifiers for telecom, medical and industry. Keopsys Group's production plan is 5000m2 with more than 5000 devices/year. Our 400m² of clean rooms allow us to design new lasers or amplifiers. Contact: Mélanie Leseignoux, Sales & Marketing Manager, mleseignoux@keopsys.com; Gérard Le Cam, COO, glecam@keopsys.com

#### KETEK GmbH

#4660

Hofer Str 3, München, 81737 Germany +49 89 67 34 67 70

info@ketek.biz; www.ketek.net

### Featured Product: SiPM, PMT, silicon photomultiplier, MPPC, silicon drift detector, SDD, single photon counting

KETEK is a leading manufacturer of Silicon Photomultipliers (SiPM), presenting a broad portfolio of SiPM modules with areas from 1 mm² to 36 mm² and best in class photon detection efficiency (PDE) for blue light (420nm), applicable from UV to NIR. Additionally KETEK offers tailor-made array solutions. The wide range of sensor characteristics, geometries and packages covers the requirements of manifold applications like medical imaging, optical spectroscopy or biosciences. Contact: Werner Hartinger, Sales & Marketing

### **KEYENCE Corporation**

#5344

1100 N Arlington Heights Rd Ste 210, Itasca, IL, 60143 USA +1 888 539 3623; fax +1 630 285 1316

#### marketing@keyence.com; www.keyence.com/usa.jsp Featured Product: VHX-5000 digital microscope

KEYENCE Corporation is a world leader in advanced microscopes for imaging and measurement applications. Effortlessly capture fully-focused images and perform 3D profile and roughness measurements with nanometer-level resolution. From basic inspection to advanced surface characterization, KEYENCE Corporation has the microscope products to meet nearly any requirement. Contact: Andrew Kominek, Marketing Manager, akominek@keyence.com; Kelsi Lockhart, Marketing Engineer, klockhart@keyence.com

### **Keysight Technologies**

#537

5301 Stevens Creek Blvd, Nano Scale Science Div, Santa Clara, CA, 95051-7201 USA

+1 480 236 1833

usa\_orders@keysight.com; keysight.com

#### Featured Product: Optics and optical assemblies

Keysight Technologies- Agilent's Electronic Measurement Group has become Keysight Technologies! Along with our many electronic measurement products, Keysight Technologies manufactures optics and optical assemblies with coatings from the deep the UV to the near IR. Contact: Wayne Pantley, Sales Manger, wayne\_pantley@keysight.com

### Kigre, Inc.

#2031

SPIE Corporate Member

100 Marshland Rd, Hilton Head Island, SC, 29926-2368 USA +1 843 681 5800; fax +1 843 681 4559

info@kigre.com

Kigre manufactures 1.54 um "eye-safe" diode pumped erbium glass laser transmitters. These transmitters can be used in applications including laser range finding, range gated imaging and laser induced breakdown spectroscopy (LIBS). Kigre's lasers range from 0.2 to 10 mJ and 1 to 30 Hz with a 6 ns pulse widths. Contact: Franziska Roth, Physicist, franzi@kigre.com; Jeffrey Myers, CEO, jeff@kigre.com

### Kimmon Koha USA, Inc.

#3070

7002 S Revere Pkwy Ste 85, Centennial, CO, 80112-6703 USA +1 303 754 0401; fax +1 303 754 0324

p.townsend@kimmon.com; www.kimmon.com

### Featured Product: New CW-UV lasers: 319nm at 100mW and 330nm at 30mW.

Kimmon: the world's oldest and largest manufacturer of helium cadmium lasers offers a total of 36 different HeCd laser models at 325nm (2-100mW), 442nm (14-180mW), or both simultaneously. New this year, CW UV lasers: 319nm at 100mW and 330nm at 30mW. Also available is our fiber laser at 1064nm, 20W, with a high polarization ratio. Additionally we manufacture a new line of solid state blue and UV lasers at 375nm, 405nm, 445nm, and 488nm. Contact: Patrick Townsend, Vice President

### Kinetic Systems, Inc.

#5428

SPIE Corporate Member

20 Arboretum Rd, Boston, MA, 02131-1102 USA +1 617 522 8700; fax +1 617 522 6323

info@kineticsystems.com; www.kineticsystems.com

Kinetic Systems designs and builds "world class" vibration isolation platforms for sensitive equipment. Our workstations and optical tables set the standard for quality and performance. You may use our standard or custom systems to suit your demanding applications. Standard systems are readily available. Our staff is eager to help provide custom systems that will meet all your requirements. Contact: Tony Kallas, Director of Sales and Marketing, tkallas@kineticsystems.com

### **Kiyohara Optics USA**

#5633

SPIE Corporate Member

3700 Campbell Ave #314, Tucson, CA, 85719 USA +1 520 882 6143

www.koptic.co.jp/opt/eng

### Featured Product: 1.5x, 2x, 3x beam expanders for Fizeau interferometer

Last 50 years, Kiyohara Optics has been active in Japan as a developer and supplier of unique optical components and subsystems. We are now offering these products to overseas customers. Contact: Aki Tomita, President, atomita@kopticusa.com

#### **Knobbe Martens**

#4956

#406

2040 Main St Fl 14, Irvine, CA, 92614 USA +1 949 760 0404; fax +1 949 760 9502 info@knobbe.com; www.knobbe.com

#### Featured Product: Intellectual property legal services

Knobbe Martens is a law firm practicing exclusively in the area of intellectual property law including patents, trademarks, copyrights, trade secrets and related litigation and licensing. The firm routinely handles a wide range of optics cases including those related to lasers, LEDs, displays, lighting, fiber optics, lens design, eyewear and ophthalmic applications, medical lasers and phototherapy, endoscopy, optical materials and instrumentation, waveguides, holography, and solar power. Contact: Mark Gallagher, Partner, mark.gallagher@knobbe.com; Bruce Itchkawitz, Partner, bruce. itchkawitz@knobbe.com

### Kogakugiken Corp.

#4950

135 Nurumizu Atsugi-shi, Kanagawa, 243-0033 Japan +81 462 24 2555; fax +81 46 224 8007 sales@kogakugiken.co.jp; www.kogakugiken.com

### Featured Product: Large aperture waveplates, UV waveplates, WoG polarizer, QL polarizer, Osaka CLBO

Kogakugiken Corp. was established in 1978. The company is located in Atsugi-shi, Kanagawa, Japan. We are a leading company for high precision optical components and processing services. We provide wave plates, polarizers, crystal products and advanced devices for solid state lasers, optical systems and other applications. Contact: Junichi Hayashi, hayashi@kogakugiken.co.jp; Mitsuhiro Tanaka, General Sales&Marketing Manager, mituhiro@kogakugiken.co.jp

### Kohoku Kogyo Co., Ltd.

#4163

1623 Takatsuki Takatsuki-cho, Nagahama-shi Shiga, Shiga, 529-0241 Japan

+81 749 85 6260; fax +81 749 85 3217 sales@kohokuamerica.com; www.kohokukogyo.co.jp

### Featured Product: Fiber arrays and hermetically sealed fiber feedthrough

Manufacturer of multi- channel fiber arrays with V-grooves and multihole capillaries, hermetically sealed feed through, PM/SM pigtails, preforms for PM, PCF and other customized fibers, isolators, circulators, splitters and combiners for undersea and terrestrial applications. Contact: Boris Reichman, President Kohoku America Inc., breichman@kohokuamerica.com

### Kokusai Shoji Co., Ltd.

2-2-2 Nihombashi-kayaba-cho, Chuo-ku Tokyo, 103-0025 Japan +81 3 36661896; fax +81 3 3666 0425 www.kokusaishoii.co.ip

### Featured Product: Elliptical reflectors, parabolic reflectors, spherical mirrors (all glass-made), lenses, filters

Optical systems are the core of exposure equipment. Exposure equipment requires high-quality optical systems for making semiconductors, high-density PWB, FPD, touch panels, and various similiar devices. We at Kokusai Shoji have been providing high-quality optical glass mirrors to many equipment makers based on much experience and many achievements. AL, UV, CM and more type of coating are available. Glass substrate materials: Soda-Lime or Tempax. Please feel free to ask anything. Contact: Kaz HARIGAI, Overseas Sales Manager, harigai@kokusaishoji.co.jp

### Kopp Glass, Inc.

#5332

SPIE Corporate Member

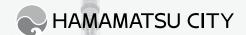
2108 Palmer St, Pittsburgh, PA, 15218-2562 USA +1 412 271 0190; fax +1 412 271 4103 solutions@koppglass.com; www.koppglass.com

#### Featured Product: Colored filter glass, NVIS glass, UV transmitting glass optics

Kopp Glass is the worldwide leader in hand molded, technical glass manufacturing. For more than 85 years, we have developed unique glass solutions for technical, industrial, and commercial applications. We specialize in custom, small lot glass manufacturing and offer an expansive portfolio of glass compositions that feature transmission properties from the UV to visible to IR wavelengths. Contact: Rachel Willsey, Senior Director of Sales and Marketing, solutions@koppglass.com; Darin Bernardi, Director of Corporate Development, dbernardi@koppglass.com

# Japan Knows Photonics





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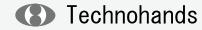


















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www.kapid.org

Kotra #4060

3003 N First St, San Jose, CA, 95134 USA +1 408 432 5000; fax +1 408 432 5056 info@kotrasv.org; www.kotrasv.org

### Kozak Micro Adjusters #4435

193 Franklin Rd, Randolph, NJ, 07869 USA +1 973 442 1001; fax +1 973 442 1448 info@kozakmicro.com: www.kozakmicro.com

### Featured Product: Ultra-fine, direct-drive adjustment screws and bushings. Threads as fine as 508 TPI (0.05 mm pitch)

Kozak Micro Adjusters is a leader in the manufacturing of highend, extremely fine pitch manual adjusters, with standard pitches ranging from 80 to 508 threads per inch. We also manufacture numerous components for the photo optics industry, such as lens holders, adapters, connectors, and posts. All of our products are manufactured in the USA. Contact: Gene Kozak, President, gene@kozakmicro.com; David Kozak, Engineer, david@kozakmicro.com

### **Kreischer Optics, Ltd.**

1729 Oak Dr, McHenry, IL, 60050-0306 USA +1 815 344 4220; fax +1 815 344 4221 optics@kreischer.com; www.kreischer.com

#### **Featured Product: Aspheres**

Kreischer Optics has utilized the technological advances in the optics industry to increase productivity while decreasing cost. Kreischer combines the skill and experience of its master opticians with state-of-the-art manufacturing methods to meet the exacting requirements you demand. Aspheres, cylindrical lenses, mirrors, prisms, spherical lenses and master test glasses are among some of the components produced. Contact: Cody Kreischer, President/ Optical engineer, optics@kreischer.com; Daniel Charland, Sales, daniel@kreischer.com

KrellTech #4128

SPIE Corporate

1126 Campus Dr W, Morganville, NJ, 07751-1261 USA +1 732 617 7091; fax +1 732 617 7092 sales@krelltech.com; www.krelltech.com

Contact: Christine Kritch, Account Manager, cnodine@krelltech.com

(TN #5145

4-10 Barttelot Rd, Bailey House, Horsham West Sussex, RH12 1DQ United Kingdom

+44 0 141 03 251354

enquiries@ktn-uk.org; www.ktn-uk.co.uk

### Featured Product: Faciliation connection and networking into the UK for the benefit of UK economy.

KTN is the UK's Innovation Network. We connect people to speed up innovation, solve problems and find markets for new ideas. Contact: Anke Lohmann, Head of Photonics and Quantum Technologies, anke.lohmann@ktn-uk.org

### **Kugler of America Ltd.**

SPIE Corporate

48 South Rd Unit 1, Somers, CT, 06071-2160 USA +1 860 749 6400; fax +1 860 749 6600

info@kuglerofamerica.com; www.kuglerofamerica.com

MicroMaster is a 5-axis, freeform, ultra-precision micro machining system with hydrostaic bearings and repeatable overall positioning accuracy of less than 250 nm. This rugged system is intended for the display, lightning, automotive, aerospace, and medical markets. It also has optional features that include CMM, laser integration, automated toolbox, and other customized versions. The modular design and options platform allow for coverage of the widest range of applications. Contact: Meinrad Schirmeister, Manager, info@kuglerofamerica.com

#### Kurt J. Lesker Co.

#1146

#2805

#4045

1925 Rte 51, Jefferson Hills, PA, 15025-3681 USA +1 412 387 9200; fax +1 412 384 2745 salesus@lesker.com; www.lesker.com

### Featured Product: Automated thin film deposition systems and deposition materials for any application.

We're on the cutting edge of thin film technology & innovation, while offering unparalleled customer support. R&D & batch production tools for the optical, photonics, & photovoltaic/solar industries. Automated thin film deposition systems for PVD & ALD; chambers, components, film deposition sources & pure materials. Products include: e-beam sources; thermal evaporation sources, including low temp sources for organic films; R&D and production sputter sources; feedthroughs; pumps & oils; & valves. Contact: Bart Merritt, Product Mgr, bartm@lesker.com

### Kylia #1223-E

10 rue de Montmorency, Paris, 75003 France +33 6 75 06 19 30 infoweb@kylia.com; www.kylia.com

### Featured Product: Optical assembly, delay line interferometer, 90 degree optical hybrid, varial optical delay line

Kylia designs, develops and manufactures innovative products based on free-space optic technology. Most of Kylia's products have been developed for telecom applications that meet the industry standards. Kylia also has a branch that exploits its technology to offer customized optical solutions. Kylia's products are already used for telecom, spatial, medical and metrology applications. Contact: Ludovic FULOP, CEO, ludovic.fulop@kylia.com; Karine LEPAGE, COO, karine.lepage@kylia.com

#### **Kyosemi Opto America Corp.**

#4132

4655 Old Ironside Drive Ste 230, Santa Clara, CA, 95054 USA +1 408 492 9361; fax +1 408 492 9843

info@kyosemi-opto.com; www.kyosemi-opto.com

### Featured Product: ASIP (Application Specific Integrated Photodiode), chip, package, and module designs.

Kyosemi has over 35 years' experience designing and manufacturing components for optical sensing, optical communication and photovoltaic energy harvesting using silicon and compound (III-V) semiconductor materials. Kyosemi specializes in ASIP (Application Specific Integrated Photodiode). We provide design service so that customers can develop their own photodiode chip, package, and module designs. Various photonic compound materials are available: Si, GaAs, InGaAs, GaN, InAs, etc. Contact: Kyosemi Sales, info@kyosemi-opto.com

#### LaCroix Optical Co.

SPIE Corporate Member

P.O. Box 2556, Batesville, AR, 72503 USA +1 870 698 1881; fax +1 870 698 1880 lacroix@lacroixoptical.com; www.lacroixoptical.com

### **Lambda Research Corporation**

#501

#5155

SPIE Corporate Member

25 Porter Rd, Littleton, MA, 01460-1434 USA +1 978 486 0766; fax +1 978 486 0755 sales@lambdares.com; www.lambdares.com

#### Featured Product: TracePro 7.8, OSLO 6.6.5, TracePro Bridge 7.8

TracePro streamlines the prototype to manufacturing process for illumination systems with CAD interface, 2D/3D optimization, extensive model library, and interoperability with popular CAD systems. Combined with the OSLO lens design & optimization system, Lambda Research Corporation encapsulates decades of optical engineering experience into a comprehensive design environment. Backed with training, support, and a full line of light measurement systems, TracePro accelerates your time-to-market. Contact: Michael Gauvin, Vice President of Sales & Marketing, mgauvin@lambdares.com

### **Lambda Research Optics**

#416

SPIE Corporate

1695 W. MacArthur Blvd, Costa Mesa, CA, 92626-1440 USA +1 714 327 0600; fax +1 714 327 0610 lambda@lambda.cc; www.lambda.cc

Manufacture of catalog and custom lenses, mirrors, beamsplitters, windows, prisms, filters, polarizers for defense, commercial, and medical laser applications. Specializes in high-power coatings for Excimer, Yag, CO<sub>2</sub> lasers, FLIR coatings. Precision polishing of CaF<sub>2</sub>, MgF2, BK7, fused silica, ZnSe, Ge, and Si. Provides prototype to production quantities. Headquarter located in Costa Mesa, California, with solid test equipment for QA procedures. Contact: Angie Ko, Sales Assistant/ Customer Service, ako@lambda.cc; James Choi, Sales Manager, ichoi@lambda.cc

### Larsen Equipment Design, Inc.

#525

1117 NW 52nd St, Seattle, WA, 98107-5130 USA +1 206 789 5121; fax +1 206 789 7756 erik@larsenequipment.com; www.larsenequipment.com

### Featured Product: Our model IAP-102 is a robust, versatile polishing machine for polishing lenses 2 mm to 22mm.

Larsen Equipment Design manufactures precision bench top optical fabrication machines. Since 1981 our machines have been used by precision optics manufacturers who make mini and micro optics. "Compact, predictable and easy to set up and maintain" is an ongoing refrain from our customers. Success with small optics led to the development of 20-80 mm capacity machines. Our knowledge of the industry has made us a valuable resource for lens manufacturers. Come see us at booth #525. Contact: Erik Larsen, President, erik@larsenequipment.com; Andrew Larsen, andrew@larsenequipment.com

#### **LASEA**

#4564

rue des Chasseurs Ardennais 10, Liège Science Park, Angleur, 4031 Belgium

+32 4 365 02 43; fax +32 4 384 37 55

info@lasea.be; www.lasea.be

### Featured Product: Laser machines for high-precision micromachining

LASEA designs and manufactures workstations and special machines to respond to the applications of marking, engraving, cutting, drilling, texturing, thin film removal, welding and micromachining. Being a pioneer in the use of femtosecond lasers since 2003, LASEA continually invests in order to stay at the forefront of innovation. With a strong team of experts in optics, mechanical engineering and automation, LASEA develops new technologies and processes for the most complex applications. Contact: Jean-Pierre DUMINUCO, Sales Manager, jpduminuco@ lasea.eu; Kathy Placé, Office manager, kplace@lasea.eu

#### Lasence Inc.

#4411

No 18-B Xianshan E Rd Chengyang District, Qingdao, Shandong, 266107 China

+86 532 66731598; fax +86 532 66731599 wendy.chen@lasence.com; www.lasence.com

### Featured Product: Green laser: 530nm, 532nm, special 545nm, with new type material self-frequency-doubling

Lasence's Green Laser Modules' key features are: small size, wide temperature range, low power consumption and high stability. They are widely used in scientific research, biomedical applications, construction & decoration, surveying instruments, laser aiming and other fields. This year Lasence launched high power product 4W 532nm laser and 1W 545nm laser. Contact: Wendy Chen, Sales, wendy.chen@lasence.com; Joerg Muehlberger, Director, joerg.muehlberger@gmx.de

### **Laser Components Canada**

#2023

195 Joseph Carrier, Vaudreuil-Dorion, QC, J7V 5V5 Canada +1 450 455 8270; fax +1 450 455 0583

lcc@laser-components.com; www.laser-components.com

### Featured Product: Pulsed lasers coupled with a square fiber for best beam profile

Pulsed laser diodes produced for high power at 905 and 1550 nm. New multi-junction and high intensity lasers and a low-cost series compliment the well-established 905 and 1550 lasers having peak power levels exceeding 650 W. Superior beams through integrated FAC lenses and fiber coupling. Drive electronics and modules available. Applications are range finding, speed measurement, laser radar, safety scanners, laser light curtains, or use in testing and measurement systems. Sales/Support LC USA Contact: Matt Robinson, Sales Engineer, robinson@laser-components.com; Paul Buettner, Sales Engineer, buettner@laser-components.com

### **Laser Components DG, Inc.**

#2023

7755 S Research Dr Ste 123, Tempe, AZ, 85284 USA +1 480 491 4006; fax +1 480 491 4009

info@laser-components.com; www.laser-components.com

### Featured Product: Advanced PbS and PbSe detectors in both standard and custom configurations.

Avalanche photodiodes are manufactured in the USA with high quality and low cost and include silicon and InGaAs APDs with optimization at 650, 905, 1550, or 1060 nm, new UV-enhanced APD and Geigermode APD for photon counting, as well as hybrids and drive electronics and a large selection of IR PINs. Applications include range finding, speed measurement, laser radar, security scanners, and fluorescence measurements in industrial, military, medical markets. Contact: Paul Buettner, Sales Engineer, buettner@laser-components.com; Matt Robinson, Sales Engineer, robinson@laser-compo

### **Laser Components GmbH**

#2023

SPIE Corporate

Werner von Siemens Str 15, Olching, 82140 Germany +49 8142 28640; fax +49 8142 286411

info@laser-components.com; www.lasercomponents.com

### Featured Product: Large optics up to 390 mm with demanding coatings for high-end applications

Specializes in production and distribution of high-tech components for optoelectronic and laser industries. In-house manufacturing capability includes the production of lens substrates and hard dielectric coatings for laser optics as well as miniature laser modules and fiber optics, photon counting modules, avalanche photodiodes (APDs), and pulsed laser diodes (PLDs) as well as drive electronics and hybrids. Contact: Gary Hayes, General Manager, hayes@ laser-components.com; Valerie King, Sales/Marketing, king@laser-components.com

### **Laser Components Pyro Group, Inc.**

#2023

7687 SW Ellipse Way, Stuart, FL, 34997 USA +1 603 821 7040

info@laser-components.com; www.laser-components.com

### Featured Product: High-end DLaTGS-based pyroelectric detectors for best performance.

Manufactures LTO (lithium tantalate) and DLATGS (deuterated lanthanum alanine doped triglycine sulphate) pyroelectric detectors. With a spectral range from visible to Terahertz, supplied in many different configurations including: size, amplifier response, and with or without thermoelectric (TE) cooling. Built-in preamplifiers can be specified in either CM (current mode) or VM (voltage mode). A wide range of filters available. Also supplies high D\* values at typical operating frequencies. Contact: Susan Wells, Sales Engineer, wells@ laser-components.com; Jim Dell, Sales/Product Manager, dell@ laser-components.com

#### Digital Signage Sponsor

#### Laser Components USA, Inc.

#2023

SPIE Corporate

116 South River Rd, Bldg C, Bedford, NH, 03110 USA +1 603 821 7040; fax +1 603 821 7041

info@laser-components.com; www.lasercomponents.com

### Featured Product: Count T: Single-photon counting module with highest quantum efficiency for timing applications

Provides high power laser optics from 193 nm to 10.6 μm, custom-made lenses, flexpoint miniature laser modules, glass polarizing filters, and fiberoptic assemblies. Photon counting modules, avalanche photodiodes (APDs), pulsed laser diodes (PLDs), drive electronics, hybrids, and complete modules. Laser power supplies and low cost laser diodes complete the product range. Contact: Gary Hayes, General Manager, hayes@laser-components.com; Valerie King, Sales/Marketing, king@laser-components.com

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#### **Laser Focus World**

#1641

SPIE Corporate Member

98 Spit Brook Rd, PennWell Technology Div, Nashua, NH, 03062-5737 USA

+1 603 891 9126

info@laserfocus.com; www.laserfocusworld.com

#### Featured Product: Laser Focus World

Published since 1965, Laser Focus World has become the most trusted global resource for engineers, researchers, scientists and technical professionals by providing comprehensive coverage of photonics technologies, applications and markets. Laser Focus World reports on and analyzes the latest developments and significant trends in both the technology and business of photonics worldwide and offers greater technical depth than any other publication in the field.

#### **Laser Institute of America**

#3068

SPIE Corporate

13501 Ingenuity Dr Ste 128, Orlando, FL, 32826-3274 USA +1 407 380 1553; fax +1 407 380 5588 lia@lia.org; lia.org

LIA is the professional society for laser applications and safety. They promote laser applications and their safe use through publications, training and symposia. One of LIA's signature conferences is the International Congress on Applications of Lasers & Electro-Optics (ICALEO®), which is viewed as the premier source of technical information in the field. LIA meets the market demand for laser applications with other exhibits and workshops. Visit our website for more information: www.lia.org.

### Laser Materials Corp.

#404

12706 NE 95th St #102, Vancouver, WA, 98682 USA +1 360 254 4180; fax +1 360 254 4182 sales@lasermaterials.com; www.lasermaterials.com

#### Featured Product: Laser rods

Laser Materials Corporation produces Nd:YAG, CTH:YAG, Yb:YAG, and ruby in our facility in Vancouver, WA (USA). In business since 1992, we produce laser rods and slabs from large diameter Czochralski grown boules using a highly automated, well developed growth process. Our high yield and high quality growth process allows us to provide our customers with both a high quality and low cost product. Contact: Paul Collins, President, paul@lasermaterials.com; David Collins, Vice-President, dcollins@lasermaterials.com

#### Laser Mechanisms, Inc.

#4338

25325 Regency Dr, Novi, MI, 48375 USA +1 248 474 9480; fax +1 248 474 9277 info@lasermech.com; www.lasermech.com

Laser Mechanisms specializes in innovative laser beam delivery components and articulated arm systems for high power CO<sub>2</sub>, YAG, fiber lasers and other wavelengths that suit all facets of industrial, medical and military applications. Staff of laser system engineers can custom design a performance guaranteed beam delivery system for your laser application. Laser mechanisms is also the exclusive North American distributor of the PRIMES line of laser beam analysis equipment. Contact: Mark Robinson, Sales Engineer, mrobinson@ lasermech.com

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#### **Laser Quantum USA**

#1440

SPIE Corporate Member

3083 Lawrence Expressway, Santa Clara, CA, 95051 USA +1 408 510 0079

info@laserquantum.com; www.laserquantum.com

Laser Quantum is a world-class manufacturer of revolutionary solid-state and ultrafast lasers. Our products lead the industry in performance specifications, reliability, compactness and operational lifetime. You will find Laser Quantum lasers used in laboratories and integrated in systems and machines worldwide. Our lasers are helping scientists to break new ground in many applications ranging from attosecond physics to forensics and genomics. Visit www. laserquantum.com for more information. Contact: Barney Mitchell, Vice President of Sales and Marketing, bmitchell@laserquantum.com; Dan Jones, Sales and Service Engineer, djones@laserquantum.com

### **Laser Research Optics**

#2435

120 Corliss St, Providence, RI, 02904-2602 USA +1 401 331 3838; fax +1 401 331 4004 sales@laserresearch.net: www.laserresearch.net

Laser Research Optics supplies CO<sub>2</sub>, laser optics for 25 to 200 watt, lasers, factory direct and optimized for 10.6 micron. Featured are ZnSe positive focusing lenses in plano-convex, plano-concave, and meniscus configurations in 1/2" to 2" dia., focal length 1" to 20". CO<sub>2</sub> laser turning mirrors offered are made from molybdenum for harsh environments; other mirrors include copper, dual band, silicon and phase retardation. These OEM quality replacement optics ship from stock within 12 hours Contact: Scott Rouillard, Sales, scott@ melleroptics.com

### Laser-Compact Co. Ltd.

#512

SPIE Corporate Member

3 Vvedensky St, Moscow, 117342 Russian Federation +7 499 578 05 48; fax +7 499 578 05 49 ik@lcompact.msk.ru; www.laser-export.com

### Featured Product: TiSon GSB compact 0.2 mJ nanosecond laser with automatic tuning in the range from 700 to 900 nm

Founded in 1992, Laser-Compact specializes in R&D and manufacture of DPSS lasers. The company designs and manufactures UV, green, and IR lasers for use in analytical, scientific, and industrial applications including materials testing and micromachining, photoacoustics, various types of spectroscopy, LIDAR, mass-spectrometry and laser microdissection. More than 48,000 lasers have been produced and delivered to world-leading industrial companies and scientific organizations. Contact: Ekaterina Fedyna, Deputy Director, ik@lcompact.msk.ru

#### Laser-Export Co. Ltd.

#512

3 Vvedensky St, Moscow, 117342 Russian Federation +7 499 578 05 48; fax +7 499 578 05 049 sales@laser-export.com; www.laser-export.com

### Featured Product: 3 mJ IR Q-switched technology series lasers with kilohertz PRR in compact package

Specializes in DPSS lasers manufacturing and R&D. Represents a group of companies laser-compact with 24-years custom design experience. Offers new compact tunable lasers for photo acoustics; Q-switched IR, green and UV lasers for micromachining, spectroscopy etc.; miniature single-frequency lasers for Raman. The biggest Russian exporter of DPSS lasers the group sells its products through distributors and OEMs all over the world. Laser-Export's QC system is certified to comply with ISO 9001:2008. Contact: Natalia Gavrilenko, Head of Sales Department, sales@laser-export.com

#### Laserline Inc.

#2517

SPIE Corporate Member

1800 Wyatt Dr Ste 9, Santa Clara, CA, 95054 USA +1 408 834 4660; fax +1 408 834 4671 info@laserline-inc.com; www.laserline-inc.com

#### Featured Product: LDF Generation 6: LDM up to 4 kW

Laserline is the worldwide leading manufacturer of fiber-coupled high power diode lasers; over 3500 laser systems installed in all kinds of applications: brazing, welding, remote welding, cladding, 3D printing, heat treatment, hardening and cutting. Standard laser-power ranges from 500 W to 50 kW. Products are characterized by smallest footprint, lowest investment and operating cost, highest efficiency, longest warranty (5 years) & highest up-time; worldwide sales & service coverage (24/7) Contact: Wolfgang Todt, V.P. US Operations, info@laserline-inc.com

#### LaserPoint srl

#4467

Via Burona 51, Vimodrone, MI, 20090 Italy +39 02 2740 0236; fax +39 02 2502 9191 sales@laserpoint.it; www.laserpoint.eu

### Featured Product: New sensors for high energy density lasers: specifically designed for tight medical applications

Laserpoint has more than 25 year experience in developing and manufacturing high-quality laser measurement instruments which bear innovation, original design and proprietary technologies. Among those new technologies is the introduction of new absorbers capable to resist the disruptive power densities of multi-kW, high brightness lasers. Laserpoint strictly works with OEMs to supply application-oriented, innovative solutions for industrial and medical applications. Contact: Flavio Ferretti, Owner, ferretti@laserpoint.it; Luca Longoni, Sales Mngr, longoni@laserpoint.it

#### LASERTEC INC

#2702

177# Congyang Rd ChengYang, Qingdao, Shandong, 266107 China +86-532-68959242; fax +86-532-68959242

Lasertec01@gmail.com; www.lasertec.com

### Featured Product: Diffusion bonding crystals, BBO crystal, laser mirrors, thin-film polarizer, DKDP pockels cell

LASERTEC is a professional manufacture providing innovative optics, precision optics, laser components to the lasers, aesthetics, life sciences, medical and industry market. Main products including laser mirrors, laser material, precision optics, lenses, infrared optics, high-damaged coating and customized optics. Contact: Gary Liu, Director, sales@lcoptical.com

#### Banner, Floor Graphic, Meter Board Sponsor

### Lasertel, Inc.

#706

SPIE Corporate

7775 N Casa Grande Hwy, Tucson, AZ, 85743-9317 USA +1 877 844 1444; fax +1 520 744 5766 sales@lasertel.com; www.lasertel.com

### Featured Product: Lasertel now offers CW laser diodes up to a 1 MW. Come hear the sound of a Megawatt laser.

Lasertel is a vertically-integrated manufacturer of high-power semiconductor laser components and developer of custom laser solutions. Servicing the defense, medical, industrial and scientific industries, and a wide range of chips, bars, array packages and fiber-coupled devices are available with peak wavelengths from 770nm to 1050nm, and output powers from 0.5W to several kW. Contact: John Goings, Sales Account Manager, jgoings@lasertel.com; Robert Walker, Director of Sales and Marketing, rwalker@lasertel.com

**Laservision USA** 

#803

SPIE Corporate

595 Phalen Blvd, Saint Paul, MN, 55130-5303 USA +1 800 393 5565; fax +1 651 357 1830 info@lasersafety.com; www.lasersafety.com

### Featured Product: Laser safety: eyewear, barriers (curtains, panels and enclosures), windows, training

Laservision is your laser safety experts for over thirty years. Creating cutting edge design, innovation, research development and manufacturing of laser protective technologies. Eyewear/filters: provide safety, comfort and style with over 2,000 filter options. Barriers: multiple curtains, panels and enclosures that are portable or mounted for large area protection. Windows: large selection of customized options. Training: online/classroom- laser safety officer, awareness and audits. Contact: Cully Smutzler, Academy Director, c.smutzler@lasersafety.com

### Lasfiberio Co., Ltd.

#4405

No 60 Xibu Avenue., Hi-Tech Industrial Development Zone, Xi'an, Shaanxi, 710119 China

+ 86 29 89288990; fax + 86 29 89286389 sales@lasfiberio.com; www.lasfiberio.com

#### Featured Product: High Power Fiber Combiner.

Lasfiberio Co., Ltd was established in 2013 which is located in Xi'an Hi-Tech Industrial Development Zone. The company is cofound by Venture Capital and professional team who have 10+ year experience in the Industry. With our own intellectual property and unique technology for many years engaged in high power, polarization-maintaining optical fiber devices. We can provide high power fiber combiner, Mode Field Adapter, Cladding Power Stripper, Endcap and other high power components. Contact: Xiangyu Meng, General Manager, alan.meng@lasfiberio.com; Shitan Luo, Sales Manger, shitan.luo@lasfiberio.com

# LASORB - A division of Pangolin Laser Systems, Inc.

#2208

SPIE Corporate Member

9501 Satellite Blvd Ste 109, Orlando, FL, 32837-8445 USA +1 407 299 2088; fax +1 407 299 6066 contact@pangolin.com; www.LASORB.com

### Featured Product: LASORB protects your sensitive laser diodes from damage caused by ESD and power surges.

LASORB is the world's first electronic component designed specifically to protect laser diodes from direct and indirect electrostatic discharge (ESD) and power surges. Developed in 2008 by Pangolin's President and CTO, William Benner, LASORB protects laser diodes, LEDs, and super-luminescent diodes from single, multiple, and repeated ESD events of both positive and negative polarity. Contact: Justin Perry, Chief Operating Officer, Justin@ Pangolin.com

#### Floor Plan Logo Sponsor

#### **LASOS Lasertechnik GmbH**

#1238

SPIE Corporate Member

Franz-Loewen-Str 2, Jena, 07745 Germany +1 760 305 8265

us-sales@lasos.com; www.lasos.com

LASOS develops and manufactures solid state and gas lasers in the UV-visible spectrum with special focus on OEM applications in biophotonics, Raman spectroscopy and holography. Within the superb geographic footing of Jena LASOS is well placed to channel the latest in scientific and technological process into cutting edge products and services. LASOS serves many globally reputable manufacturers with stringent demands on reliability and have become the world's leading confocal microscopy supplier. Contact: Lynn Strickland, us-sales@lasos.com; Claudia Rabis, claudia.rabis@lasos.com

### **Lattice Electro Optics, Inc.**

#533

SPIE Corporate Member

1324 E Valencia Dr, Fullerton, CA, 92831-4758 USA +1 714 449 0532; fax +1 714 449 0531 latticeoptics@gmail.com; www.latticeoptics.com

#### Lattice Materials LLC

#4623

516 E Tamarack St, Bozeman, MT, 59715-3050 USA +1 406 586 2122; fax +1 406 587 9055 marketing@latticematerials.com; www.latticematerials.com

### Featured Product: Silicon and germanium optics and thin-film targets

Lattice Materials is the premier American grower and machining company for silicon and germanium materials. With capabilities ranging from custom crystal growth to fine optical polishing of large-diameter parts, Lattice Materials is trusted by top defense, security and optics companies the world over. Contact: Ken Fichtler, Marketing Specialist

#### LAYERTEC GmbH

#4219

Ernst-Abbe-Weg 1, Mellingen, 99441 Germany +49 36453 744 0; fax +49 36453 744 40 info@layertec.de: www.layertec.de

### Featured Product: High power optics, ultrafast optics, aspheric mirrors, OPO optics, custom optics

LAYERTEC, established in 1990 as a spin off from the University Jena, produces high quality optical components (precision optics, flats, spherical and aspheric optics) for laser applications. Coatings for high power applications, broadband optics, ultrafast lasers, filters, polarization control, complicated custom designs. Technologies include magnetron sputtering, IBS, IAD, thermal evaporation. Large stock of optics; staff: 175 employees; 34 coating chambers; in-house optics production Contact: Frank Wunderlich, Sales Director

LC-TEC #5355

Tunavägen 281, Borlänge, 781 73 Sweden +46 243 79 40 70; fax +46 243 79 40 79 info@lc-tec.se; www.lc-tec.se

### Featured Product: Optical shutters, variable ND filters, switchable color filters, and polarization modulators.

LC-Tec is a technology company specializing in optical components based on liquid crystal (LC). Our products include optical shutters, variable ND filters, switchable/tunable color filters, and polarization modulators/rotators. Fast switching, small footprint, and reliable operation are attractive design features that make them highly suitable for a wide range of applications, including 3D, camera, machine vision, welding, microscope, and eyewear to name a few. Contact: Jesper Osterman, CEO, jesper.osterman@lc-tec.se

#### Le Verre Fluoré

#4563

Campus KerLann, Bruz Brittany, 35170 France +33 2 9905 3130; fax +33 2 9905 3953 info@leverrefluore.com; www.leverrefluore.com

### **LECC Technology Co., Ltd.**

#4361-C

No 67 Jhong-Fong N Rd, 10th Fl, Jhong-Li City Taoyuan County, 320 Taiwan

+886 32805385; fax +886 32805813 www.lecc.com.tw

#### **Featured Product: Laser module**

LECC Technology Co., Ltd. was established in January 2000. We focus on the development, manufacture, and sale of midrange to high-end laser modules. With the ISO 9001 certified manufacturing facilities and outstanding R&D capability, we provide customized products to customers worldwide. We expect to be your strong partner as we bring you high value-added and quality products. Contact: Neil Tung, GM, sales@lecc.com.tw; Sandy Shen, sales, sandy.shen@lecc.com.tw

### Lee Laser, A Rofin Company

#923

7605 Presidents Dr, Orlando, FL, 32809 USA +1 407 812 4611; fax +1 407 850 2422 sales@leelaser.com; www.leelaser.com

### Leica Microsystems CMS GmbH

#4629

Ernst-Leitz-Str 17-37, Wetzlar, 35578 Germany +49 6441 29 0; fax +49 6441 29 2590

loc-sales@leica-microsystems.com; www.leica-microsystems.com

### Featured Product: Innovative, high-tech. precision optical systems for the analysis of microstructures.

Leica Microsystems offers the assembly of OEM optical components and special-solutions under the Leitz brand. The Leitz brand takes its name after the entrepreneur and owner Ernst Leitz, who turned the former family business into a global company. His motto "with the user, for the user" has remained the guiding principle of the company and for OEM partnerships. We develop our solutions together with our customers to celebrate their successes. Contact: Bayer Raimund, OEM-Manager, loc-sales@leica-microsystems.com

### **Lein Applied Diagnostics Ltd.**

#5544

SPIE Corporate Member

Whiteknights Rd, Reading Berkshire, RG6 6BU United Kingdom +44 845 456 5970

sales@lein-ad.com; www.lein-ad.com

Lein Applied Diagnostics is a dynamic technology company pioneering measurement devices and solutions for both the healthcare and industrial markets. Our core technology is based around a low cost scanning confocal system that can make accurate, non-contact positional, multi-layer thickness and refractive index measurements with sub-micron precision. Lein's technology is used in a number of applications, including high resolution metrology, pharmacokinetics, and diabetes care. Contact: lan Cox, Business Development Manager, ian.cox@lein-ad.com; Dan Daly, CEO, dan.daly@lein-ad.com

### **Leister Technologies**

#940

1275 Hamilton Pkwy, Itasca, IL, 60143-1150 USA +1 855 534 7837; fax +1 630 760 1001 info@leisterusa.com; www.leisterusa.com

### Featured Product: Developed to meet demands, Leister's Novolas TTS is a compact and efficient laser welding solution.

Leister Laser Plastic Welding expands the possibilities of plastic assembly. From small batch processing and research systems to turnkey laser welding systems, the company offers a complete line of equipment that can fulfill most laser welding requirements. Contact: Andrew Geiger, Manager, Laser Plastic Welding, andrew. geiger@leisterusa.com

### **LEONI Fiber Optics, Inc.**

#2338

SPIE Corporate Member

209 Bulifants Blvd, Williamsburg, VA, 23188-5729 USA +1 757 258 4805; fax +1 757 258 4694 contact@leonifo.com; www.leoni-northamerica.com

LEONI develops and manufactures specialty fiberoptic high quality products for individual application prototypes through production. We specialize in design and development, preform and fiber production, fiber assys. for spectroscopy, HP laser, process control, pharmaceutical and class II medical probes. We offer standard and custom FO switches (SM & MM), planar light channels (PLC) and fiber Bragg sensors. LEONI is an integrated global manufacturer with mfg. sites in the USA, Germany & China. Contact: Lisa Young, Director of Industrial Sales, lisa.young@leoni.com

#### LEUKOS #4368

37 rue Henri Giffard, ZI Nord, Limoges, 87280 France +33 5 87 20 00 23; fax +33 5 55 38 17 39 contactus@leukos-systems.com; www.leukos-systems.com

### Featured Product: Supercontinuum & white light lasers, like UV, visible, NIR, SWIR, mid-IR, & DPSS microchip lasers.

LEUKOS is a leading developer & manufacturer of supercontinuum lasers. Our portfolio includes solutions covering UV, visible, NIR, SWIR, & mid-IR, while also delivering high power or high energy at different modes of operation. With 10 years of experience, we offer a variety of standard & custom-made supercontinuum lasers, enabling various applications in spectroscopy, imaging & metrology. Our expert team will take your project from prototype to production with the highest level of support. Contact: Karine Weck, Sales and Marketing, contactus@leukos-systems.com; Guillaume Huss, CEO and President, contact@leukos-systems.com



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15-228

#2701

### LEW Techniques

Cook Way, Taunton, Somerset, TA2 6BG United Kingdom +44 1823 286698; fax +44 1823 333697 info@lewtec.com; www.lewtec.com

**Magnetron Sputtering** 

### Featured Product: Precision submounts and carriers for laser diodes, laser bars, laser stacks and photodiodes.

LEW Techniques specializes in the manufacture of miniature components and microcircuits for mounting of semiconductor devices. Typically our components are used for mounting LEDs, laser diodes and photodiodes, RF circuits, hermetic packages and windows and other associated items. Our in-house capabilities include thin-film, thick-film and refractory metallizing of ceramics and metals, electroplating, precision dicing, laser machining, atmosphere/vacuum brazing and solder assembly. Contact: Richard Beesley, Technical Sales Co-ordinator, richard.beesley@lewtec.co.uk; Andrew Walker, Technical Director, info@lewtec.co.uk

### Lextar Electronics Corp. #4361-K

No 3 Gonye E 3rd Rd, Hsinchu Science Park, Hinschu, 31040 Taiwan +886 3 565 8800; fax +886 3 5638319

Sales.NS@Lextar.com; Lextar.com

### **Leybold Optics USA, Inc.**

SPIE Corporate Member

#5145

539 James Jackson Ave, Cary, NC, 27513-8101 USA +1 919 657 7100; fax +1 919 657 7101

leyboldoptics.cary@buhlergroup.com; www.buhlergroup.com

### Featured Product: Wideband optical monitoring system for single and broadband monitoring

Leybold Optics is a global supplier of innovative thin-film coating systems and processes, utilizing plasma ion assisted evaporation, sputtering, and plasma enhanced CVD. We supply equipment designed for the optics, automotive, display, glass, opto-electronic, and aerospace industries. Within precision optics, we provide leading-edge equipment for coating all types of substrates from the EUV through visible to far infrared, and we have a wide portfolio of qualified production processes. Contact: Phil Hatchett, Regional Sales Manager, phil.hatchett@buhlergroup.com

### Leysop Ltd.

#4859

18 Repton Ct, Repton Cl, Basildon Essex, SS13 1LN United Kingdom +44 1268 522 111; fax +44 1268 522 111

sales@leysop.com; www.leysop.com

### Featured Product: Electro-optic modulators, Q-switches, and polarizing optics.

Leysop has been established for less than 20 years and are the only UK manufacturer of electro-optic components, including Pockels cells for Q-switching, modulation and pulse slicing, Faraday isolators and calcite polarisers of all forms. Of particular note are our special ultra-fast Pockels cells for sub-ns pulses and systems for high speed pulse picking. We also manufacture many special components to customer specifications in both active and passive devices, and we welcome your enquiries. Contact: Steve Payne, Technical Director, steve.payne@leysop.com

### Ligentec

#4056

Station 3, EPFL-SB-ICMP-LPQM/PH D3 335, Lausanne, 1015 Switzerland

+41 21 693 44 65

michael.geiselmann@epfl.ch; ligentec.com

### Featured Product: Fabrication service for high Q silicon nitride structures for nonlinear light generation technology

We specialise in fabrication of thick (>600nm) high Q silicon nitride waveguides and resonators on a 5x5mm silicon photonic chip. We offer our proven designs fabricated in our clean room, along with a foundry service for custom designs. We also provide a frequency comb solution based on our high Q resonator planar chip. Contact: Michael Geiselmann, michael.geiselmann@epfl.ch; Michael Zervas, michael.zervas@epfl.ch

### **Light Conversion**

#1533

Keramiku 2B, Vilnius, LT-10223 Lithuania +370 5 249 1830; fax +370 5 210 2785 sales@lightcon.com; www.lightcon.com

### Featured Product: Light conversion PHAROS femtosecond 15 W industrial laser system.

Light Conversion is the world-leader for tunable ultrafast OPA systems with the worldwide recognized TOPAS series products. Light conversion is also an established manufacturer of Ytterbium laser PHAROS (180 fs, up to 20w, 2mJ, 1MHz), harmonics generators, and parametric amplifier "ORPHEUS". Together the portfolio forms a 'best-in-class' set of devices for femtosecond applications in industry, medicine, and fundamental research. Contact: Lucian Hand, President, Altos Photonics, sales@ altosphotonics.com; Laurie Dewar, Customer Support, Altos Photonics, laurie@altosphotonics.com

### **LightComm Technology Co., Ltd.**

#5255

SPIE Corporate Member

1268 Liuxian Ave, 3F Bldg2, North area of Honghualing Industry Park, Shenzhen, Guangdong, 518055 China +86 755 86157878; fax +86 755 83434363 Sales@lightcomm.com; www.lightcomm.com

### Featured Product: High Power Pump Combiner, High Power Isolator, PM Fused Fiber Coupler, PM Micro Optic Comonents.

Established and located in Shenzhen since September 2000. World leading optical fiber passive components manufacturer with more than 15 years of operation history. More than 450+ employees including 70+ R&D staffs. Specializing in the design/manufacture of passive optical fiber components for fiber laser, amplifier, sensing and telecommunication applications. Proprietary fiber fusion & tapering technology and cutting-edge heat dissipation technology. ISO 9001:2008 certified. Contact: Jason Lin, Sales&Marketing Dept. Manager, Jason.lin@lightcomm.com

### **Lightel Technologies, Inc.**

#4322

2210 Lind Ave SW Ste 100, Renton, WA, 98057-3326 USA +1 425 277 8000; fax +1 425 288 5280 sales@lightel.com; www.lightel.com

Contact: Valerie Cook

### **LightGuideOptics USA, LLC**

#838

1101 S Winchester Blvd Ste L-238, San Jose, CA, 95128 USA +1 408 244 0686; fax +1 408 244 0714 dspeciale@lgoptics.com; www.lgoptics.com

LightGuideOptics USA manufactures a variety of large core step index fibers, finished assemblies, and standard and hexagonal fused bundles for the medical, scientific, and industrial markets. Fully packaged and sterilized products are available, as well as custom designs and engineering prototypes. They have ISO and CE Mark certifications. Contact: Mick Speciale, C.O.O., dspeciale@lgoptics.com; Jacqueline Ferguson, Office Management, jferguson@lgoptics.com

#### Lighthouse Photonics, Inc.

#4032

2000 Wyatt Dr Ste 1, Santa Clara, CA, 95054 USA +1 408 588 4616; fax +1 408 773 6240 info@lighthousephotonics.com; www.lighthousephotonics.com

#### **Featured Product: Sprout**

Lighthouse Photonics develops and manufactures innovative DPSS lasers with a unique blend of precision performance, compactness, and value. Sprout offers up to 18W at 532nm in a near-perfect TEMoo mode with extremely low noise and impressive power stability. Sprout is specifically designed for applications that demand excellent beam quality and high stability, such as pumping Ti:Sapphire oscillators. Contact: JOHN MACKAY, CEO, info@ lighthousephotonics.com

### LightMachinery Inc.

#327

SPIE Corporate Member

80 Colonnade Rd N Unit 1, Nepean, ON, K2E 7L2 Canada +1 613 749 4895; fax +1 613 749 8179 sales@lightmachinery.com; www.lightmachinery.com Contact: Gregg Senechal, Business Manager

Featured Exhibitor Sponsor

### **LightPath Technologies**

#722

SPIE Corporate Member

2603 Challenger Tech Ct Ste 100, Orlando, FL, 32826-2716 USA +1 407 382 4003; fax +1 407 382 4007 sales@lightpath.com; www.lightpath.com

### Featured Product: Glass aspheres & assemblies, infrared lenses & thermal imaging assemblies, and collimators & GRADIUM\*.

LightPath Technologies is a recognized leader in optics and photonics solutions, serving blue chip customers in the industrial, defense, telecommunications, testing and measurement, and medical industries for over 25 years. LightPath also offers custom optical assemblies, including full engineering design support for both optics and mechanics. This allows for the highest level of optical integration, lower cost, as well as ensures the highest level of quality, performance, and manufacturability. Contact: Kimberly Clifton, Marketing Manager, kclifton@lightpath.com

### **LightSmyth Technologies**

#4242

#4370

875 Wilson St Ste C, Eugene, OR, 97402-2774 USA +1 541 431 0026; fax +1 541 284 5607 info@lightsmyth.com; www.lightsmyth.com

### Featured Product: Low cost diffractive optics - Arbitrary beamshapers (lenses, beamsplitters, CGH) etched into glass.

LightSmyth offers a wide range of high performance diffraction gratings and elements based on advanced nanophotonic fabrication technology. Diffraction gratings by LightSmyth are distinguished by high efficiency, low PDL, ultra-low-scatter and high power handling. Each grating is a master but priced as a replicated grating. Applications include pulse compression, optical instruments, optical telecommunication (optical switch) and others. Silicon nanostamps for nanoimprinting are also offered.

### Lightstar Technology Ltd.

Chongde 1st Rd, Economy Development Zone, Dezhou, Shandong, 253000 China

+86 189 274 87970; fax +86 053 470 63000 www.lightstartech.com

### LightTrans #4629

Kahlaische Str 4, Jena, 07745 Germany +49 36 41 5312950; fax +49 36 41 5312901 service@lighttrans.com; www.lighttrans.com

### Featured Product: Wyrowski VirtualLab Fusion: unified optical modeling and design software.

LightTrans products and services include optical design software, optical engineering, training, consulting, prototyping, and aiding the transfer to mass production. The software VirtualLab Fusion combines ray tracing and physical optics field tracing techniques for the design of diffusors, beam splitters, beam shapers, LED light shaping systems, high-NA imaging and laser systems, and laser resonators and gratings. Optical design solutions by LightTrans help you to minimize R&D costs and development time. Contact: Hagen Schweitzer, Chief Sales Officer, hagen.schweitzer@lighttrans.com; Daniel Asoubar, Chief Technological Officer, daniel.asoubar@lighttrans.com

### LIMO Lissotschenko Mikrooptik GmbH #2438

Bookenburgweg 4-8, Dortmund, 44319 Germany +49 231 222 41 0; fax +49 231 222 41 140

info@limo.de; www.limo.de

### Featured Product: Diode lasers for pumping and even more compact housing: <= 60W, fully equipped.

For more than 20 years, LIMO has been known in the photonics industry as the leading company in laser beam shaping. At LIMO's headquarters in Dortmund, an international team develops, manufactures, and sells innovative micro-optics and laser systems. From the start, we built a worldwide reputation with our refractive micro-optics. Soon afterwards, we added high-power diode lasers and beam shaping systems for all types of lasers to the portfolio. Contact: Roy Wetzel, Klaus Reinecke

#### General Sponsor

### Lincoln Laser Co.

#1913

SPIE Corporate

234 E. Mohave, Phoenix, AZ, 85004 USA +1 602 257 0407; fax +1 602 257 9022 info@lincolnlaser.com; www.lincolnlaser.com

### Featured Product: High speed polygon scan heads, motors and mirrors, and custom laser systems and components

Lincoln Laser Company is an engineering and manufacturing company with expertise in precision laser beam delivery systems. The company specializes in high speed polygon scan heads, polygon mirrors and motors, as well as custom designed high precision laser systems and optical components. Based in Phoenix, Arizona, for 40 years Lincoln Laser is the ISO 9001:2008 certified supplier for many leading companies around the globe. For more information, call 602-257-0407 or visit www.lincolnlaser.com. Contact: BIII Kuypers, Director Marketing/Sales, bkuypers@ lincolnlaser.com; Beverly McGrath, Corporate Accounts Manager, bmcgrath@lincolnlaser.com

### Lingbao Shenghe Optical Glass Material Co., Ltd.

#2001-I

South Rd Guxian County, Guxian Town Lingbao, Anhui, 472500 China

+86 3986833258

ljmysy@126.com; www.shenghekuangye.com

Shenghe Mining CO., Ltd. is mainly engaged in the development and usage of precious metals, rare earth mine, scattered metal mining of: Au, Ag, Li, Ta, Nb, La, Rb, Cs, and Bo. We also produce and sell more than 80 special materials such as: special optical glass materials, laser fusion glass materials, laser fusion crystal materials, rare earth laser glass materials, rare earth metaphosphate, etc.

#### LiteFilm Tech

#4361-I

40 Yanhe St, Jubei City, 302 Taiwan +886 3 551 1100; fax +886 3 552 8787 jonathan.lin@litefilm.com.tw; www.litefilm.com.tw

### Featured Product: Optical coating and design, optical glass, camera components, and cutting services

Litefilm Technology is a professional manufacturer of optical coating component who endeavors to improve and develop. As Litefilm is a world-class company with superior coating technology, they strive to increase the competitiveness within the field of optical coating technology. Contact: Jonathan Lin, Sales Manager, jonathan.lin@ litefilm.com.tw; Dinah Chang, Manager, Supply Chain, dinah.chang@ litefilm.com.tw

#### **Lite-On Technology Corporation**

#4361-K

No.90, Chien 1st Rd., Chung Ho Dist., New Taipei City, 23585 Taiwan

+886 2 2222 6181; fax +886 2 2221 1948

liteontech.pr@liteon.com; www.liteon.com/opto

### Featured Product: White LEDs, UV LEDs, SMD LEDs, lamp LEDs, LED displays, photocouplers, infrared components

Founded in 1975, Lite-On Technology is the longest running and largest-scale optoelectronic components supplier in Taiwan. Based on strong R and D resources, Lite-On has been able to cover extensive optoelectronic product lines including Lighting LEDs, UV LEDs, white LEDs, automotive LEDs, SMD LEDs, lamp LEDs, LED displays, photo couplers, infrared components, etc., and is proven to be the leader in total optoelectronic components solutions. Contact: Lai Vanessa, Global Marketing, vanessa.lai@liteon.com; Teng Kay, Global Marketing, kay,teng@liteon.com

### **Litron Lasers Ltd.**

#937

SPIE Corporate

8 Consul Rd, Rugby Warwickshire, CV21 1PB United Kingdom +44 1788 574444; fax +44 1788 574888 sales@litron.co.uk; www.litronlasers.com

Contact: David Clarke, Marketing & Communications

LLTech #4238

29 rue du Faubourg Saint Jacques, R&D – Sales Pépinière Paris Santé Cochin, Paris, 75014 France +33 182726125

contact@lltech.fr; www.lltechimaging.com

LSTECH #4067

37, Cheomdan vencheo-ro 40, Buk-ku, Gwangju, 500-470 Korea,

+82 62 942 0170; fax +82 62 842 1080 info@lstech.kr; www.lstech.kr

Luceo Co., Ltd. #493

30-9 Ohyama Kanai-cho, Itabashi-ku, Tokyo, 173-0024 Japan +81 3 3956 4111; fax +81 3 3956 2335 info@luceo.co.ip; www.luceo.co.ip/en/

### Featured Product: Polariscope Fullauto StrainEye LSM-9000S, glass surface stress meter, wavelength plates, polarizers

LSM-9000S enables the 6x zoom lens to magnify small sample images for inspecting strain in transparent materials, such as glass or plastic. Luceo offers this instrument in the glass/plastic market at a competitive price. In addition, Luceo produces polarizers and wave plates. Our super broadband wave plate (SBW) has constant retardance in comparison to different wavelengths from VIS to NIR. SBW has successfully combined various wavelengths of wave plates into one plate. Contact: Shozo Imura, imura@luceo.co.jp; Takao Mano, mano@luceo.co.jp

### Lumencor, Inc.

#305

SPIE Corporate

14940 NW Greenbrier Pkwy, Beaverton, OR, 97006 USA +1 503 213 4269

info@lumencor.com; www.lumencor.com

Lumencor is a leading manufacturer of lighting for clinical instruments, like microscopes. Unlike traditional lamps, our bright, light engines are energy efficient and mercury-free.

### Lumenera Corp.

#4031

7 Capella Ct, Ottawa, ON, K2E 8A7 Canada +1 613 736 4077; fax +1 613 736 4071 info@lumenera.com; www.lumenera.com

#### Featured Product: High-performance USB 3.0 cameras

Lumenera Corporation is a leading developer and manufacturer of high performance digital cameras and custom and OEM imaging solutions used worldwide for industrial and scientific applications. Lumenera provides an extensive range of high quality digital cameras with unique combinations of speed, resolution and sensitivity to satisfy the demands of today's imaging applications. Lumenera also offers custom design services to OEM partners requiring specialized hardware and software features. Contact: Lumenera Sales, info@lumenera.com

### **LumenFlow Corp.**

#3026

3685 Hagen Dr SE Ste B, Grand Rapids, MI, 49548 USA +1 269 795 9007; fax +1 269 795 9027 solutions@lumenflow.com; www.lumenflow.com

#### **Featured Product: Optical Silicone Assemblies**

LumenFlow is a photonic engineering and manufacturing company. Lumenflow specializes in providing optical solutions to OEMs in the commercializing manufacturing of optical technologies. Contact: Mark Leonard, Director of Marketing, mleonard@lumenflow.com; Paul Bourget, CTO, pbourget@lumenflow.com

### **Lumentum Operations LLC**

#2017

SPIE Corporate Member

400 N McCarthy Blvd, Milpitas, CA, 95035 USA +1 408 546 5483; fax +1 408 546 4300 www.lumentum.com

### Featured Product: Commercial and ultrafast lasers, 3D sensing and industrial diodes products will be featured.

Lumentum (NASDAQ:LITE) is a market-leading manufacturer of innovative optical and photonic products enabling optical networking and commercial laser customers worldwide. Lumentum's optical components and subsystems are part of virtually every type of telecom, enterprise, and data center network. Lumentum's commercial lasers enable advanced manufacturing techniques and diverse applications including next generation 3D sensing capabilities. Contact: Jim Christian, Product Line Manager, jim. christian@lumentum.com; Vincent Issier, Product Line Manager, vincent.issier@lumentum.com

### **Lumerical Solutions, Inc.**

#4446

535 Thurlow St Ste 300, Vancouver, BC, V6E 3L2 Canada +1 604 733 9006; fax +1 604 733 3188 sales@lumerical.com; www.lumerical.com

### Featured Product: INTERCONNECT is Lumerical's photonic integrated circuit design and simulation environment.

Since its inception in 2003, Lumerical has pioneered breakthrough simulation technologies that help bring new product concepts to life. Lumerical's software tools support a broad range of photonic and electromagnetic design and analysis applications. From component level analysis using optical and electrical solvers to photonic integrated circuit and system design and simulation, Lumerical's products are capable of addressing the most challenging design problems. Contact: Bill De Vries, Director Product Marketing, bdevries@lumerical.com; Lara Gilchrist, Director of Sales, Igilchrist@lumerical.com

**Lumics GmbH** 

#2023; 4629

Carl-Scheele-Str 16, Berlin, 12489 Germany +49 30 678 06 76 0; fax +49 30 678 06 76 26 info@lumics.com; www.lumics.com

### Featured Product: Ultra-compact LuOcean™ Mini4 diode laser module up to 70W, single/dual/triple wavelength 750-1940nm.

Lumics is a leading manufacturer of fiber-coupled SM and MM diode lasers, diode laser modules and turn key laser systems from 750nm to 1940nm, based on Lumics' state-of-the-art single emitter technology. The compelling LuOcean MM modules convince with very small form factors and output powers from 6W up to 800W. Additional features (sensors, fibers, cooling) allow for perfect adaptation to many applications including Medical & Health, Material Processing, Analytics & Sensing. Contact: Beate Sauter, Sales Director, beate.sauter@lumics.com; Michael Tuohy, Sales, tuohy@laser-components.com

#### Floor Plan Logo, Exhibition Map Sponsor

### Lumina Power, Inc.

#5329

26 Ward Hill Ave, Bradford, MA, 01835 USA +1 978 241 8260; fax +1 978 241 8260 sales@luminapower.com: www.luminapower.com

### Featured Product: New LDQCW-4000 pulsed laser diode driver. 4kW, 350 amps 10us rise time for industrial applications.

Laser and electro-optics power supplies for laser diodes from 50 to 6000 watts. Capacitor charging power supplies for FPSS lasers and pulsed high voltage applications with output voltages to 20kV. Xenon and Mercury short-arc power supplies and igniters from 50 to 6500 watts. Over 100 standard models customizable to your requirements. Custom power supplies for semiconductor and other applications where high power or high voltage is required. Contact: Barry Essig, VP Sales & Marketing, bessig@luminapower.com; Donna O'Neill, Customer Service Manager, doneill@luminapower.com

### Luoyang Silicon Electronics Co., Ltd. #4054

No.279 Daobei Road Xigong District, Luoyang City Hennan, Henan, 471000 China

+86 379 64515189; fax +86 379 62239128 info@optics-si.com; www.optics-si.com

### Featured Product: Various precision optical components made of silicon, FZ and CZ silicon components

Luoyang Silicon Electronics Co., Ltd. is a factory just for silicon components. We grow silicon ingot and provide precision processing. Main products include: Si mirror for CO<sub>2</sub> laser (diameter 0.75" 0.118" thick, diameter 0.984" 0.118" thick, diameter 1.5" 0.16" thick); scanning mirror (for YAG & CO<sub>2</sub> laser); optical grade silicon (used for IR filter, IR lenses, primes, and windows), diameter from 1mm-400mm; and silicon wafer products, diameter from 1"-6". Contact: Yanbo Cui, General manager, sales@optics-si.com; Yanping Xue, Saler, info@optics-si.com

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88-90 for complete times, schedules, and locations.

#### **Luvantix SSCP**

SPIE Corporate

#2714

22 Quail Run, Warren, NJ, 07059 USA +1 732 271 0350; fax +1 732 348 9496

info@sscpusa.com; www.sscpusa.com

### Featured Product: High temperature optical polymer (PC380HT RI=1.380 and PC515HT RI=1.515) for high power fiber lasers

Luvantix SSCP manufactures UV curable materials: low index polymer claddings (PC) with index ranging from 1.340 to 1.452 for high power and recoating applications, featuring fast cure, optimized viscosity, and high modulus. Newest PC products include: PFOA free series, high temperature series (200 C), adhesion enhanced series (boiling water immerging) and UV-LED curable. We also manufacture optical adhesives, super flexible (~mm radius) hard coating and AR coating materials for displays. Contact: Suk-Youn Suh, Advertising Contact/CEO, sysuh@sscpusa.com; Duck Hyang Suh, Marketing VP, dhsuh@sscpusa.com

### **Luxmux Technology Corporation**

#4604

SPIE Corporate

Unit 210, 1111 57th Ave NE, Calgary, AB, T2E 9B2 Canada +1 403 474 4661

info@luxmux.com; www.luxmux.com

### Featured Product: BeST-SLED™ - Broad Spectrum Tunable Superluminescent Diode Spectrometer (Bands, Tunable, FTIR).

Luxmux is a spectroscopy technology company developing unique integrated turnkey solutions and optical components designed to power the next generation of sensing systems for a broad cross section of industrial and consumer market sectors. Our BeST-SLED<sup>TM</sup> spectrometer is currently enabling global oil & gas industry licensing partners to create unique new instruments (steam quality analyzer, water/oil analyzer, gas composition analyzer) that work in real-time and at process conditions. Contact: Yonathan Dattner, President, Yonathan.Dattner@luxmux.com; Alon Silbershtein, Project Manager, alon.silbershtein@luxmux.com

#### Lytid

#1223-F

62 rue Brancion, Paris, 75015 France +33 6 17 19 19 96

jc.roche@lytid.com; lytid.com

### Featured Product: TeraCascade: a compact, user-friendly and powerful terahertz laser source

Lytid specializes in developing advanced terahertz technologies for global markets. These include a next-generation THz source, TeraCascade, aimed at redefining scientific and industrial terahertz applications. TeraCascade is a fully integrated, user-friendly, compact and powerful THz source based on state-of-art QCL technology. Contact: Pierre Gellie, President, p.gellie@lytid.com; Jean-Charles Roche, General Manager, ic.roche@lytid.com

#### M Squared Lasers Ltd.

#711

SPIE Corporate Member

1 Kelvin Campus WSSP, Glasgow, G20 OSP United Kingdom +44 141 945 0500; fax +44 141 945 0505 mail@m2lasers.com; www.m2lasers.com

### Featured Product: SolsTiS: widely tunable, continuous wave, scannable Ti:Sapphire laser

M Squared Lasers research, design and manufacture world-class lasers and advanced photonic systems for use in a myriad of academic, commercial and industrial applications. Founded in 2006, by laser experts Dr, Graeme Malcolm, OBE and Dr. Gareth Maker, the company is considered a leader in its field. Contact: Julie Phinn, Marketing Executive, julie.phinn@m2lasers.com

#### m2k-laser GmbH

#4765

Hermann-Mitsch-Str 36a, Freiburg, 79108 Germany +49 761 5158 7370; fax +49 761 5158 7376 info@m2k-laser.de; www.m2k-laser.de

### M3 Measurement Solutions

Market Tech, Inc. #723

SPIE Corporate

340 El Pueblo Road Ste C, Scotts Valley, CA, 95066 USA +1 831 461 1101: fax +1 831 461 1136

info@markettechinc.net: www.markettechinc.net

Entry Graphic, Exhibition Map Sponsor

Market Tech is a leading distributor of photonics products. Our product focus is lasers, LED's and optical measurement instrumentation for life science, semiconductor and research applications. Products offered include solid state, diode and LED's, including complete light engines; beam profilers, position sensors, laser beam stabilization systems, nanopositioning systems, optomechanical hardware, spectrophotometers and 2D colorimeters, and high speed cameras. Contact: Phil Crowley, CEO, Phil@ markettechinc.net; Kathy Crowley, CFO, kathy@markettechinc.net

#2815

SPIE Corporate

2048 Aldergrove Ste D, Escondido, CA, 92029 USA +1 760 561 1400: fax +1 760 561 1400 sales@m3msi.com; www.m3msi.com Contact: Erik Stover, VP Sales

### Mad City Labs., Inc.

#532

SPIE Corporate

2524 Todd Dr, Madison, WI, 53713-2317 USA +1 608 298 0855 (USA); fax +1 608 298 9525 sales@madcitylabs.com; www.madcitylabs.com

### Featured Product: Nano-MTA: beam steering closed loop nanopositioner with nanoradian precision & high scanning

Mad City Labs designs & manufactures high precision piezo nanopositioners, micropositioners, and microscopes suitable for inspection, metrology, microscopy, and astronomy applications. Our nanopositioners with proprietary PicoQ position sensors offer sub-nanometer precision and low noise performance. Our expertise in nanoscale measurement informs our instrument solutions for AFM/NSOM and optical microscopy. Products: RM21 microscope, SPM-M kit, Nano-MTA beam steering, Nano-MET picopositoners. Contact: Mad City Labs (USA), Technical Sales, sales@madcitylabs. com; Mad City Labs GmbH (Europe), Technical Sales, sales@ madcitylabs.eu

### Mahr Federal Inc.

#5028

1144 Eddy St. Providence, RI, 02905-4511 USA +1 401 784 3100; fax +1 401 784 3246 information@mahr.com; www.mahr.com

#### Featured Product: MarForm MFU 200 aspheric 3D

Mahr Federal Inc. is a leading manufacturer of measurement instruments. We offer surface roughness and contour measurement systems to help ensure the quality of optical components including aspheric and free-form. Solutions are available for measurement in both the grinding and polishing stages of production. Mahr Federal also manufactures and markets a wide variety of dimensional metrology solutions from simple and easy-to-use handheld gages to technically advanced measurement systems. Contact: Bethany Murphy, Marketing Research Assistant, bethany.murphy@mahr.com; Gail Jessup, Marketing Assistant, gail.jessup@mahr.com

### **Mahr-ESDI** (Engineering Synthesis Design, Inc.)

#5028

SPIE Corporate

150 N Tucson Blvd, Tucson, AZ, 85716-4740 USA +1 520 296 3068; fax +1 520 296 2897 sales@esdimetrology.com; www.mahr-esdi.com

### **Marktech Optoelectronics**

#638

SPIE Corporate

3 Northway Ln N. Latham, NY, 12110-2281 USA +1 518 956 2980: fax +1 518 785 4725 info@marktechopto.com; www.marktechopto.com Contact: William Moore, President

### Marubeni America Corp.

#4958

SPIE Corporate Member

3945 Freedom Cir Ste 1000, Santa Clara, CA, 95054-1274 USA info@tech-led.com; www.tech-led.com

#### Featured Product: Marubeni-OPTO™ is the optoelectronics and photonics product portion of Marubeni America Corporation.

Tech-LED is the website run by the LED business unit of Marubeni America Corporation. Marubeni America Corporation is a 20% shareholder of Epitex Incorporated. Our goal is to support your LED requirements by offering more than 50 wavelengths from 360 to 1550 nm, available in SMD, thru-hole packages, multichip arrays and chip form. We will also offer custom LED and chip-on-board solutions. Contact: Ako Ichikawa

#### Marysol Technologies, Inc.

#5649

1444C Belcher Rd #136, Clearwater, FL, 33764 USA +1 727 712 1523; fax +1 727 712 1528

laser@marysol2002.com; www.marysoltechnologies.com

#### Featured Product: 7Joules/pulse at 10 Hz, room temperature **OEM CTH:YAG resonator module.**

Manufacturer of solid state laser cavities and complete resonator modules for 1, 2 and 3 micron applications. Supplier of flash/arc lamps, aser optics, trigger transformers and laser rods. Laser design consulting. Contact: Dan Bar-Joseph, President, laser@marysol2002.com

### **Masimo Semiconductor**

#4669

25 Sagamore Park Rd, Hudson, NH, 03051 USA +1 603 595 8900; fax +1 603 595 0975

www.masimosemi.com

#### Featured Product: Custom optoelectronic devices, III-V compound semiconductor epitaxial wafers & foundry services.

Masimo Semiconductor, a wholly owned subsidiary of Masimo Corp, has over 30 years' experience in custom optoelectronic device development & manufacturing. These services include epitaxial design & growth, wafer processing & testing. Our scientists & engineers hold a deep knowledge and understanding of design of LED's, photodiodes, lasers & photovoltaic cells with a focus upon manufacturing for the biotech, energy, defense, industrial and enterprise markets. Contact: Brad Siskavich, Business Development Mgr - New Products, bsiskavich@masimosemi.com

#### **Meterboard Sponsor**

#### **Materion**

#2504

2 Lyberty Way, Westford, MA, 01886-3616 USA +1 978 692 7513; fax +1 978 692 7443 mpo@materion.com; www.materion.com

#### Featured Product: ArrayTec: filter arrays & assemblies, SupremEX

Materion Precision Optics is a custom manufacturer and supplier of precision optical filters and thin film coating services from UV through the far IR for commercial, medical, defense, space, and scientific applications. Materion Beryllium & Composites is a global producer of structural components and mirror systems for optical applications ranging from air and space-borne surveillance and targeting optics to astronomical telescopes. Contact: mpo@materion.com

### **Materion Advanced Material Group**

#3092

2978 Main St, Buffalo, NY, 14214 USA

+1 800 327 1355 advancedmaterials@materion.com;

www.materion.com/advancedmaterials

Materion Advanced Materials Group is a global supplier of premier specialty materials and services. Our offerings include precious & nonprecious thin film deposition materials, inorganic chemicals and microelectronic packaging products. In addition, we have related services to meet our customers' requirements for precision parts cleaning, precious and valuable metal reclamation and R&D. We support diverse industries including medical, LED, semiconductor, data storage, precision optics and more. Contact: advancedmaterials@materion.com

### **MaxEmil Photonics Corp.**

#4232

SPIE Corporate Member

7F 133 Ln 235 Bao Chiao Rd, Xintien Dist, New Taipei City, 231 Taiwan

+886 2 8919 1179; fax +886 2 8919 1178

sales@maxemilphotonics.com; www.maxemilphotonics.com

### Featured Product: Polymer optics, diamond turning, injection molding, tooling

Founded in 1996, MAXEMIL Photonics provides optical system designs and manufacturing service. We have extensive experience in the design and manufacturing of optical products, such as camera zoom lenses, optical pickup head, scanner, video lens, and digital data projector. It is our pleasure to establish partnerships with customers and work with them in each stage: idea, engineering, prototyping, tooling, trial runs, and mass production. Contact: Ferdinand Lee, VP of Sales, ferdinand@maxemil.com.tw

#### MDI Advanced Processing GmbH

#4629

Obere Austr 6, Mainz, 55120 Germany +49 6131 7321 0; fax +49 6131 7321 101 sales@mdi-ap.com; www.mdi-ap.com

### Featured Product: Glass processing machines: ultra-thin glass cutting, drilling, marking, patterning, coating removal

If you are looking for innovative glass processing solutions, we offer great experience and new ideas packed in customized laser-based machines and systems, which will benefit your company's processing capabilities portfolio. In addition to glass processing machines we offer high-quality MDI cutting tools as well as job shops and R&D cooperation. We would like to support you by reviewing your machine requirements, please contact us to find out more about our next generation technologies. Contact: Christoph Hermanns, Dr., Managing Director, sales@mdi-ap.com; Christine Stahl, Sales & Marketing, sales@mdi-ap.com



### Meadowlark Optics, Inc.

#2300

SPIE Corporate Member

5964 Iris Pkwy, Frederick, CO, 80530 USA +1 303 833 4333; fax +1 303 833 4335 marketing@meadowlark.com; www.meadowlark.com

### MegaWatt Lasers, Inc.

#340

SPIE Corporate Member

PO Box 24190, Hilton Head Island, SC, 29925-4190 USA +1 843 342 7221; fax +1 843 342 7223

sales@megawattlasers.com; www.megawattlasers.com

### Featured Product: ER902 200 $\mu J$ 1535 nm laser transmitter in a 9mm diameter package

MegaWatt Lasers manufactures Er:glass micro-lasers for various remote sensing applications. In addition to micro-lasers, MegaWatt Lasers manufactures a complete line of high-quality diffuse-reflector pump chambers for solid-state laser applications including medical, industrial, and military. Our pump chamber designs are well suited for both breadboard experimentation as well as OEM applications. Contact: Scott Hamlin, President, scott.hamlin@megawattlasers.com; Tracy Friedel, Administrative Assistant, tracy.friedel@megawattlasers.com

### **Meller Optics, Inc.**

#2435

120 Corliss St, Providence, RI, 02904-2602 USA +1 401 331 3717; fax +1 401 331 0519

sales@melleroptics.com; www.melleroptics.com

Meller Optics has been providing high quality optics to defense, medical, laser and industrial markets for over 50 years. Specializing in grinding and polishing of hard, durable materials, Meller has developed high-speed, low-cost finishing processes for sapphire, ruby, laser glasses, fused silica, zinc selenide, germanium, silicon, fluorides, and ceramics. Configurations include windows, substrates, lenses, domes, and prisms. Meller Optics is ISO9001:2008 certified and ITAR registered. Contact: Craig Schweriner, Sales Mgr, craig@melleroptics.com

### **Melles Griot**

#1113

SPIE Corporate

2051 Palomar Airport Rd Ste 200, Carlsbad, CA, 92011 USA +1 760 438 2131; fax +1 760 438 5208 mglasers@idexcorp.com; www.mellesgriot.com

### Featured Product: Laser, laser systems, optical systems, and shutters

Melles Griot designs and manufactures optical systems, optomechanical shutters, lasers, and laser-based light engines. By working seamlessly with the customer from start to finish we deliver high-value engineered solutions for analytical instrumentation, bioinstrumentation, defense, and semiconductor equipment applications. Melles Griot provides the perfect balance of performance, reliability, and manufacturability for OEM applications worldwide.

### **MEMS & Nanotechnology Exchange**

#2715

1895 Preston White Dr Ste 100, Reston, VA, 20191 USA +1 703 262 5368; fax +1 703 262 5367

business@mems-exchange.org; www.mems-exchange.org

### Featured Product: MEMS design and fabrication services

The MEMS and Nanotechnology Exchange (MNX) provides design and fabrication services to the United States research community. Our team of PhD level MEMS engineers offers a complete range of technical expertise to assist researchers at any project phase, including device design, prototype fabrication, low-volume manufacturing, and transition to high-volume production work at commercial foundries. Contact: Michael Huff, Director, engineering@mems-exchange.org

#### **Menlo Systems GmbH**

#901

Am Klopferspitz 19A, Martinsried, 82152 Germany +49 89 189166; fax +49 89 189166 111 sales@menlosystems.com; www.menlosystems.com

### Featured Product: Optical Frequency Comb Links, THz Spectrometer, Microjoule Laser, Figure 9 Technology

Menlo Systems, a leading developer and global supplier of instrumentation for high-precision metrology, was founded in 2001 as a spin-off of the Max Planck Institute for Quantum Optics, with the foremost aim to commercialize optical measurement technologies and make it available to newly emerging application fields. Menlo Systems maintains a strong bond to co-founder Theodor W. Hänsch, who pioneered precision laser techniques. Jason Reeves, Sales and Service Engineer, j.reeves@menlosystems.com; Chris McRaven, Sales Engineer, c.mcraven@menlosystems.com

#### **MEOPTA- OPTIKA, S.R.O.**

#4215

Kabelíkova 1, Prerov, 750 02 Czech Republic +420 581 241 111; fax +420 581 242 222 meopta@meopta.com; www.meopta.com

### Featured Product: Semiconductor inspection systems, digital cinema assembly, communication optics, medical x-ray optics.

Meopta is a global manufacturer of precision optics specializing in the design, engineering and assembly of complex optical, optomechanical and opto-electronic systems. Meopta creates innovative total solutions for the consumer, industrial, and military markets. Contact: Libor Grygar, Senior Sales Manager, libor.grygar@meopta.com; Romana Souskova, Customer Manager, romana.souskova@meopta.com

### **MEOPTA U.S.A., INC.**

#4213

50 Davids Dr, Hauppauge, NY, 11788 USA +1 631 436 5900: fax +1 631 436 5920

customerservice@meoptausa.com; www.meopta.com

Meopta is a global manufacturer of precision optics specializing in the design, engineering and assembly of complex optical, optomechanical and opto-electronic systems. Meopta creates innovative total solutions for the consumer, industrial, and military markets.

### Mesa Photonics, LLC

#5247

SPIE Corporate

1550 Pacheco St., Santa Fe, NM, 87505 USA +1 505 216 5015; fax +1 866 569 6994

information@mesaphotonics.com; www.mesaphotonics.com

### Featured Product: FROGscan: the only real-time, comprehensive ultrafast pulse measurement system

Mesa Photonics is the leader in Frequency Resolved Optical Gating (FROG) measurements for ultrafast lasers. Our FROGscan is the only real-time, comprehensive ultrafast pulse measurement system on the market. These simple-to-use and reconfigurable devices are the best value available in ultrafast measurement. We also offer fully automated autocorrelators for less demanding applications and modulatable delay lines for research applications. Contact: Caterina Vidoli

#### MeshTel #6003

2562-F1 Silver State Parkway, INTELITE, INC., Minden, NV, 89423 USA

+1 775 267 5959; fax +1 775 267 5958

info@meshtel.com; www.meshtel.com

### Featured Product: 350nM to 1600nM Free Space: SM/MM fiber-coupled switchable laser module, laser system.

MeshTel is a manufacturer/supplier of diode/DPSS CW, acousto-optic modulator (AOM) Q-switched low-noise single longitudinal-mode lasers with wavelength of 266 to1600nM DPSS, 375 to 1600nM laser diode modules/systems, single- & multi-mode fiber-coupled/pigtailed lasers, side-emitting transmission silica-core optical fibers, custom fiber bundles, low-cost closed-loop galvanometers/actuators, and laser safety goggles. Contact: Donna Wilson, Advertising Manager, info@meshtel.com

#### **MESSTEC Power Converter GmbH**

#4629

Grube 41, Penzberg, 82377 Germany +49 8856 803060; fax +49 8856 9998

info@powerconverter.eu; www.powerconverter.eu

#### Featured Product: Diode laser drivers, TEC controllers; assembly, wiring and testing of electronic modules

MESSTEC Power Converter GmbH is an international acting enterprise and one of the world's leading specialists for laser drivers and TEC controllers for nearly 30 years. All products are developed and produced in-house. Depending on customers' requests the company manufactures, wires, assembles and tests single components or complete electro-mechanical devices and modules for laser applications. The production is focused on prototypes and on small and medium sized lots. Contact: Kersten Stoebe, Managing Director, kersten.stoebe@powerconverter.eu

Metrue, Inc.

#4142

SPIE Corporate

3068 Laurelview Ct, Fremont, CA, 94538 USA +1 510 770 6900; fax +1 510 990 0011 sales@metrue.com; www.metrue.com

#### Featured Product: Integrating sphere with spectroradiometer, power meter & supply to measure luminous flux & spectrum

Metrue is an optoelectronic and optical radiation testing equipment manufacturer and profession lab. We offer photonics test equipment and services. We specialize in LED industrial and lab test tools. This includes integrating sphere systems, goniophotometers, handheld meters, flicker meters, electrical testing equipment, and the power supplies and meters to go with the system. We offer fully integrated testing solutions for end users. We can also carry out IES test for lamps and luminaries. Contact: Peter Hu, Director of Sales, sales@ metrue.com; Zach Small, Applications Engineer, zachs@metrue.com

### Exhibition Map Sponsor

### Mever Burger Global Ltd

#4143

Schorenstrasse 39, Gwatt Thun, 3645 Switzerland +41 33 221 28 00; fax +41 33 221 28 08

globalsales@meyerburger.com; www.meyerburger.ch

#### Featured Product: The HE-SIM-04 provides shortest changeover time for the measurement of a high mix of optical wafers.

Meyer Burger is a leading global technology company specialising in innovative systems and processes based on semiconductor technologies. With our technologies for metrology we focus on process optimization via data mining and exploitation. Highest throughput in combination with best in class insights in the quality of your processed materials is the outstanding competency of the Meyer Burger metrology portfolio. Contact: James Robert, Vice President of Sales and Marketing, J.Robert@DMT-Inc.com; Klaus Ruhmer, Account Manager, Klaus.Ruhmer@meyerburger.com

#### MH GoPower Co., Ltd.

No 6-2 Luke 3rd Rd Luzhu Dist, Kaohsiung City, 82151 Taiwan +886 7 695 5900: fax +886 7 695 5950

info@mhgopower.com; www.mhgopower.com/mhmain.html

#### Featured Product: Photovoltaic power converters customizable for any power over fiber application: mW to kW of power!

MH GoPower Co., Ltd. (MHGP) is a Taiwanese manufacturer of high performance, vertical multi-junction PV cells that enable laser power transmission for power over fiber (PoF) and power beaming applications using 9xx nm lasers. MHGP recently released a line of photovoltaic receivers with unparalleled flexibility in size, voltage, and power that is fueling the emergence of new PoF applications, including driving high voltage, high power IGBTs, and high power delivery to remote sensors and UAVs. Contact: Mico Perales, Vice President, mico.perales@ mhgopower.com; John Wu, Senior Manager, john.wu@mhgopower.com

### Michigan Photonics Cluster

#3026

330 E Liberty St. Ann Arbor, Ml. 48104 USA +1 734 417 1079

contact@mi-light.org; www.mi-light.org

Mi-Light (the Michigan Photonics Cluster) serves as the focal point for the photonics industry in Michigan, bringing together professionals from companies, academia, and organizations. They are dedicated to mutually supporting, promoting, and growing Michigan's photonics industry. Mi-Light works to leverage our strong industrial and academic capabilities in order to expand the photonics industry, attract funding, and stimulate innovation in Michigan. Contact: Michelle Stock, Chair, chair@mi-light.org; David Shindell, Vice Chair, contact@mi-light.org

### Micro Laser Systems, Inc.

#902

SPIE Corporate

12841 Western Ave Ste H. Garden Grove, CA, 92841-4025 USA +1 714 898 6001

sales@microlaser.com; www.microlaser.com

#### Featured Product: SWIR (1500-2300nm) and fixed fiber collimators from small to large sizes.

We're a manufacturer of high performance free space & fiber coupled diode laser systems and optical systems ranging from 375nm to 2000nm and up to 5 Watts. Narrow linewidths, high stability and low noise define most lasers. We design and manufacture fiber collimators, fiber focusers, beam expanders and optical assemblies for a complete laser/optical system to solve customers' requirements in Raman spectroscopy, confocal, cytometry, Doppler lidar, interferometry, scanning, and material analysis. Contact: Norma Adachi, Marketing/Sales Director, norma@ microlaser.com

#### **Micro Photon Devices**

#4854

Via Stradivari 4. Bolzano, 39100 Italy +39 0471 051212; fax +39 0471 501524

info@micro-photon-devices.com; www.micro-photon-devices.com

Micro Photon Devices' (MPD) in-depth know-how of SPAD device fabrication and active quenching electronics has led the company to develop and market a comprehensive family of Single Photon Avalanche Diodes (SPADs), silicon, and CMOS or InGaAs/InP technologies. MPD products are self-contained modules that have ultra-fast timing resolution, high photon detection efficiency, low power consumption, high robustness, and reliability, making them suitable for all low light level analytical detection. Contact: Nick Bertone, Nick.Bertone@optoecomponents.com; Natalie Raymond, Natalie.Raymond@optoecomponents.com

#### micro resist technology GmbH

#4629

Köpenicker Str 325, Berlin, 12555 Germany +49 30 64 16 70 100; fax +49 30 64 16 70 200 mrt@microresist.de; www.microresist.de/home en.htm

#### Featured Product: UV-curable hybrid polymers, optical polymers, two-photon absorption lithography, & optical waveguides

For more than 20 years, micro-resist technology GmbH (MRT) has been developing and providing innovative photoresists, special polymers, and ancillary materials for a variety of micro- and nanolithography applications. Due to the highly specialized products, MRT is a trusted supplier of global hightechnology markets, such as the semiconductor industry, MEMS, optoelectronics, nanotechnology, and other emerging technologies.

### microfluidic ChipShop GmbH

#5449

Stockholmer Str 20, Jena, 07747 Germany +49 3641 347 050; fax +49 3641 347 0590

sales@microfluidic-chipshop.com; www.microfluidic-chipshop.com

### Featured Product: The microfluidic toolbox: off-the-shelf modules for quick proof-of-concept microfluidic experiments

The lab-on-the-chip: miniaturized solutions for faster and cheaper methods in the life sciences, diagnostics, analytics and chemistry are the core of microfluidic ChipShop's business. Specialists from microfluidics, mold making, polymer engineering, chemistry, biology and diagnostics form a multi-disciplinary team to develop and manufacture lab-on-a-chip systems. Using industrial manufacturing techniques allows a seamless transition from development stage through prototypes to mass production. Contact: Holger Becker, CSO, hb@microfluidic-chipshop.com

### **Micro-Hybrid Electronic GmbH**

#4629

Heinrich Hertz-Str 8, Hermsdorf, 07629 Germany +49 36601 5920; fax +49 36601 59210 infrared@micro-hybrid.de: www.micro-hybrid.de

#### Featured Product: The series of JSIR350 sources are MEMSbased infrared emitters.

Micro-Hybrid Electronic GmbH is a high-technology company for micro systems technology and infrared components. We develop customer-specific mechanical microelectronics and infrared systems, and they are internationally leading in the field of infrared sensors. Micro-Hybrid designs leading-edge hybrid applications and LTCC technology for the global core markets of medical and environmental technology, as well as for aviation. Micro-Hybrid is also part of the Micro-Epsilon group. Contact: Sebastian Weise, Product manager IR, infrared@micro-hybrid.de; Bastian Steinbach, Product manager IR, infrared@micro-hybrid.de

### **Micron Optics, Inc.**

#2342

1852 Century Pl NE, Atlanta, GA, 30345-4305 USA +1 404 325 0005; fax +1 404 325 4082

info@micronoptics.com; www.micronoptics.com

Micron Optics, Inc. is a global leading innovator and provider of fiber optic sensing systems and will be featuring its tunable filters, OEM swept lasers and optical sensing products at Photonics West 2016. Contact: Megan Johnson

### **MICRONIX USA, LLC**

#4955

SPIE Corporate

15375 Barranca Pkwy Ste E106, Irvine, CA, 92618 USA +1 949 480 0538 x701; fax +1 949 480 0538 info@micronixusa.com; www.micronixusa.com

### Featured Product: PP-18 piezo stage with integrated 18nm encoder at 12, 18 & 26 mm travel; costs \$1000 with controller

MICRONIX USA specializes in miniature micro- and nanopositioning stages for the biomedical and research markets. In addition to our extensive standard product line, we provide rapid product development services ranging from customization of existing products to completely customized solutions. With our partner Symetrie, we offer precision hexapods from the miniature NanoPos to the large Joran with over 1 ton load capacity. Products are available for vacuum, non-magnetic and extreme temperature. Contact: Manfred Schneider, President, info@micronixusa.com

#### Micronor Inc.

#5169

SPIE Corporate Member

900 Calle Plano, Suite K, Camarillo, CA, 93012 USA +1 805 389 6600; fax +1 805 389 6605 sales@micronor.com; www.micronor.com

#### Featured Product: MR303 MRI safe fiber optic linear encoder

Micronor is an innovative manufacturer of fiber optic kinetic sensors (rotary & linear encoders, position sensors, ESTOP, U-Beam, signaling, and temperature sensors), providing immunity from lightning, EMI/RFI, radiation, and magnetic fields. Innovation and fiber optics know-how allows Micronor to tackle challenging tasks for OEM position-measuring solutions that will work reliably in hostile environments, which have included mining, nuclear research, and medical MRI applications. Contact: Dennis Horwitz, VP-Sales & Marketing, dennis@micronor.com; Robert Rickenbach, President/Chief Engineer, robert@micronor.com

### Micropac Industries, Inc.

#5144

905 E Walnut St, Garland, TX, 75040-6607 USA +1 972 272 3571; fax +1 972 487 6918 optosales@micropac.com; www.micropac.com Contact: Galina Breslav

### microPEP

#4311

1 Catamore Blvd, East Providence, RI, 02914-1205 USA +1 401 434 3040; fax +1 401 434 3849 sales@pepmicropep.com; www.micropep.com

### Featured Product: Molded micro lens arrays, prisms, light pipes, and coated optics

microPEP's core competency is scalable micron tolerance plastic injection molding. Our curriculum vitae includes molded micro lens arrays, prisms, and light pipes, as well as coated optics with internal mirrors. Our ISO9001, ISO13485, and TS16949 certified facility allows for 24/7 clean room molding as well as comprehensive engineering support and quality metrology to scale with confidence. Contact: Oliver Rapp, Engineering & Business Dev. Manager, orapp@pepmicropep.com

#### Microtech Instruments. Inc.

#2808

SPIE Corporate Member

858 W Park St, Eugene, OR, 97401 USA +1 541 683 6505; fax +1 541 610 1825 sales@mtinstruments.com; www.mtinstruments.com

#### Featured Product: T-vision terahertz imaging system

Microtech Instruments is a manufacturer of advanced scientific instruments for ultrafast laser micromachining, coherent Raman, multi-photon, and terahertz imaging and spectroscopy applications. Serving the global scientific community for over 15 years, Microtech Instruments has established a strong reputation for delivering highly functional and reliable products. Committed to innovation, Microtech collaborates with leading research organizations worldwide. Contact: Renee Isley, VP Operations, renee@mtinstruments.com

#### **Midwest Optical Systems**

#2601

322 N Woodwork Ln, Palatine, IL, 60067-4933 USA +1 847 359 3550; fax +1 847 359 3567 info@midopt.com; www.midopt.com

### Featured Product: FK200 machine vision filter kit includes 10 most popular UV, VIS, and NIR machine vision filters.

Midwest Optical Systems is the world's leading manufacturer of mounted optical filters designed for use with CCD cameras and lenses. MidOpt manufactures custom precision optical components and assemblies for any application, such as: single or multiple element lenses, windows, mirrors, prisms, beamsplitters, and more. MidOpt carries a large stock of raw materials, as well as finished optical components, which can be quickly and economically modified to meet custom requirements. Contact: info@midopt.com

### **Mightex Systems**

#5043

SPIE Corporate Member

109 Railside Rd Ste 305, Toronto, ON, M3A 1B2 Canada +1 416 840 4991; fax +1 416 840 6541 sales@mightex.com; www.mightex.com

#### Featured Product: Products include: USB cameras, line cameras, LED sources, LED controllers, and spectrometers.

Mightex specializes in imaging and illumination products for machine vision, industrial tests and measurements, life and health sciences, optical microscopy, etc. Products include CMOS and CCD area and line cameras, LED controllers (including software, manual and/or analog controlled units), LED light sources, multi-wavelength LED systems, and optical spectrometers. Contact us by email at sales@ mightex.com or by phone at +1-925-218-1885. Order online at www. mightex.com. We ship worldwide. Contact: Song Peng, Managing Director; Daniel Wen, Director of Operation, daniel@mightex.com

MIKROP AG #513

Industriestrasse 22, Wittenbach, 9301 Switzerland +41 71 292 1080; fax +41 71 292 1089 info@mikrop.ch; www.mikrop.ch

### Featured Product: Precision micro objectives, micro lenses & assemblies, opto-mechanical design, prototypes, & volumes

MIKROP is a supplier of miniaturized quality optics for high-technology applications. As a worldwide leader in technology for 35 years with 110 employees in Switzerland, we offer high-precision optical systems in the fields of miniaturized medical & industrial devices. We are one of the only companies worldwide manufacturing serial high precision lenses & optic assemblies in diameters of 0.30mm & up to 15mm for endoscopy, medical engineering, micro sensors, automotive industry, & machine vision. Contact: Yves A. Gilliand, Manager Sales, yves.gilliand@mikrop.ch; Wolfgang Braxmaier, VP, Manager R&D, wolfgang.braxmaier@mikrop.ch

#### MikroSens Elektronik

#4337

Eskisehir Yolu 9 Km, ODTÜ Teknokent MET Alani/A-1 Blok 4 Bölüm Ofis 5, Ankara, Ankara, 06530 Turkey +90 312 287 0228; fax +90 312 287 0229 sales@mikrosens.com.tr; www.mikrosens.com.tr

#### **Mikro-Tasarim**

#4337

SPIE Corporate Member

4 Bölüm, Ofis 3, ODTÜ-Teknokent ODTÜ-MET Alani A-1 Blok, Cankaya Ankara, 06530 Turkey +90 312 286 0103; fax +90 312 286 0104

info@mikro-tasarim.com.tr; www.mikro-tasarim.com.tr

### Featured Product: Near infrared camera using a hybrid silicon imaging sensor with 1280x1024 resolution.

Mikro-Tasarim is a fabless semiconductor company that specializes in the development of Readout Integrated Circuits (ROICs) and Application Specific Integrated Circuits (ASICs) for hybrid and monolithic infrared Focal Plane Arrays (FPAs) working in the NIR, SWIR, MWIR, and LWIR optical bands. Mikro-Tasarim provides commercially available ROIC wafer products for uncooled microbolometer FPAs with different formats and pixel pitch values. Contact: Remime Kocoglu, Director, Sales and Marketing, remime. kocoglu@mikro-tasarim.com.tr; Aybike Kaygisiz, Director, Programs, aybike.kaygisiz@mikro-tasarim.com.tr

### Mildex, Inc.

#1134

SPIE Corporate

1388 Crittenden Rd, Rochester, NY, 14623-2308 USA +1 585 473 6540; fax +1 585 475 1971 mildex@eznet.net; www.mildex.com

Mildex, Inc. is a US distributor of optical fabrication machinery, including automatic lens centering and beveling machines, spherical lens curve generators, and conventional grinding and polishing machines. They have served the US optical industry for 40 years. Please contact us with your requests. Contact: Harvey Miller, President, mildex@eznet.net

### Millog Oy

#5269

Varikontie 90, Optronics, Lievestuore, 41400 Finland +358204697000; fax +358204697001 optronics@millog.fi; www.millog.fi

### Featured Product: Lens & plate optics, coatings, optical subassemblies, optical designing, prototyping, & measuring

Located in Finland, MILLOG Optronics is focused on being the developer and manufacturer of high-quality optics and optical components, designing and manufacturing a wide range of multi-element lenses, prisms, planos, spherical surfaces, coatings, imaging systems, and opto-mechanical equipment. Our products are manufactured with high precision from prototype and specialty quantities to large volume production. For further information, please see www.millog.fi. Contact: Lauri Jolanki, Production Manager, Optics, lauri.jolanki@millog.fi; optronics@millog.fi

### **Mindrum Precision, Inc.**

#422

SPIE Corporate

10000 4th St, Rancho Cucamonga, CA, 91730-5723 USA +1 909 989 1728; fax +1 909 987 3709 sales@mindrum.com; www.mindrum.com

Custom machining and polishing of ultra-precision components and assemblies. Complex shaping ability with simultaneous 5-axis CNC milling, CNC turning and CNC surface grinding. Plano, spherical and cylindrical polishing ability with spindle, continuous and double-side lappers and polishers. We work mainly with hard materials such as glass, quartz, sapphire and ceramics but also work with conventional materials such as aluminum, steel and titanium. Other capabilities include glassblowing, acid etc. Contact: Linda Kondris, Technical Sales, Linda@mindrum.com; Todd Van Son, Technical Sales, sales@mindrum.com

### Minus K Technology Inc.

#4437

SPIE Corporate Member

460 S Hindry Ave Ste C, Inglewood, CA, 90301-2059 USA +1 310 348 9656; fax +1 310 348 9638 sales@minusk.com; www.minusk.com

### Featured Product: New LC-4 isolator supports heavier payloads, requires no air or electricity and uses little room

Manufacturer of vibration isolation systems for AFMs, SPMs, SEMs, metrology, micro-hardness testers, lasers and optics. They are low-cost, passive, vacuum adaptable and require no air or electricity. Products: table-top platforms, workstations, floor platforms and custom systems. Guaranteed 1/2 Hz natural frequencies make them effective against low-frequency building vibrations. Isolation is typically 10 to 100 times better than air tables and even better than the higher-priced active systems. Contact: Steve Varma, Operations Manager, stevev@minusk,.com; Erik Runge, Director of Engineering

### Mirrorcle Technologies, Inc.

#5660

SPIE Corporate Member

4905 Central Ave Ste 200, Richmond, CA, 94804 USA +1 510 524 8820; fax +1 510 542 8806 info@mirrorcletech.com; www.mirrorcletech.com

Mirrorcle (MTI) offers beam-steering MEMS mirrors and supporting hardware and software. Based on patented MEMS technology, products include the world's fastest large scan-angle two-axis mirrors capable of point-to-point, vector, and other types of scanning. MTI is the only provider of tip-tilt MEMS actuators in combination with mirrors from 0.8 to 4.2mm diameter with a variety of specifications. Plug-and-play R&D packages include three MEMS, hardware, electronics, and a software development kit. Contact: Sales Team, sales@mirrorcletech.com

#### mirSense

#1123-E

8 Avenue de la Vauve, Centre d'intégration NanoInnov, Palaiseau, 91120 France

+33 1 69 08 05 89

contact@mirsense.com; www.mirsense.com

### Featured Product: QCL diodes and QCL-wideband tunable sources for mid-infrared laser absorption spectroscopy.

mirSense is a start-up company that develops and produces Quantum Cascade Laser (QCL) diodes and QCL-based advanced photonic devices, such as wideband tunable QCL sources for real-time, high sensitivity trace detection, and chemical analysis of gas, liquids and solids by infra-red laser absorption spectroscopy. The unique mirSense approach uses only microelectronic solutions without any moving mechanical or optic components, resulting in compact and robust devices. Contact: Mathieu CARRAS, CEO & co-founder, mathieu.carras@mirsense.com; Mickael BRUN, CTO & co-founder, mickael.brun@mirsense.com

#### **MIRTHE Center**

#5364

70 Prospect Ave, 216 Bowen Hall/Princeton Univ, Princeton, NJ, 08540-5211 USA

+1 609 258 2043: fax +1 609 258 1177

info@mirthecenter.org; www.mirthecenter.org

#### Featured Product: Mid-infrared trace gas sensor systems

Mid-InfraRed Technologies for Health and the Environment (MIRTHE) is an engineering research center sponsored by NSF. MIRTHE invents, develops, and prototypes high performance, cost effective, and market-ready mid-infrared trace gas sensor systems based on new technologies, such as quantum cascade lasers for applications in health, environment, and homeland security. MIRTHE closely collaborates with industry, practitioners, academic institutions, and government laboratories. Contact: Bernadeta Wysocka, Industrial Liaison

### Mitsubishi Cable Industries, Ltd.

#4171

6 F Shin-Kokusai Bldg, 4-1 Marunouchi 3 - chome, Optical Components Division, Chiyoda-ku, Tokyo, 100-8303 Japan +81 3 3216 3949

James-Stevens@comcast.net; www.mitsubishi-cable.co.jp

### Featured Product: D600 (QBH Compatible) high power laser delivery cables.

Mitsubishi Cable Industries is Japan's leading developer and supplier of specialty optical fiber, cables, and assemblies for high power laser delivery, DUV spectroscopy, and medical applications. Our engineers would welcome the opportunity to meet and discuss solutions to your application challenges at Photonics West 2016. Contact: James Stevens, US Marketing Manager, James-Stevens@comcast.net; Sales Department, info@mitsubishi-cable.co.jp

#### **Mitsui Chemicals**

#4459

800 Westchester Ave Ste S306, Rye Brook, NY, 10573-1354 USA +1 914 253 0777; fax +1 914 253 0790

info@mitsuichem.com; www.mitsuichemicals.com

### Featured Product: APEL (COC), TPX Polymethylpentene (PMP), FROMP (Fluorinated ROMP Polymer: developmental)

Mitsui Chemicals America, Inc. offers a wide range of products for the electronics and automotive industries. APEL has the lowest birefringence among the optical polymers with outstanding low dispersion. TPX looks to a new horizon with its unique features: lowest density among optical polymers and the highest transparency in UV range. FROMP, the nano-imprint material, has high resolution transcription to any fine patterned mold and provides high transparent and light resistant imprinted film.

### **Mitutoyo America Corporation**

#5160

965 Corporate Blvd, Aurora, IL, 60502-9176 USA +1 630 820 9666; fax +1 630 978 5394 info@mitutovo.com: www.mitutovo.com

Mitutoyo Corporation is the world's largest provider of measurement and inspection solutions offering the most complete selection of machines, sensors, systems, and services. They also have a line encompassing coordinate measuring machines, vision, form, and optical measuring machines, as well as precision tools and instruments and metrology data management software. Contact: Brenda Thiessen, Trade Show Coordinator, brenda.thiessen@ mitutoyo.com; Paul Nuara, Optical Sales Specialist, paul.nuara@ mitutoyo.com

### **ML Optic Corp.**

#407

SPIE Corporate Member

398 Pugang Street., Jiangning Development Zone, Nanjing, Jiangsu, 211102 China

+86 25 52727195; fax +86 25 844 33188

info@mloptic.com; www.mloptic.com

Featured Product: Spheres, aspherics, prisms, cylind

### Featured Product: Spheres, aspherics, prisms, cylindrics, optical coatings, lens systems, and integrated systems.

MLOPTIC is the leader in specialized manufacturing of ultraprecision advanced optics, assemblies, and integrated system of opto-mechatronics. Our business mainly focuses on medical and life science, semiconductor, security, aerospace, geosystem, machine vision, metrology, cinematography, etc. Contact: Joy Yo, Marketing, joy@mloptic.com; Alan Fan, CEO, alan@mloptic.com **OPTICS & PHOTONICS International Exhibition** 

LASER EXPO - Laser Display zone - Laser Lighting - Display zone **LENS EXPO** 

IR + UV EXPO

**Optical Measurement & Positioning EXPO** 

**Medical & Imaging EXPO Space & Astronomy EXPO** 

Micro & Nano EXPO

**Total Projected Participation** - Exhibitors 500 - Attendees 20,000

# **18-20** May, 2016 Pacifico Yokohama, Japan

Co-located with

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■ ALPS '16: The 5th Advance Lasers and Photon Sources



■ CLES 2016 : Conference on Laser Energy Science

■ HEDS 2016: International Conference on High Energy Density Science 2016

■ LEDIA '16: The 4th International Conference on Light-Emitting Devices and Their Industrial Applications

■ LIC '16: The 4th Laser Ignition Conference 2016

■ LSSE 2016: Laser Solution for Space and the Earth

■ OMC '16: The 3rd Optical Manipulation Conference

PLD '16: The 5th Pacific-rim Laser Damage Conference

■ SLPC 2016: The 2nd Smart Laser Processing Conference **17-20** May, 2016

■ XOPT '16: International Conference on X-ray optics, detectors, sources, and their applications 2016











International Partner

PHOTONICS MEDIA

For further information

OPTRONICS International Dept. intl@optronics.co.jp http://www.opie.jp/en/

### **MLD Technologies, LLC**

#4451

SPIE Corporate Member

2672 Bayshore Pkwy Ste 701, Mountain View, CA, 94043-1023 USA +1 650 938 3780; fax +1 650 938 3113

info@mldtech.com; www.mldtech.com

Produces extremely low-loss, Ion Beam Sputtered (IBS), laser damage resistant thin films for the UV-VIS-IR spectral region; specializes in the design, development and manufacture of high-performance custom optical coatings and components. Metrology includes absorption, ring-down loss, surface roughness, laser photometry, visible and IR interferometry. Applications: laser devices, nonlinear crystals, medical instruments and other photonic devices. Large IBS optics, ALD and Femto-Second optics. Contact: Len Mott, lenmott@mldtech.com; Gary DeBell, gdebell@mldtech.com

### Modulight, Inc.

#2411

Hermiankatu 22, Tampere, 33720 Finland +358 20 743 9000; fax +358 20 743 9009 marketing@modulight.com; www.modulight.com

### Featured Product: Modulight manufactures lasers and SLDs for 400-2000nm wavelength in our 40,000sq.ft. fab.

Modulight designs and manufactures lasers and optics. We deliver lasers from processed wafer to chip to system for many well-known companies ranging from medical to industrial to military. Several have been in production for 10 years. We support our OEMs with design and manufacturing of semiconductor, optics, software, mechanics, electronics, industrial design, usability, and system/subsystem architecture. We make our lasers in our wholly owned 40,000 square foot fab. in Tampere, Finland. Contact: Seppo Orsila, Executive Chairman, seppo.orsila@modulight.com; Jenna Kivimäki, Sales assistant, jenna.kivimaki@modulight.com

### Molex - Polymicro Technologies™

#2137

18019 N 25th Ave, Phoenix, AZ, 85023-1200 USA +1 602 375 4100; fax +1 630 813-9995 polymicrosales@molex.com; www.molex.com/polymicro

### Featured Product: Polymicro Technologies™ has improved its Fiber Bundles and developed Fused Bundles capabilities.

Polymicro Technologies, a Subsidiary of Molex manufactures multimode, step-index fused silica optical fibers with polyimide or acrylate buffer, Hard Polymer Clad and Tefzel or Nylon jacket; solarization-resistant optical fibers, broad-spectrum optical fibers; hollow silica waveguides; fiber optic cables & assemblies; Optical Fibers Bundle, Fused Fiber Bundle Assemblies and Multi-Fibers Arrays. Contact: Kyle Woodward, Product Marketing Coordinator, kyle.woodward@molex.com

#### **MONOCROM S.L.**

#932

Vilanoveta 6, Vilanova i la Geltrú, Barcelona, 08800 Spain +34 938 149 450; fax +34 938 143 767

info@monocrom.com; www.monocrom.com

### Featured Product: High power diode laser, solder-free laser bar assemblies, clamping technology

Monocrom designs and manufactures high power diode laser components with a proprietary technology that out performs current standards. Having all the supply chain integrated in our headquarters we are able to design and manufacture any product with a high degree of flexibility. Any wavelength, power range, beam shape or mechanical design can be developed in collaboration with our customers. Contact: Carles Oriach, Sales and Marketing Director, c.oriach@monocrom.com

### **Montana Economic Development**

#4618

SPIE Corporate Member

PO Box 200801, Helena, MT, 59620 USA +1 406 444 5634; fax +1 406 444 3674 business@mt.gov; business.mt.gov

### **Montana Photonics Industry Alliance**

#4621

SPIE Corporate Member

2015 Charlotte St Ste 1, Bozeman, MT, 59718 USA +1 406 587 3113

www.montanaphotonics.org

### Featured Product: Montana Photonics Industry Alliance: Move your photonics career and your life to a higher level.

The Montana Photonics Industry Alliance serves as a hub for Montana's optics and photonics companies, entrepreneurs, laboratories, and universities to commercialize, grow, and sustain globally leading organizations that create high quality jobs and economic opportunity in Montana. Montana provides an attractive business climate, pristine beauty, and an excellent quality of life. Optics and photonics are growing in Montana providing excellent career opportunities. Contact: Lisa Mueller, Program Manager, lisa@teamwavelenoth.com

### **MONTFORT Laser GmbH**

#5061

SPIE Corporate Member

Im Holderlob 6A, Goetzis, 6840 Austria +43 720 733 462; fax +43 660 33 519191260 info@montfortlaser.com; www.montfortlaser.com

### Featured Product: See at booth #5061: our uniquely compact M-NANO nanosecond laser for LIBS, PIV, LIDT, etc.

BOOTH #5061 !!! MONTFORT Laser specializes on extremely compact pulsed DPSSL lasers with a performance unique for their small form factor. The M-NANO compact Nd:YAG nanosecond laser generates up to >80 mJ pulse energy from a palm-sized nanosecond laser head product for applications including LIBS, PIV, LIF, LIDT testing, etc. From customized Ytterbium-doped DPSSL laser oscillators, we offer multi-Watt sub-100-fs or multi-Watt 1-ps ultrafast pulse generation for research applications. Contact: Daniel Kopf, CEO, info@montfortlaser.com

### Moore Nanotechnology Systems, LLC #1941

230 Old Homestead Hwy, Swanzey, NH, 03446-2120 USA +1 603 352 3030; fax +1 603 352 3363

sales@nanotechsys.com; www.nanotechsys.com

### Featured Product: Nanotech 2-5 axis ultra-precision diamond turning lathes.

Moore Nanotechnology Systems, LLC is the leading global supplier of ultra-precision machining systems for single point diamond turning, micro-milling, micro-grinding, and glass press molding. With machine installations in over 30 countries, Nanotech's 2-5 axes symmetric and freeform optical machining systems offer the flexibility and reliability to cover R&D or production needs in a broad range of current and emerging markets. Contact: Jeff Perra, Sales Engineer, perra@nanotechsys.com; Bob Cassin, VP of Sales, cassin@nanotechsys.com

### **Moulded Optics GmbH**

#4629

Steinstr 13-15, Schöffengrund, 35641 Germany +49 6445 6000 0; fax +49 6445 6000 40 info@mouldedoptics.com; www.mouldedoptics.com

### Featured Product: Blank-moulded optical lenses, prisms, and mirrors for different applications.

Moulded Optics GmbH, an ISO 9001:2008 certified and ITAR registered global OEM optics supplier headquartered in Germany. They offer many types of standard precision molded aspheric lenses in diameter sizes of 4mm to 80mm, as well as LED half-ball lenses in diameter sizes of 3mm, 4mm, 5mm, and 6mm with B270, F2, and Borosilicate glass materials. They also offer many other types of custom designed and manufactured precision molded glass and injection-molded plastic optical components. Contact: Mr. Martin PFEIL, managing director, martin.pfeil@mouldedoptics.com; Ms. Beate DANNEWITZ, sales, beate.dannewitz@mouldedoptics.com

### Moveon Technologies Pte. Ltd.

#5444

4 Kaki Bukit Ave 1, Singapore, 417939 Singapore +65 6741 1181; fax +65 6741 1187 enquiry@moveon.bz; www.moveon.bz

### **MPA Crystal Corp.**

#726

SPIE Corporate

1702-L Meridian Ave #234, San Jose, CA, 95125 USA +1 408 300 0301; fax +1 408 300 0282 pmpa@mpa-crystal.com; www.mpa-crystal.com

### Featured Product: Optics of sapphire, fused silica, & optical glass windows, lenses, rods, waveguides, & micro-optics.

MPA Crystal is the US office of our manufacturer Nanjing Sapphire Electro-Optics Co. based in China. We specialize in crystal optics mainly made of sapphire, fused silica, glass, & silicon. Coating is also available as requested. Products include: windows, lenses (plano-convex, plano-concave, bio-convex, bio-concave), ball lenses, rods, tips, waveguides, lightguides, & micro-optics. Products are customized to your drawings & design. Contact us at pmpa@mpa-crystal.com or by phone at 408 300 0301. Contact: Pauline Liang, CEO/Sales Representative, pmpa@mpa-crystal.com

### Exhibition Map, Featured Exhibitor Sponsor

### **MPB Communications Inc.**

#2333

SPIE Corporate Member

147 Hymus Blvd, Pointe-Claire, QC, H9R 1E9 Canada +1 514 694 8751; fax +1 514 694 6869 info@mpbc.ca; www.mpbcommunications.com

### Featured Product: Near IR and visible, SF, ns, ps lasers: exceptional beam quality, reliability, wavelength, stability

Founded in 1977, MPB provides high reliability laser systems for the scientific, life sciences, medical, entertainment, commercial, and military markets. MPB products include Raman fiber lasers and amplifiers; polarized fiber lasers in the IR and visible spectrum; CW Ytterbium, and passively mode-locked lasers; high-power EFAs, Erbium broadband sources, CombSources, etc. MPB's fiber and SF fiber lasers have allowed researchers to pioneer new areas of discovery in the Biomedical field. Contact: Claudette Linton, Marketing, claudette.linton@mpbc.ca; Kris Sanapi, Marketing, kris. sanapi@mpbc.ca

### **MSG Lithoglas GmbH**

#4265

Maria-Reiche-Ste 1, Dresden, 01109 Germany +49 30 46403 618; fax +49 32 12123 9568 info@lithoglas.de; www.lithoglas.de

### Featured Product: Optical micro-structured substrates; Highly reliable plastic molded packages; Wafer-level-capping

Lithoglas designs, manufactures, and markets wafer-level components of high optical quality on the basis of our structurable low-temperature glass deposition technology, which is available as a subcontractor service. We address growth markets, like passivation or encapsulation of electronic components and semiconductors, automotive MEMS, and MOEMS or Bio-MEMS. Lithoglas' unique patented glass technology offers highly hermetic and reliable structured glass coatings at high deposition rates. Contact: Ulli Dr. Hansen, CEO, ulli.hansen@lithoglas.de; Josef Kiermeier, business development, josef.kiermeier@lithoglas.de

### Multi IR Optoelectronics Co., Ltd.

#5233

SPIE Corporate Member

Building 3, No.503# Xingguo Road, Hangzhou, Zhejiang, 311106 China

+86 571 89905370; fax +86 571 89905376 info@mirhz.com; www.mirhz.com Contact: Tom Zeiss, Marketing Manager

### **Multiphoton Optics GmbH**

#4629

Friedrich-Bergius-Ring 15, Würzburg, 97076 Germany +49 931 299958 90

info@multiphoton.de; www.multiphoton.de

### Featured Product: LithoProf3D high-precision 3D printing platform

MPO develops and sells a 3D laser lithography equipment (LithoProf3D) platform and software (LithoSoft3D) for high-precision 3D printing of arbitrarily formed structures in the volume or on the surface of a material. The equipment product allows additive and subtractive processes for optical interconnect fabrication, aspheric or free-form microoptics, life science and biomedical products such as scaffolds, microfluidic cells, drug delivery structures, or structured surfaces for cell cultures. Contact: Ruth Houbertz, CEO, ruth.houbertz@multiphoton.de; Moritz Esslinger, CTO, moritz. esslinger@multiphoton.de

#### Exhibition Map, Floor Plan Logo Sponsor

### **Multisorb Technologies**

#5431

SPIE Corporate Member

325 Harlem Rd, Buffalo, NY, 14224 USA +1 716 824 8900; fax +1 716 824 4128 info@multisorb.com; www.multisorb.com

### Featured Product: PolySorb\* desiccant loaded polymer can be molded to replace a structural component in a product.

Multisorb Technologies has been an innovator in sorbent technology for more than 50 years. Our technologies protect electronics from the damaging effects of moisture, oxygen, and volatiles. If your product is experiencing performance degradation, corrosion, fogging on optics, or any other degradation caused by moisture, oxygen, or volatiles within the sealed product enclosure, contact Multisorb to find out how we can improve your product's service life. Contact: Bo Thompson, Business Development Leader, Electronics, bthompson@multisorb.com

Muquans

rue François Mitterrand, Talence, 33400 France +33 6 74 26 80 79

jean.lautier@muquans.com; www.muquans.com

### Featured Product: High-power high-efficiency frequency doubling module to cover the visible part of the spectrum

Muquans specializes in high-precision measurements based on laser-cooled atoms and research-grade laser systems. The company has particular expertise in high-performance laser sources for applications in sensing and spectroscopy. As a spin-off from the Institut d'Optique and Observatoire de Paris which developed the core of Muquans' technology over the last 15 years, Muquans produces innovative turnkey devices with remarkable reliability, stability and optical performances. Contact: Jean Lautier-Gaud, Head of Business Development, jean.lautier@muquans.com

### **MWTechnologies, Lda**

#4534

#1223-J

SPIE Corporate Member

Rua Engenheiro Frederico Ulrich 2650, Maia, 4470-605 Portugal +351 220 168 902

info@mw-technologies.com; www.mw-technologies.com

### Featured Product: Pulsed fiber lasers, optical ASE sources, optical fiber amplifiers, laser diode drivers

MWTechnologies offers innovative optical sources based on fiber-optic technologies, as well as product design, product development, and engineering services aimed at developing and selling cost-effective and reliable products and solutions that fulfill customer needs. Operating in several markets, its line of products is valuable in many applications such as LIDAR, remote sensing, military testing and targeting, materials processing, imaging, optical communications and R&D. Contact: Miguel Melo, Director, info@mwtechnologies.com

#### Floor Plan Logo Sponsor

#### **MY Polymers Ltd.**

#5653

7 Golda Meir St, Nes Ziona, 7403650 Israel +972 89350101; fax +972 89351767 ron@mypolymers.com; www.mypolymers.com/

### Featured Product: LOCA-133 our strongest low index adhesive and BIO-134 our non-cyto-toxic polymer for bio-photonics.

MY POLYMERS is a manufacturer of Low Refractive Index Coatings, adhesives and polymers. Our Optical Fiber (OF) cladding resins, are primary coatings for specialty OF. OF-136 (index=1.36) is used by the majority of specialty OF manufacturers. MY-136-V2000 and MY-133-V2000 are used for re-coating. MY-140-MY-150 is a line of very strong adhesives. LOCA-133 is our strongest low index adhesive (index=1.33). BIO-134 is a non-cyto-toxic, non-fluorescent polymer for bio-photonic applications. Contact: Ron Zohar, General manager, ron@mypolymers.com; Ehud Shchori, CTO, ehud@mypolymers.com

### **Naked Optics Corp.**

#2209

SPIE Corporate Member

1090 Delacroix Cir, Nokomis, FL, 34275-4563 USA +1 908 685 0352; fax +1 908 325 0250 sales@nakedoptics.com; www.nakedoptics.com

#### Featured Product: IR glass, ZnS, and silicon

Naked Optics Corp. is a supplier of IR and visible optics, IR and glass blanks including IR chalcogenide glass, ZnS, Si, Ge, BaF<sub>2</sub>, CaF<sub>2</sub>, KRS-5 and optical glasses, optical glass strip, molded and CNC-machined blanks of all optical materials. Contact: Buzz Nesti, buzz@nakedoptics.com; Glen Dunn, Sales Manager, glen@nakedoptics.com

#### Nalux Co., Ltd.

#2627

2-1-7 Yamazaki Shimamoto-cho, Mishima-gun Osaka, Aichi, 618-0001 Japan +81 75 963 3456; fax +81 75 963 3450 info@nalux.co.jp; www.nalux.co.jp

#### Featured Product: Head-mounted display optics

A full service molder of plastic and glass precision optics. These optics include microlens arrays, aspherical lenses, diffractive optics, mirrors, light guides, and nanostructures. With our own optical design department, diamond turning, molding, and in-house coating; Nalux is uniquely suited to taking a project from design, through prototypes, to high volume production while maintaining control of the entire process, producing the highest quality tight tolerance optics available. Contact: John Rauseo, General Manager, rauseo@nalux.co.jp; Makoto Okada, Business Unit Manager, okada@nalux.co.jp

### NANEO Precision IBS Coatings GmbH #5061

SPIE Corporate

Maarweg 30, Rheinbreitbach, 53619 Germany +49 2224 940 82 0; fax +49 2224 940 82 4 sales@naneo.com; www.naneo.com

### Nanjing Chunhui Science & Technology Industrial Co., Ltd. #4655-4

30 An De Li, West Yahua Road, Nanjing, 210012 China +86 025 524 130 42; fax +86 25 524 361 26 chunhui@china-light-guides.com; www.china-light-guides.com

### Nanjing Co-Energy Optical Crystal Co., Ltd.

#4360

No 31 E Beijing Rd, Nanjing JiangSu, 210008 China +86 25 83616456; fax +86 25 83116456 sales@coeoptics.com; www.coeoptics.com Contact: Rena Jin

### Nanjing Creator Optics Co., Ltd.

#2804

No 97 Luxiying, Changjiang Science Park, Nanjing, 210037 China +86 25 8342 7907; fax +86 25 8342 6285 sales@creatoroptics.com; www.creatoroptics.com

### Featured Product: Sapphire windows, sapphire lenses, sapphire rods, sapphire light guides, optical crystal components

Custom-made various sapphire windows, sapphire lenses, sapphire rods, sapphire light-guides, germanium, silicon, ZnSe, fused silica and quartz components. Prototype and volume are available. High quality, competitive price, punctual delivery. Contact: Fred Xie, Sales Manager, market@creatoroptics.com; Dave Zhu, Project Manager, dave@creatoroptics.com

### Nano Tech Security Corp.

#5059

SPIE Corporate Member

505 - 3292 Production Way, Burnaby, BC, V5A 4R4 Canada +1 604 678 5400; fax +1 604 678 5780 nanosecurity.ca

Nanocomp Oy Ltd.

#5269

Ensolantie 6, Lehmo, 80710 Finland +1 358 13 316 616; fax +1 358 13 316 617 contact.nano@nanocomp.fi; www.nanocomp.fi

### Featured Product: Film optics, back/frontlight guides, pattern generators, lens arrays, DOE, beam shapers, diffuser

NANOCOMP is a global manufacturer of film optics (lightguides, pattern generators) using accurate and cost efficient roll to roll production. We offer design, tooling, and mass production of micro- and nanoscale surface structures with more than 20 years of experience in diffractive and refractive optics. Cleanroom production lines, 100% online machine vision, and individual component marking ensure controlled manufacturing. Die-cutting and laser-cutting lines enable variety of delivery formats. Contact: Anu Uotila, Customer Service Manager, anu.uotila@nanocomp.fi; Jukka-Matti Karhu, Manager, Business Development, jukka-matti.karhu@nanocomp.fi

#### Nanomotion Inc.

#4346

1 Comac Loop Ste 14B2, Ronkonkoma, NY, 11779 USA +1 631 585 3000; fax +1 631 585 1947 nanoUS@nanomotion.com; www.nanomotion.com

### Featured Product: Motion modules based on Nanomotion's ultrasonic standing wave technology

Nanomotion is the leading manufacturer of ultrasonic piezo motors and motion modules used for auto focus, shutter, filter changing and high accuracy positioning of lenses and optronic devices. Our modules offer the most compact solution, optimizing Size, Weight, Power Consumption and operate silently and without magnetic fields. Contact: David Grinere, Applications, David.Grinere@nanomotion.com; Mike Bryant, Regional Sales Manager, mike.bryant@nanomotion.com

### nanoplus GmbH

#413

SPIE Corporate Member

Oberer Kirschberg 4, Gerbrunn, 97218 Germany +49 931 90 827 0; fax +49 931 90 827 19 info@nanoplus.com; www.nanoplus.com

# Featured Product: DFB Interband Cascade Lasers: 3 - 6 $\mu m$ , continuous wave, room temperature with low power consumption

Nanoplus GmbH provides DFB and FP lasers at any customer specific wavelength in the entire range from 760-14000 nm. Laser diodes are available from 760-3000 nm, interband cascade lasers from 3000-6000 nm and quantum cascade lasers from 6000-14000 nm. The lasers' excellent performance is due to very high spectral purity, narrow linewidth, and excellent reliability. These superior key features make them the perfect light source for extremely precise sensing applications in industry and research. Contact: Gloria Gerlach, Sales; Lars Hildebrandt, Director of Sales

### Nanoscribe GmbH

#431

Hermann-von-Helmholtz-Platz 1, Eggenstein-Leopoldshafen, 76344 Germany

+49 721 60828840; fax +49 721 60828848 info@nanoscribe.de; www.nanoscribe.de

### Featured Product: Photonic Professional GT: 3D printer for nano- and microfabrication

Photonic Professional GT is the world's highest resolution 3D-printer for nano- and microfabrication on the market. It provides additive manufacturing and maskless lithography in one device. Empowered by its unprecedented 3D nano-/micro-fabrication capabilities, the two-photon polymerization driven turnkey systems set new standards in a multitude of applications like photonics, micro-optics, micro-fluidics, MEMS, and life sciences. Prism Award Winner 2014, category "Advanced Manufacturing". Contact: Anke Werner, Marketing Manager, info@nanoscribe.de

### nanosystec GmbH

#4254

SPIE Corporate Member

Marie-Curie-Str 6, Gross-Umstadt, 64823 Germany +49 6078 782540; fax +49 6078 7825410 sales@nanosystec.com: www.nanosystec.com

### Featured Product: Nano place precision pick-and-place station and nano-weld alignment and laser welding station

Precision positioning and alignment combined with low-shift assembly are the key features of nanosystec's micro-assembly stations. Our portfolio consists of pick-and-place stations as well as sub-micron active optical alignment systems combined with laser welding, laser soldering, and epoxy gluing. Other applications include laser fine balancing and general precision handling. Full customization ideally matches the stations to the specific technical and commercial requirements. Contact: Christiane Hummelt, Director of Sales, sales@nanosystec.com

### **Nanotronics Imaging**

#4055

SPIE Corporate

2251 Front St Ste #110, Cuyahoga Falls, OH, 44221 USA +1 330 926 9809

BFink@nanotronicsimaging.com; www.nanotronicsimaging.com

Nanotronics Imaging is a cutting edge, microscopy & software company delivering rapid testing & analysis solutions to sectors ranging from semiconductors to the material & life sciences. Nanotronics Imaging provides the first "Point & Shoot" microscopy system by converging optics with motion control & image capture. Focused on crisp, high resolution images & easy-to-use analysis, nSPEC® & nPATH™ are designed to make object recognition & defect detection efficient, repeatable & quantifiable. Contact: James Williams, Executive Strategy Manager, james@nanotronics. co; Gui Campellon, Client Relations, gc@nanotronics.co

### Nantong Guoguang Optical Glass Co., Ltd.

#2001-A

No 111 guo Tai Road, Hai An Industrial Park, Nantong, 226600 China

+86 513 88780295; fax +86 513 88780866 gggxbl@163.com; www.gggxbl.com

### Featured Product: Selective filters, UV filters, cut-off filters, heat protection filters, infrared optical filters

Nantong GuoGuang Optical Glass Co., Ltd. is a professional manufacturing company of more than 3600 square meters. We have the ability to manufacture raw optical material and process optical glass. Therefore, our company is more competent on price and technology. Currently, we are enlarging our factory. The area will be increased to 7000 square meters in order to enhance our capacity of production and competitiveness. Contact: Jie Shen, Manager Assistant, gggxbl@163.com

SPIE JOB FAIR

Talk with representatives from companies currently looking to hire
Refer to page 27 for more information.

### Nantong Ruisen Optical Element Technology Co., Ltd.

#4614

No 55 Shuanggong Rd Qutang Town, Jiangsu Province, Anhui, 226671 China

+86 513 88793988; fax +86 513 88791396 info@rsgx.net; www.rsgx.net

### Featured Product: color optical glass, window, polarizer, waveplate, lens, prism, laser crystals, coating filters

Nantong Rusien Optical Element Technology Co., LTD, is a professional customized manufacturer of high precision optical products in China. The biggest advantage of Ruisen is to have a strong team of engineers, management, production and sales staff. We also own most advanced production equipment and test instruments to ensure the quality. Ruisen products include: color filters, colorless glass, IR filters, UV filters, lens, prism, coating filters and laser crystals like Nd:YAG, Nd:YVO4. Contact: Jason Wang, General manager, info@rsgx.net; Tina Yu, Sales, sales@rsgx.net

### Nanyang Kaixin Optical & Electronic Co., Ltd

#4649-4

No 569 Xin chen West Road, Nanyang, Henan, 473000 China +0086-18603777008; fax +0377-63555039 sales@nykaixin.com; www.nykaixin.com

### Featured Product: Flat glass, optical prism, IR-CUT, sapphire glass, general IR-CUT filter, optical lens, CCTV lens

NANYANG KAIXIN OPTICAL & ELECTRONIC CO., LTD offers major optical element, component processing and assembly enterprise including: projector products, heating panel, thermal baffle, coating plate, and beam splitter prism. We have a 16,000 square meters production area, a strict total quality management system, and have passed the ISO9001:2008 and other international certification systems. Contact: Mickey Chen, Vice Manger, sales@nykaixin.com

### **National Aperture, Inc.**

#2507

SPIE Corporate Member

5 Northwestern Dr, Salem, NH, 03079 USA +1 603 893 7393; fax +1 603 893 7857 www.nationalaperture.com

### Featured Product: Precision apertures, and precision motion control products.

Manufacturer of precision apertures and precision motion control products, NAI has been in business for the past 30 years and currently has two manufacturing facilities located in the U.S.A. The primary location is Salem, New Hampshire and the secondary location is located in Sebastian, Florida. Contact sales@ nationalaperture.com or visit our web site at www.nationalaperture.com for apertures, or www.naimotion.com for motion control products. Contact: Dan Gentile, Aperture Sales, dgentile@ nationalaperture.com; William Grenier, President, wgrenier@ naimotion.com

### **National Energetics**

#1640

4616 West Howard Lane, Building 1, Suite 105, Austin, TX, 78728 USA

+1 512 382 1894

info@nationalenergetics.com; www.nationalenergetics.com

### Featured Product: NE Face-Cooled disc lasers overcome cooling limits, scaling beams to kJs w/high beam qual & rep rate

National Energetics is the leading innovator of high-energy and ultra-intense lasers and laser systems based on Chirped Pulse Amplification (CPA) with peak power from 1 TW to above 10 PW. Our CPA lasers feature OPCPA technology and either Ti:sapphire or Nd:glass amplification techniques. We offer CPA lasers not only at traditional near-IR wavelengths but also at longer wavelengths out to the mid-IR. Contact: Curt Frederickson, VP Sales and Marketing, cfrederickson@nationalenergetics.com; Lucian Hand, President, Altos Photonics, sales@altosphotonics.com

### **Nature Publishing Group**

#4615

1 New York Plz Ste 4500, New York, NY, 10004-1562 USA +1 212 726 9200; fax +1 212 696 9591 www.nature.com

#### **Navitar Inc.**

#601

SPIE Corporate

200 Commerce Dr, Rochester, NY, 14623-3506 USA +1 585 359 4000; fax +1 585 359 4999 info@navitar.com; www.navitar.com Contact: Amy Block, Marketing Manager

#### neaspec GmbH

#4321

Bunsenstrasse 5, Martinsried, Bavaria, 82152 Germany +49 89 4524 206 0; fax +49 89 4524 206 99 info@neaspec.com; www.neaspec.com

### Featured Product: Imaging and spectroscopy on the nanoscale using the nano-FTIR from neaspec

See the nanoworld: Neaspec introduces the new nano-FTIR imaging and spectroscopy tool, with a wavelength-independent spatial resolution of 10 nm throughout the VIS and IR spectrum. This cutting-edge technology allows you to gain new insights into your samples by e.g. plasmon interference mapping, chemical nano identification, electron mobility mapping or many more amazing phenomena. Contact: neaspec GmbH, info@neaspec.com

#### **NEC TOKIN America, Inc.**

#6025

2460 N First St Ste 220, San Jose, CA, 95131 USA +1 408 324 1790; fax +1 408 324 1497 sales@us.nec-tokin.com; www.nec-tokin.com/english

### Featured Product: Multilayer piezo actuators, hermetically shield piezo actuators, bulk piezo ceramics, piezo sensors

NEC TOKIN is a world leading manufacturer of piezo ceramic products including multilayer piezo actuators and bulk piezo ceramics. Hermetically shield multilayer piezo actuator is suitable for applications where high reliable performance is required such as mass flow controller, semiconductor equipment, measuring equipment, test equipment etc. Contact: Atsuko Hoffman, Product Marketing Manager, ahoffman-us@nec-tokin.com

Necsel #4670

801 Ames Ave, Milpitas, CA, 95035-6322 USA +1 408 940-0751

sales@necsel.com; www.necsel.com

### Featured Product: The NovaLum 1200 is the newest generation of low cost compact fiber coupled RGB lasers from Necsel

An award-winning global organization headquartered in the Silicon Valley, Necsel designs and manufactures high powered visible lasers with price points that enable new products and have opened new segments of the display and lighting markets. With the financial backing of Ushio Inc., Necsel has become the leader in visible laser system solutions. Necsel's unique patented technology has transformed cinema projection and specialty lighting markets. See more at: http://www.necsel.com. Contact: Raymond Ong, Marketing and Applications Engineering Manager, rayong@necsel.com; Greg Niven, VP Sales, gniven@necsel.com

#### neoLASE GmbH

#2511

Hollerithallee 17, Hannover, 30419 Germany +49 511 515160 0; fax +49 511 515160 11 info@neolase.com; www.neolase.com

NeTHIS #1223-I

25 rue Marcel Issartier, Bordeaux Technowest, Mérignac Cedex, 33700 France

+33 5 47 74 62 10

info@nethis-thz.com; www.nethis-thz.com

### Featured Product: NeTHIS offers products adapted for beam characterization working from 0,1 to 3000 µm.

NeTHIS industrializes and commercializes industrial vision instruments dedicated to penetrating imaging, offering today's largest spectral sensitivity range. NeTHIS technology opens a new area for volume non-destructive testing of advanced materials used in different industries as wide as building, aeronautics and wind energy. Contact: Arnaud Vanhove, Sales & Marketing, arnaud. vanhove@nethis-thz.com

#### New England Photoconductor Corp. #1303

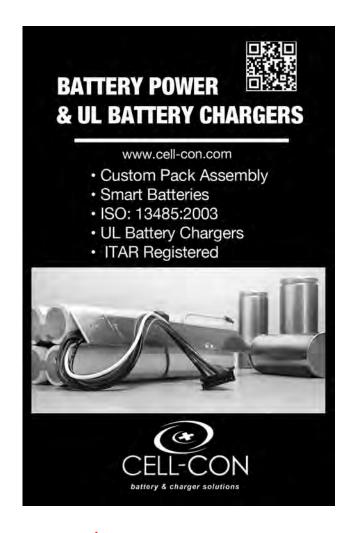
SPIE Corporate Member

PO Box M, 253 Mansfield Ave., Norton, MA, 02766-0927 USA +1 508 285 5561; fax +1 508 285 6480

nepcorp@nepcorp.com; www.nepcorp.com

### Featured Product: Infrared detectors, multiplexed arrays, IR filters, windows and infrared detector controllers

Lead selenide (PbSe), lead sulfide (PbS), indium gallium arsenide (InGaAs) and extended InGaAs detectors. Linear multiplexed PbS and PbSe arrays. Also PbS, PbSe and InGaAs detector controllers with power supplies, amplifiers and TE cooler controller. Room temp and TE cooled assemblies with IR filters or lenses. Quad detectors, 2-color detectors with Infrared filters or lenses. IR windows, IR filters, pulsed and steady state IR sources and controllers, amplifiers, custom assemblies. Contact: Richard Brennan, Operations Manager, nepcorp@nepcorp.com; Paul Brennan, Engineer, pb@nepcorp.com



#### **New Focus/A Newport Company**

#1400

3635 Peterson Way, Santa Clara, CA, 95054 USA +1 408 980 4300; fax +1 408 980 5537

sales@newfocus.com; www.newport.com/newfocus

New Focus<sup>™</sup>, part of the Newport family of world-class photonics brands, is a leader in developing, manufacturing and delivering innovative, high-performance, quality, easy-to-use photonics tools with exceptional support and service – or Simply Better<sup>™</sup> Photonics Solutions – for industrial and research applications worldwide. Contact: Sandy Wang, Sr. Manager, Product Marketing, sandy. wang@newport.com

#### **New Imaging Technologies**

#1223-D

1-4 impasse de la noisette, Bat D 1er Etage, Verrières le Buisson, 91370 France

+33 1 64 47 88 58

info@new-imaging-technologies.com; www.new-imaging-technologies.com

### Featured Product: NIT offers a complete range of standard, customized and full custom CMOS imaging sensors.

New Imaging Technologies (NIT) offers world class CMOS imaging sensors based upon a unique and patented pixel technology which provides intrinsic high dynamic range response of more than 140dB, no noticeable fixed pattern noise and operability without image artifacts to more than 90°C. Contact: Jean-Louis LAURONT, Sales Manager, info@new-imaging-technologies.com; Pierre POTET, CEO, info@new-imaging-technologies.com

#### **New Scale Technologies, Inc.**

#618

SPIE Corporate

121 Victor Heights Pkwy, Victor, NY, 14564-8938 USA +1 585 924 4450; fax +1 585 924 4468 hquinlivan@newscaletech.com: www.newscaletech.com

#### Featured Product: M3-RS rotary smart stages: precise, point-topoint beam steering systems for really small spaces

We help you transform your large, expensive, complicated-to-use systems into small, affordable, easy-to-use instruments and devices. Our tiny motion modules adjust micro optics or mechanical parts within your handheld, portable or mobile system. They have micrometer precision, work on battery power, perform at any orientation and resist shock, vibe and extreme temps. With all controls built in, they are the smallest, easiest-to-integrate solution for designers creating miniaturized products. Contact: Heidi Quinlivan, Sales Manager, NSTsales@newscaletech.com; Jeff Kramer, VP Business Development, jkramer@newscaletech.com

#### **New Source Technology, LLC**

#841

SPIE Corporate Member

1249 Quarry Lane, Ste 100, Pleasanton, CA, 94566-8410 USA +1 925 462 6888; fax +1 925 462 8388 sales@newsourcetechnology.com; www.newsourcetechnology.com

### Featured Product: Q-switched and long pulse alexandrite optical engines, high power holmium and Er:YAG laser heads

New Source Technology is a worldwide supplier of quality laser head assemblies and components. Supporting the medical and dental laser industries since 1996, our product offerings have expanded to include cavities, crystals, power supplies, optics, flashlamps, and assembled resonators for alexandrite, holmium, erbium, and Nd:YAG applications. Our technical staff excels in offering specific solutions to a product design, development, or to support sustaining manufacturing requirements. Contact: Greg Pon, President, gpon@newsourcetechnology.com; Customer Sales, Sales Department, sales@newsourcetechnology.com

#### **New York Photonics**

#3016

1565 Jefferson Rd Ste 420, Rochester, NY, 14623-3190 USA +1 585 329 4029

www.newyorkphotonics.org

### Featured Product: The New York Photonics collectible map. Get yours in the New York Aisle in the South Hall!

New York Photonics and the Rochester Regional Photonics Cluster comprise the largest concentration of innovative optics, photonics, and imaging companies in North America. We are more than 100 companies employing more than 15,000 people in the work of transforming light. Responsible for generating vast numbers of the nation's OPI patents, we are the most robust, sophisticated and highly integrated optics, photonics and imaging supply chain in the nation. Put that supply chain to work for you. Contact: Tom Battley, Executive Director, tbattley@newyorkphotonics.org

#### **Newport Corporation**

#1400

SPIE Corporate Member

1791 Deere Ave, Irvine, CA, 92606-4814 USA +1 949 863 3144; fax +1 949 253 1680 sales@newport.com: www.newport.com

Newport, the world's largest photonics company provides innovative solutions and industry leading product brands to multiple markets. Our combined broad product portfolio which includes: Corion®, ILX Lightwave™, New Focus™, Ophir, Oriel® Instruments, Richardson Gratings™, and Spectra-Physics® Lasers enables us to better partner with our customers to provide complete photonic solutions to make, manage and measure light. Contact: Darron Young, Sr. Director, Sales North America, darron.young@newport.com

#### **Newport Thin Film Lab., Inc.**

#4366

SPIE Corporate Member

13824 Magnolia Ave, Chino, CA, 91710-7027 USA +1 909 591 0276; fax +1 909 902 1638 sales@newportlab.com; www.newportlab.com

#### **Featured Product: Thin film coatings**

Newport Thin Film Laboratory is a fully equipped clean room coating facility specializing in the design and manufacture of high performance thin films in the ultraviolet, visible and infrared spectrum. We produce a wide variety of coatings, most of which are designed and manufactured to specific customer specifications. We have the capability to deposit high performance coatings on micro optics (.5mm) to larger optics (54" Dia.). Contact: Ever Mata, Sales Manager, emata@newportlab.com; P. Scott Powers, Director of Engineering, pspowers@newportlab.com

#### **Next Scan Technology**

#2317

Noorwegenstraat 29, R&D/Production, Evergem, B9940 Belgium +32 92 44 7520

info@nextscantechnology.com; nextscantechnology.com

#### Nextrom

#5156

1240 25th St SE, Hickory, NC, 28602 USA +1 828 464 2543; fax +1 828 464 5314

office.usa@rosendahlnextrom.com; www.rosendahlnextrom.com

Nextrom is the leading global supplier of production technologies for optical fibers and fiber optic cables. Our core competencies include solutions for optical glass making, fiber drawing, fiber coating, ribbon making, proof testing and fiber optic cable production. From first contact onward, we provide customized high quality solutions and personal support to ensure total customer satisfaction. Nextrom is a business unit of Rosendahl Nextrom GmbH. Find out more at www.rosendahlnextrom.com. Contact: Harri Turunen, Managing Director, office.usa@rosendahlnextrom.com

#### Nichia America Corp.

#2819

48561 Alpha Dr Ste 100, Wixom, MI, 48393 USA +1 248 349 9800; fax +1 248 349 9418 www.nichia.com

Nichia Corporation is the world's leading manufacturer of UV LEDs as well as, violet, blue and green laser diodes. Nichia: Ever Researching for a Brighter World, www.nichia.com Contact: Brian Montalbano, Sales Manager

Nikkiso Co., Ltd.

#4942

5910 Pacific Center Blvd. Suite 110, San Diego, CA 92121 +1 858 222 6328

info@nikkisoamerica.com; www.nikkisoamerica.com

### Featured Product: The world's highest power deep UV- LEDs at standard wavelengths of 265, 285, 300nm

NIkkiso Co., Ltd. is recognized around the world for its 60-year history developing original technologies that span many fields from Medical, Aerospace, and Industrial Divisions. Today, it is a world leader in the development and commercialization of deep UV-LEDs. Nikkiso's UV-LED division is producing the world's highest performance with industry leading reliability. Contact: Kyle Maloy, Business Analyst, KMaloy@nikkisoamerica.com; Takashi Okamoto, Sales, t.okamoto@nikkiso.co.jp

#### **Nikon Corporation**

#425

10-1 Asamizodai 1-chome Minami-ku, Sagamihara Kanagawa, Kanagawa, 252-0328 Japan

+81 42 7406746; fax +81 42 7406336

Glass.Sales@nikon.com; www.nikon.com/products/glass/index.htm

### Featured Product: Ultra high purity fused silica, $CaF_2$ , precision optical component

Nikon Glass Business Unit and Nikon Instruments Inc. will be jointly exhibiting the following products: from Glass Business Unit, our ultra-pure "Synthetic silica glass," "Calcium Fluoride" materials and optical components, and from Nikon Instruments Inc. a variety of microscope objectives. Detailed product information and brochures will be available in the booth. Contact: Christopher Penniman, Sales, Christopher.Penniman1@nikon.com; Naoyasu Uehara, Sales, Naoyasu.Uehara@nikon.com

#### Ningbo Yongxin Optics Co., Ltd.

#4336

No 385 Mingshu Rd, Hi-Tech Park, Ningbo, Zhejiang, 315040 China +86 57487906088; fax +86 57487908111 office@yxopt.com; www.yxopt.com

#### Nitto Optical Co., Ltd.

#4851

1-14-18 Kudankita, Chiyoda-ku Tokyo, 102-0073 Japan +81 3 3511 8111; fax +81 3 3511 8110 contact@nitto-optical.com; www.nitto-optical.co.jp

### Featured Product: Micro-lens array, dichroic prism, TIR, PBS, polarization converter, optical filters, coating for IR

NITTO OPTICAL is a flat optics expert. From prisms to optical filters, our products are vastly prevalent in the world in various applications such as semiconductor production, cameras and electrical consumer devices. Our polishing scores "off-the-chart" flatness and AR coating gives near 100% transmission or extremely steep cut on/off over frequency filtering. There is no doubt about the product quality and its steadiness. This is proved by our 60 years of operation in the industry. Contact: Toru Kadowaki, Sales Manager, t.kadowaki@nitto-optical.co.jp; Toru Kuriuzawa, Supervisor, toru-kuriuzawa@nitto-optical.co.jp

#### **NKT Photonics Inc.**

#917

SPIE Corporate Member

1400 Campus Drive W, Morganville, NJ, 07751-1283 USA +1 732 972 9937; fax +1 732 414 4094

laser\_sales@nktphotonics.com; www.nktphotonics.com

### Featured Product: SuperK supercontinuum sources, Koheras single frequency fiber lasers, crystal fibre

NKT Photonics manufactures the SuperK supercontinuum systems, Koheras ultra-precise fiber lasers, and its range of microstructured PCF fibers from its crystal fibre line. Applications include bioimaging, spectroscopy, sensing, pulsed high power lasers to nonlinear fibers, rod fiber amplifiers and hollow core fiber delivery for high power pulsed lasers. From photonic crystal fibers to volume production of OEM systems, we are committed to serve our customers with superior industrialized products. Contact: Husain Imam, Sales Manager.

#### nLIGHT

#1243

SPIE Corporate Member

5408 NE 88th St, Bldg E, Vancouver, WA, 98665-0989 USA +1 360 566 4460

sales@nlight.net; www.nlight.net

### Featured Product: nLIGHT alta™ Industrial Fiber Lasers, element® and pearl™ Fiber Coupled Diode Laser

nLIGHT manufactures next generation fiber lasers based on industry-leading diode and fiber technology and vertically integrated global operations. For more information see www.nLIGHT.net. Contact: Kelsey Knecht, Sales & Marketing Project Manager, kelsey. knecht@nlight.net

#### **NM Laser Products, Inc.**

#1341

337 Piercy Rd, San Jose, CA, 95138-1403 USA +1 408 227 8299; fax +1 408 227 8265 sales@nmlaser.com; www.nmlaser.com

#### NoIR LaserShields

#1301

6155 Pontiac Trl, South Lyon, MI, 48178-9647 USA +1 800 521 9746; fax +1 734 769 1708 noirsales@noirlaser.com: www.lasershields.com

### Featured Product: Clear, light and inexpensive poly filter HOY for 1900-2600nm: light grey poly YG5 for Nd:YAG 1064nm

NoIR LaserShields provides industry-defining protection and visibility for the world of laser applications. Made in the USA and CE-Certified, LaserShields delivers performance and protection with an eye on comfort. With more than 125 filters, over 75 CE-certified, and a frame to fit any face, LaserShields are the point where form and function converge. Contact: David Bothner, Marketing Director, david.bothner@lasershields.com

#### Norcada Inc.

#5645

4465 - 99 St, Edmonton, AB, T6E 5B6 Canada +1780 431 9637; fax +1780 431 9638 info@norcada.com; www.norcada-lasers.com

### Featured Product: Mid-infrared semiconductor DFB lasers 2000-3600nm for gas sensing applications

Norcada designs and manufactures near-IR (1300-1670nm) and mid-IR (2000-3600nm) single mode semiconductor distributed feedback (DFB) lasers for industrial sensing and environmental monitoring applications. Standard packaging configurations for the DFB lasers include TO style and 14-pin butterfly (fiber-coupled) hermetic packaging with TEC inside for temperature stabilization and wavelength tuning. Custom wavelengths and packaging designs are also available. URL: www.norcada-lasers.com Contact: Yuebin Ning, VP Research, sales@norcada.com

#### Noren Products Inc.

#5537

1010 O'Brien Dr, Menlo Park, CA, 94025 USA +1 650 322 9500; fax +1 650 324 1348 noren@norenproducts.com; www.norenproducts.com

#### **Norland Products Inc.**

#4331

SPIE Corporate Member

2540 Rte 130, Cranbury, NJ, 08512-3519 USA +1 609 395 1966; fax +1 609 395 9006 sales@norlandproducts.com; www.norlandproducts.com

### Featured Product: Norland optical adhesive 170 with a high refractive index of 1.70.

Manufacturer of high quality optical and electronic UV and heat curing adhesives. These one component, solvent-less adhesives cure quickly when exposed to UV light and are designed for precision bonding applications. Our optical adhesives are designed for bonding components where low strain, optical clarity or low outgassing are required in military, aerospace, fiber optics and commercial optics applications. Norland Products also sells a selection of UV curing light sources. Contact: Timothy Norland, General Manager, tnorland@norlandproducts.com

**Norlase ApS** 

#5070

SPIE Corporate

Riso huse 1, Roskilde, 4000 Denmark +4561780753

contact@norlase.com; www.norlase.com

### Featured Product: AuroraOne is a new class of visible lasers with high-brightness and low-noise at watt-level output.

Norlase ApS is a new company dedicated to producing the next-generation of high power visible lasers with unparalleled performance. The AuroraOne product line of diode laser-based technology combines the optical beam quality and power from large, traditional lasers with the compactness and efficiency of semiconductor lasers. Users will benefit from the large range of available wavelengths (450 - 560 nm) and the combination of high-brightness, low noise, and watt-level output power. Contact: Michelle Stock, Director of Business Development, mls@norlase.com; Oliver Hvidt, Business Developer, olhv@norlase.com

NorPix Inc.

#4355

SPIE Corporate

1751 Richardson St., Ste 6117, Montreal, QC, H3K 1G6 Canada +1 514 846 0009; fax +1 514 846 0117 sales@norpix.com; www.norpix.com

### Featured Product: Streampix high speed digital video recording software and solutions for single or multiple cameras

NorPix is the leading developer of digital video recording software and solutions for high speed video recording using either single or multiple cameras. User applications of NorPix software and solutions include motion analysis and tracking, medical imaging and research, life science research, industrial trouble shooting and military applications. New Product Launch: Stream your machine vision HD resolution cameras to the web using Streampix. Contact: Luc Nocente, President and Founder, In@norpix.com; Debbie Belafi, Office Manager, db@norpix.com

#### **North American Coating Laboratories**

9450 Pineneedle Dr, Mentor, OH, 44060-1828 USA +1 440 357 7000; fax +1 440 357 7001 info@nacl.com; www.nacl.com

### Featured Product: Thin-film coating solutions for polymeric and glass optics including ITO, hydrophobic, and ARs

North American Coating Laboratories provides optical coatings for a variety of customers in the polymer and glass optics markets. Our experience in both dip and vacuum-applied processes make NACL one of the most respected organizations in the optical coatings field. Our coating competencies include protective, scratch-resistant, reflective, anti-reflective, filter, conductive, ITO, and chemically resistive coatings. North American Coating Laboratories is an ISO 9001:2008 certified organization. Contact: Dan Fiore, Director of Business Development, dfiore@nacl.com; Brian Wilson, President, bwilson@nacl.com

#### Meter Board Sponsor

### Northrop Grumman Cutting Edge Optronics

#1306

#2730

SPIE Corporate Member

20 Point W Blvd, Saint Charles, MO, 63301-4430 USA +1 636 916 4900; fax +1 636 916 4994

st-ceolaser-info@ngc.com; www.northropgrumman.com/ceolaser

Northrop Grumman Cutting Edge Optronics is a leading supplier of high-power laser diodes, DPSS modules, laser diode drivers and complete DPSS laser systems. Many of our diode laser based products have become industry standards, and are used in a wide variety of commercial and military applications. The company is registered to ISO 9001:2008, and is located in St. Charles, MO. Contact: Donna Berns, Technical Sales Manager, donna.berns@ngc.com; Wade Collins, Technical Sales Manager, wade.f.collins@ngc.com

#### **Northrop Grumman SYNOPTICS**

#1306

1201 Continental Blvd, Charlotte, NC, 28273-6320 USA +1 704 588 2340; fax +1 704 588 2516 stsynopticssales@ngc.com;

www.as.northropgrumman.com/synoptics

Northrop Grumman SYNOPTICS is the world's leading manufacturer of crystals for use in solid-state lasers. We also manufacture a line of specialty crystals and air spaced polarizers for use at 1064nm. Products are used in applications in the military, medical, industrial and scientific markets. Materials include Nd:YAG, CTH:YAG, Er:YAG, ruby, undoped YAG, Nd:YLF, alexandrite, TGG Nd:YVO<sub>4</sub>, KTP, Cr<sup>4+</sup>:YAG, Co:Spinel and Yb:YAG. Diffusion bonding and contract crystal growth is also available. Contact: Scott Griffin, Director, Global Business Development, scott.e.griffin@ngc.com

#### **Notice Co., Ltd.**

#5639

A-1307/8, 282, Hagui-ro, Anyang-si, Kyonggi, 431-810 Korea, Republic of

+82 31 384 1094; fax +82 31 384 1095

notice@noticekorea.com; www.noticekorea.com

Contact: Sungchil Jo, CEO

NOVAE #5442

ZA de Bel Air, Saint Martin le Vieux, 87700 France +33 6 58 09 12 89

info@novae-laser.com; www.novae-laser.com

#### Featured Product: MID-IR 2 µm fiber femtosecond laser

Founded in 2013, Novae (Limoges, France) is the European development and manufacturing reference for 2  $\mu m$  (2 micron) wavelength ultrafast pulsed lasers. Our current products (Brevity product line) have provided new capabilities and opportunities to our customers for Mid-IR supercontinuum generation, spectroscopy, material processing, ophthalmological and medical applications. Contact: Manuel Silva, Business Development Director, m.silva@ novae-laser.com; Nicolas Ducros, CEO, n.ducros@novae-laser.com

#### **Promotional Partner**

#### Novus Media Today Group

PO Box 272574, Fort Collins, CO, 95762-4070 USA +1 970 672 1109

info@novustoday.com; www.novuslight.com

Noxant #1123-G

7 rue de la Croix Martre, Palaiseau, 91120 France +33 9 67 37 96 21

noxinfo@noxant.com; www.noxant.com

### Featured Product: NoxCore: Compact and lightweight High Performance thermal imaging cores and cameras

Noxant develops, manufactures and markets compact, lightweight high performance thermal cameras and cores for surveillance and industrial applications. Noxant products show superior thermal image quality, large customization flexibility as well as standard interfaces that ease usage and integration. Contact: Emmanuel Vanneau, VP Sales & Marketing, emmanuel.vanneau@noxant.com; Laurent Dague, President, laurent.dague@noxant.com

#### **NP Photonics, Inc.**

#4508

#2829

SPIE Corporate

9030 S Rita Rd Ste 120, Tucson, AZ, 85747-9102 USA +1 520 799 7400; fax +1 520 799 7403 info@npphotonics.com; www.npphotonics.com

### Featured Product: The POWER ROCK fiber laser is a Watts-level, kHz-linewidth, single frequency laser.

NP Photonics, Inc. is a leading manufacturer of fiber lasers, fiber amplifiers, and specialty fiber for the sensing, defense, metrology and research markets. NP Photonics' proprietary fiber technology is used across a broad family of products, including mid-IR transport fibers, short pulse, high peak power fiber amplifiers, injection seeders, and narrow-linewidth, low-phase-noise fiber lasers specifically designed for operation in an industrial environment. Contact: Arturo Chavez-Pirson, Vice President Sales & Marketing Management

#### nPoint, Inc.

SPIE Corporate

3030 Laura Ln Ste 100, Middleton, WI, 53562-1872 USA +1 608 824 1770; fax +1 608 824 1774 info@npoint.com; www.npoint.com

#### Featured Product: NP Focus series objective focusing nanopositioning piezo stages

Designs & manufactures nano-positioning tools for OEM and research applications. Products include piezo-actuated flexure stages and digital control electronics. Nano-positioning systems provide closed-loop translation in the X, XY, XYZ and tip/tilt. Enables high-speed, high-resolution, sub-nanometer precision for optics, semiconductor, defense, aerospace and bio-industries. Contact: Katerina Moloni, VP of Sales and Product Development, katerina. moloni@npoint.com; Justin Brink, Technical Sales, justin.brink@npoint.com

#### **Exhibition Map Sponsor**

#### NRD - Advanced Static Control

#1748

#5429

2937 Alt Blvd, Advanced Static Control Solutions, Grand Island, NY, 14072-1285 USA

+1 716 773 7634

sales@nrdinc.com; www.nrdstaticcontrol.com

### NTKJ Co., Ltd. (Nihon Tokushu Kogaku Jushi)

#4935

2-16-10 Hasune, Itabashi-ku, Tokyo, 174-0046 Japan +81 3 5916 0801; fax +81 3 5916 0802 rhk@ntkj.co.jp; www.ntkj.co.jp/index\_en.html

### Featured Product: Fresnel lens, micro lens array, optical roll mold, lenticular lens, plastic lens, linear prism

NTKJ, Japanese manufacturer of plastic sheet lenses offers not only various off-the-shelf lenses, including Fresnel and microlens arrays, but also customized lens manufacturing services such as for state-of-the-art 200-inch Fresnel. Using its ultra-precision lens mold manufacturing facility and technology, NTKJ is capable of producing Fresnel lenses up to 1450x100mm in size and with a maximum aperture of 5000 mm, and deploys a roll mold manufacturing capability for lenses of up to 3500mm width. Contact: Masanosuke Okuda, Director of RHKJ, rhk@ntkj.co.jp; Koichi Sato, President of NTKJ, rhk@ntkj.co.jp

#### NTT Advanced Technology Corp.

#4847

1741 Technology Dr Ste 380, San Jose, CA, 95110-1379 USA +1 408 392 4280; fax +1 408 573 7721 ktn@ml.ntt-at.co.jp; www.ntt-at.com

### Featured Product: KTN 2D deflector module, KTN 1D deflector module, KTN optical switch, KTN crystal

NTT Advanced Technology Corporation is a subsidiary of NTT, the largest telecommunications service provider in Japan. NTT-AT is a technology integrator that commercializes the research results of NTT R&D Laboratories. NTT-AT has been offering high quality and innovative technology solutions in the information and communication fields to enterprises around the world.

#### **NTT Electronics Corp.**

#2739

1-1-32 Shin-urashimacho Kanagawa-ku, New Stage Yokohama, Yokohama-shi Kanagawa, Aichi, 221-0031 Japan +81 454149195; fax +81 454539710

dev-info-w@ntt-el.com; www.ntt-electronics.com/en

### Featured Product: Near-IR DFB LDs and wavelength conversion lasers

NTT Electronics Corporation provides DFB LDs in nera-IR range and wavelength conversion lasers in visible and mid-IR ranges. These are useful for gas sensing or biomedical analytic equipment. Technologies are based on ones for high-reliable telecom components. Contact: Yoshiki Nishida, Project Leader, nishida-ys@ntt-el.com

#### Floor Graphics Sponsor

**Nufern** 

#4867

SPIE Corporate

7 Airport Park Rd, East Granby, CT, 06026-9523 USA +1 860 408 5000; fax +1 860 844 0210 info@nufern.com; www.nufern.com

### Featured Product: Flat top fibers, XLMA fibers, and speckle free source

Nufern is a leading U.S. manufacturer of specialty optical fibers, precision wound optical fiber coils, fiber lasers, and amplifiers. Our integrated team has the experience, resources, and facilities required to design, manufacture, test, and qualify highly-engineered optical fibers and fiber-based products for diverse applications and industries. Contact: Fernando Martins, East Coast Sales Manager, fmartins@nufern.com; Jim Darchuk, West Coast Sales Manager, jdarchuk@nufern.com

#### **NuPhoton Technologies, Inc.**

#4661

41610 Corning Pl, Murrieta, CA, 92562-7023 USA +1 951 696 8366; fax +1 951 696 8394 info@nuphoton.com; www.nuphoton.com

#### **Nutfield Technology**

#2723

SPIE Corporate Member

1 Wall St., Ste 115, Hudson, NH, 03051 USA +1 603 893 6200; fax +1 603 893 6214 info@nutfieldtech.com; www.nutfieldtech.com

### Featured Product: The 3XB Surface Profiler: a scan head that generates a 3-axis correction file for laser marking.

Since 1997, Nutfield Technology has been designing and manufacturing the most advanced galvanometer-based optical scanners, scan heads, laser scan kits, control electronics and software products available. New for 2016 is our 3XB surface profiler, a scan head that generates a 3-axis correction file for laser marking. Also new are our laser scan kits including our Universal OEM kit for marking systems. Nutfield Technology is a complete source for all laser scanning solutions. Contact: Richard Colonna, Director of Sales, rcolonna@nutfieldtech.com; Mathew Hannon, Sales and Applications, mhannon@nutfieldtech.com

#### **NUVon Lasers Inc**

#4259

1982 NE 125th, Hillsboro, OR, 97124 USA +1 503 686 9220 sales@nuvonlaser.com; www.nuvonlaser.com

#### Nüvü Caméras Inc.

#4355

603-355 Peel St., Montreal, QC, H3C 2G9 Canada +1 514 733 8666; fax +1 514 394 9452 info@nuvucameras.com; www.nuvucameras.com

### Featured Product: HNü EMCCD camera with highest SNR for improved photon counting imaging.

Nüvü Cameras specializes in innovative scientific EMCCD camera by completely reinventing the electronics and possibilities behind the detectors. Nüvü<sup>TM</sup>'s patented technology offers the ultimate level of sensitivity thanks to the highest SNR for low light imaging and the best image quality to answer the needs of the most demanding low light imaging applications. Increase any optical system's performances for more reliable data obtained with lesser exposure times and faster acquisition rates. Contact: info@nuvucameras.com

#### Nyfors Teknologi AB

#5355

Solkraftsvägen 12, Stockholm, 135 70 Sweden +46 8 712 10 21; fax +46 8 712 37 11 info@nyfors.se; www.nyfors.se

### Featured Product: SMARTSPLICERTM: CO<sub>2</sub> laser splicing and glass processing system for production of sensitive photonics

Established in 1987, Nyfors Teknologi AB has accumulated experience in all areas of fiber processing techniques for twentynine years. Our goal is to produce reliable and precise solutions tailored towards the individual challenges of our customers. Our portfolio currently includes: CO<sub>2</sub> laser splicing and glass shaping equipment, automatic systems for fiber preparation and window stripping, high precision cleavers and optical fiber recoaters, proof testers and cleave check interferometers. Contact: info@nyfors.se

#### O/E Land Inc.

#3082

7639 Cordner, LaSalle, QC, H8N 2X2 Canada +1 514 334 4588; fax +1 514 334 0216 info@o-eland.com; www.o-eland.com

### Featured Product: Fibre Bragg gratings, fibre-based sensors, tunable laser sources, phase masks, mi-infrared devices

O/E Land specializes in designing, manufacturing and marketing innovative products for fibre optics, photonics, sensor, instrumentation, medical, biological and other industry application. Our philosophy is to serve our customers with high performance, yet affordable fiber optics, micro optics and optoelectronics products and services. Contact: Pin Long, President, sales@o-eland.com; Blaise Frison, Sales Representative, sales2@o-eland.com

#### Ocean Optics, Inc.

#1717; 1722

SPIE Corporate Member

830 Douglas Ave, Dunedin, FL, 34698-4942 USA +1 727 733 2447; fax +1 727 733 3962 info@oceanoptics.com; www.oceanoptics.com

### Featured Product: Spark ultra-compact spectral sensor for a range of applications and integration options

Ocean Optics is the leader in spectroscopy applications knowledge. We provide modular optical sensing solutions for applications such as medical and biological research, environmental regulation, science education, and process control. Our comprehensive range of complementary technologies includes light sources, chemical sensors, Raman instrumentation, optical fibers, probes, filters and other accessories. Our spectrometers and sensors are ideal for integration into OEM and custom instruments. Contact: Application Scientist, info@oceanoptics.com; OEM, oem@oceanoptics.com

#### OEwaves, Inc.

#2825

SPIE Corporate

465 N Halstead St Ste 140, Pasadena, CA, 91107 USA +1 626 351 4200

info@oewaves.com; www.oewaves.com

#### Featured Product: Ultra-Narrow Linewidth Lasers and Measurement System; High-Q WGM Micro-Resonator Cavities & Filters

OEwaves, Inc. transforms novel microwave photonic technologies enabling new capabilities in radar, fiber optic sensing, LIDAR, and test and measurement systems. The company's core technologies include the opto-electronic oscillator (OEO) and whispering gallery mode (WGM) optical resonator. Additionally, OEwaves has developed unique homodyne microwave and optical phase noise measurement systems and ultra-narrow linewidth laser family in the 760-4500 nanometer regions and beyond. Contact: Danny Fung, Director, Product Marketing, danny,fung@oewaves.com

#### Wi-Fi, Featured Exhibitor Sponsor

OFS #1009

SPIE Corporate

55 Darling Dr, Avon, CT, 06001-4273 USA +1 860 678 0371; fax +1 860 674 8818 ofs@ofsoptics.com; www.ofsoptics.com

### Featured Product: Solutions for applications including medicine, industrial automation, sensing, and government

OFS is a world-leading designer, manufacturer, and provider of optical fiber, fiber optic cable, connectivity, fiber-to-the-subscriber (FTTX) and specialty photonics products. We provide reliable, cost-effective solutions for a broad range of applications including medicine, industrial automation, sensing, government, aerospace, and defense. These products help our customers meet the needs of consumers and businesses, both today and into the future. Please visit www.ofsoptics.com. Contact: John Earnhardt, Senior Manager, Sales, jearnhardt@ofsoptics.com

#### **Ohara Corporation**

#1937

SPIE Corporate

23141 Arroyo Vista Ste 200, Rancho Santa Margarita, CA, 92688-2613 USA

+1 949 858 5700; fax +1 949 858 5455

sales@oharacorp.com; www.oharacorp.com

Manufacturer of precision optical glasses available as strip/slab, cut/molded blanks, high homogeneity blanks, fine gobs and polished ball lenses, near UV transmitting i-Line glasses, glass ceramic substrates, CaF<sub>2</sub>, UV & IR materials, quartz, fused silica (standard and excimer grade), and Ohara ClearCeram-Z ultralow expansion glass with excellent CTE uniformity. Supplier of double side polished substrates (excellent flatness/low surface roughness). Contact: Brion Hoffman, President, brionhoffman@oharacorp.com; Chris Ghio, Director of Sales, chrisqhio@oharacorp.com

#### Okabe Manufacturing Co., Ltd.

43-2 Hikawa-cho, Itabashi-ku, Tokyo, 173-0013 Japan +81 33962 1764; fax +81 33962 1712

okabe-ss@okabe-ss.co.jp; www.okabe-ss.co.jp

### Featured Product: Speckle-less orange laser; six alternative color laser; 500mW blue laser; and coherent LD unit

For nearly 30 years, we have been developing and selling unique laser/fiber units to institutes and leading companies in Japan. We introduce some of our newest products at PW16, including: speckleless orange laser for nano-size measuring industry; six alternative color laser by exchanging the head of fiber laser module; blue laser 500mW output from 7 micron core fiber for precise processing; and coherent visible LD/SM fiber unit for interference measurement. Contact: Kenichi Okabe, Executive director, kenichi\_okabe@okabe-ss.co.jp; Akira Nishitani, ORSA div. manager, nishitani@orsajp.com

#### Olympus

#5154

#4935

48 Woerd Ave, Waltham, MA, 02453 USA +1 781 419 3900; fax +1 781 419 3980

info@olympus-ossa.com; www.olympus-ims.com

With its recognized innovation, optical quality, customer support and training, Olympus is a leader in industrial microscopy. Olympus industrial microscopes and metrology systems play a vital role in precision R&D, engineering and manufacturing applications in fields as diverse as the aerospace, automotive, electronics, materials science/metallurgy, medical device, photovoltaics and semiconductor arenas. Contact: Jennifer Wrigley, Product Applications Manager, jennifer.wrigley@olympus.com; Karl Kutz, National Sales Manager, karl.kutz@olympus.com

#### O-m6 Technologies Inc.

#4355

14163 Boulevard Curé-Labelle, Mirabel, QC, J7J 1M3 Canada +1 450 979 2275; fax +1 450 979 4110 info@om6.com; www.om6.com

#### Omega Optical, Inc.

#2136

21 Omega Drive, Brattleboro, VT, 05301-4444 USA +1 802 251 7300; fax +1 802 254 3937 sales@omegafilters.com; www.omegafilters.com

### Featured Product: Expanded process design and manufacturing capabilities for filters in the UV, MWIR, and FIR.

Since 1969 Omega Optical has delivered the light you need for biomedical, defense, aerospace, astronomy, industrial, and commercial applications. We produce custom thin-film coatings and interference filters from UV to FIR, including coatings on fiber tips. Our coating technologies include plasma-assisted reactive magnetron sputtering and e-beam ion assist for high volume production. We offer engineering and prototyping services for research and instrument design. ITAR registered and SBA member. Contact: Scott Mitchell, Sales & Business Development Manager, smitchell@omegafilters.com; Tina Hoppock, OEM Sales Manager, thoppock@omegafilters.com

#### Omicron Laserage Laserprodukte GmbH #723

Raiffeisenstr 5e, Rodgau-Dudenhofen, 63110 Germany +49 6106 8224 0; fax +49 6106 8224 10 mail@omicron-laser.de: www.omicron-laser.de

#### Featured Product: LED Hub LED light engine with up to 6 wavelengths

Omicron has been developing, designing and producing innovative laser systems since 1989. Since then, its highly qualified team has specialized in the development of solutions for medicine, research, biotechnology, digital imaging, and optical data storage, as well as quality assurance and metrology. Products include high power laser diode and LED systems with high speed modulation capability. Contact: Philip Crowley, Sales, phil@markettechinc.net

#### Featured Exhibitor Sponsor

#### Ondax, Inc.

#740

SPIE Corporate Member

850 E Duarte Rd, Monrovia, CA, 91016-4275 USA +1 626 357 9600; fax +1 626 357 9321 sales@ondax.com; www.ondax.com

### Featured Product: Low-frequency THz-Raman\* optical probe for in-situ monitoring of molecular structural properties

Ondax is the world's largest manufacturer of high-performance Volume Holographic Grating (VHG) filters, wavelength-stabilized diode laser sources, and high-performance low-frequency/THz-Raman® spectroscopy systems for industrial, defense, and scientific applications. Our innovative designs, quality and reproducibility, collaborative and responsive culture, and high volume capabilities have made us the supplier of choice for the largest industrial, defense and research customers worldwide. Contact: Linda West, VP Sales and Marketing, Iwest@ondax.com; Randy Heyler, President and CEO, rheyler@ondax.com

#### Floor Graphic Sponsor

#### **Onefive GmbH**

#5254

SPIE Corporate Member

Althardstrasse 70, Regensdorf, CH - 8105 Switzerland +41 43 538 36 57; fax +41 43 538 36 86 contactus@onefive.com; www.onefive.com

### Featured Product: Origami femtosecond laser, Genki, Katana, and PiLas picosecond lasers.

Onefive GmbH is the leading supplier of industrial-grade femtosecond, picosecond, & nanosecond lasers, having wavelengths of UV to infrared & pulse durations from sub-100 fs to 10 ns. They are experts in ultra-low noise, mode-locked lasers over a range of repetition rates, from pulse-on-demand up to 1.3 GHz. Their application areas are: laser surgery, microscopy and spectroscopy, micromachining, optical sampling, THz & supercontinuum generation, radar systems, optical clocks, & frequency combs. Contact: Alexander Lang, Head of Sales and Marketing, contactus@onefive.com; Laura Abrardi, Marketing Manager, contactus@onefive.com

#### **On-Trak Photonics, Inc.**

#4330

14 Goodyear Ste 130, Irvine, CA, 92618 USA +1 949 587 0769; fax +1 949 587 9524 info@on-trak.com; www.on-trak.com

On-Trak Photonics is a manufacturer and distributor of position sensing detectors and support electronics. North American distributor for Sitek Electro-Optics. www.on-trak.com. Contact: Dave Hunnicutt, Director of Sales, dave@on-trak.com.

#### **Onyx Optics, Inc.**

#2505

6551 Sierra Lane, Dublin, CA, 94568-2798 USA +1 925 833 1969; fax +1 925 833 1759 sales@onyxoptics.com; www.onyxoptics.com

Onyx Optics' product capabilities include Adhesive-Free Bonded (AFB®) crystal and glass laser components such as laser rods, slabs, disks, and wave-guiding structures. We work with materials such as doped and un-doped YAG, YLF, YVO4, sapphire, diamond, and spinel, as well as many others. Our patented composite technology enables higher efficiency, more compact, and higher power solid state laser and photonic devices. Contact: Lesley Reo, Sales & Marketing Manager, Ireo@onyxoptics.com; David Meissner, Account Executive, dmeissner@onyxoptics.com

#### **OP Mount Instrument, Inc.**

#4432

No 118-7 Ln 460, Nan-Shih Sec 2, Zhongfeng Rd, International Sales, Pingzhen City, 32472 Taiwan +886 343 99358; fax +886 343 99356 sales01@opmount.com.tw; www.opmount.com.tw

### Featured Product: Optical tables, mirror mounts, stages, motion system, lasers, education system

OP Mount Instrument Inc., founded over 30 years, is the first optical mechanism company in Taiwan. Since its establishment in 1984 we have been pioneers in the optics industry. OP Mount is located in Taoyuan, Taiwan. There are two branches in Shenzhen, China, and Wuhan, China for developing the Chinese market. We also have OEM partners in U.S.A., Japan, Germany, the U.K., France, Italy, India, Singapore, Israel, Korea, Thailand, Australia, and Brazil. Contact: Eva Lee, International Sales Representative, sales01@opmount.com.tw; Max Wei, Vice President, max@opmount.com.tw

#### **OPCO Laboratory, Inc.**

#2140

SPIE Corporate

704 River St, Fitchburg, MA, 01420-2913 USA +1 978 345 2522; fax +1 978 345 5515 sales@opcolab.com; www.opcolab.com

#### **Open Photonics, Inc.**

#2200

SPIE Corporate

950 N Orlando Ave, Winter Park, FL, 32789 USA +1 407 900 5259; fax +1 407 209 3400 info@open-photonics.com; www.open-photonics.com

### Ophir Optics LLC/A Newport Corporation Brand #1400

1616 Osgood St, North Andover, MA, 01845 USA +1 978 657 6410; fax +1 978 657 6056 optics@ophiropticsinc.com; www.ophiroptics.com

The Optics Group, with facilities in Israel and an affiliate in Massachusetts, designs and produces a full range of high performance opto-mechanical lens assemblies and components for the defense, homeland security and commercial markets, including the automotive safety market. Ophir's facilities produce large quantities quickly and cost-effectively, with all manufacturing done in-house. Contact: Tom Miller, Director, Segment Marketing, tom. miller@newport.com

#### Ophir-Spiricon/A Newport Company

#1400

3050 N 300 W, Ophir Photonics Group, North Logan, UT, 84341 USA

+1 435 753 3729; fax +1 435 753 5231

sales@ophir-spiricon.com; www.ophiropt.com/laser-measurement

Ophir Spiricon, a division of Ophir Photonics and a Newport Corporation brand, provides a complete line of instrumentation including Ophir power and energy meters, Spiricon beam profilers (including the BeamGage® profiling software package), the photon family of products (including NanoScan scanning-slit technology), and goniometric radiometers for the analysis of divergent beams. Contact: Gary Wagner, Site General Manager, gary.wagner@newport.com

#### HIGH PRECISION OPTICS DELIVERED WITHIN 7 DAYS

BTMT was founded in 1998, as a High Tech Enterprise, always focus on current industry trends, promote cutting-edge technology, and continue to improve product quality to be a more complete solution to customer's needs.

BTMT launched a feature service of fast delivery, in order to face the rapid development market, to meet customer's demand. With the support of advanced processing equipment and first-class testing instrument, excellent dedicated staff team, and the scientific ERP management system, BTMT integrates all aspects of the resources, continuously optimized and innovated, to implement 7 DAYS DELIVERY. We consistently do our best efforts, to create higher value for our customers.

Representative Products:

#### PBS (Polarization Beamsplitters)

Tp>95%, Rs>99.5% for single wavelength;

Tp>90%, Rs>99% for broadband;

Extinction Ratio: >1000:1 for single wavelength

Extinction Ratio: >500:1 for broadband

#### CaF2 Lenses

Application: Excimer Laser, Medical Treatment

Laser Grade S/D by 3X0.1 (ISO10110)

BTMT has been a consistent and stable supplier to our

overseas customers for over 10 years.

#### **Standard Spherical Lenses**

Application: Interferometer standard Spherical Lens Flatness by Lambda/40 at the central 60% area of CA

#### **Roof Prisms**

Roof Angle Tolerance of 90° +/- 0.5 arcsec S/D by 10/5; Surfaces Flatness by Lambda/20 at 633nm No chamfer and no chips on the roof edge under 40 times

#### Magnifier

#### **Assembly Lenses**

Mass Production Capabilities & Customized Services



#### **Oplatek Group Oy**

#5269

Kokoojatie 5, Leppävirta, 79100 Finland +358 17 3668 866; fax +358 17 3668 860 sales@oplatek.com; www.oplatek.com

### Featured Product: Oplatek provides optics and fiber optics manufacturing services to optical device manufacturers.

Oplatek Group Oy has over 30 years of experience in optics and fiber optics business. We provide services to the manufacturers of measurement devices and analyzers, high power lasers and specialty lighting devices. Our expertise includes drawing of optical specialty fibers, manufacturing molded glass optical components, thin-film coating by vacuum evaporation, manufacturing precision mechanical parts, and assembling optical devices. We have 100+recurring customers every year. Contact: Jyrki Huttunen, CEO, jyrki.huttunen@oplatek.com; Juha Kauppinen, Sales Manager, juha.kauppinen@oplatek.com

#### **Oplink, a Molex Company**

#4264

46335 Landing Pkwy, Fremont, CA, 94538-6407 USA +1510 933 7200 info@oplink.com; www.oplink.com

#### **OPOTEK, Inc.**

#535

2233 Faraday Ave Ste E, Carlsbad, CA, 92008-7214 USA +1 760 929 0770; fax +1 760 929 8782 opo@opotek.com; www.opotek.com

#### General Sponsor

Opt-E

#3022

3450 S Broadmont Dr Ste 112, Tucson, AZ, 85713 USA +1 520 867 8632

info@opt-e.com; www.opt-e.com

### Featured Product: W1 microscope and Phasor program for surface profilometry.

Opt-E is an optical instrument developer. We design, build, and deliver specialized optical instruments ranging from small microscopes for inspection and surface profilometry, to telescopes for stand-off LIBS applications, to large instruments for stray light evaluation of telescopes. Opt-E can assemble a team to take a concept and turn it into a complete solution: optics, electronics, mechanics, and software. Alternatively, we can become part of your team and help solve your problem. Contact: William Kuhn, President

#### Optec S.p.A.

#2213

**SPIE** Corporate Member

Via Mantegna 34, Parabiago MI, MI, 20015 Italy +39 0331 021815; fax +39 0331 495091 info@optec.eu; www.optec.eu

### Featured Product: Optical and optoelectronic systems: lenses from UV to SWIR, multichannel HR cameras, Aerospace sys.

Since its start up in 1985, Optec is more than a manufacturer. It is a service organization with a proven record of successful performance. Optec is always driven by its dedication to serving customer needs and by its commitment to producing quality products with high performance, with particular reference to optical sector. In the beginning, Optec provided only lenses, now we offer complete integrated systems. Optec has a particular attention to research field, recently even in aerospace field. Contact: Massimiliano Musazzi, Sales Executive, mmusazzi@optec.eu; Giuseppe Cilia, General Manager, gcilia@optec.eu

#### **OpTek Systems Inc.**

#5545

12 Pilgrim Rd, Greenville, SC, 29607 USA +1 864 272 2640; fax +1 864 272 2630 osi@opteksystems.com; www.opteksystems.com

### Featured Product: Precision laser processing contract services and machine tools

Precision laser processing, development, pilot production, and high volume manufacturing provided with subcontract services and turnkey machine tools. Optical fiber stripping, cleaving, lensing and assemblies for medical/dental devices, micro-electronics, semiconductor, packaging, photovoltaic, military, aerospace, automotive, oil/gas and optical applications/markets. Laser micromilling, -drilling, -cutting and -scribing on all materials, including glass, ceramics, metals, quartz and polymers. Contact: Andrew Webb, Head of Business Development, osi@opteksystems.com

#### **Optical Engines, Inc.**

#5369

SPIE Corporate

842 S Sierra Madre St Ste D, Colorado Springs, CO, 80903-4100 USA +1 815 301 5922; fax +1 815 301 5930 info@opticalenginesinc.com; opticalenginesinc.com

### Featured Product: Multi-hundred Watt nanosecond PCF fiber amplifier, narrow line width multi-kW PCF fiber amplifier

Optical Engines develops and manufactures PCF-based fiber amplifiers that are all fiber, completely monolithic with no free space components. These include nsec and ultrafast amplifiers and systems up to 300W output and multi-kW narrow linewidth amplifiers with diffraction limited beam quality and powers up to 2kW. Contact: Donald Sipes, President and CEO, don.sipes@ opticalenginesinc.com; Daniel Schulz, Development Engineer, dan. schulz@opticalenginesinc.com

#### **Optical Filter Source, LLC**

#328

SPIE Corporate Member

10109 McKalla PI Ste F, Austin, TX, 78758-4464 USA +1 512 248 0605; fax +1 512 491 8735 sales@ofs-online.com; www.ofs-online.com

#### **Optical Support, Inc.**

#4518

SPIE Corporate Member

1671 S Research Lp Ste 133, Tucson, AZ, 85710-3998 USA +1 520 546 0642; fax +1 520 545 0376 www.opticalsupportinc.com

### Featured Product: Optical & mechanical design, CNC machining, clean room assembly, alignment & test to customer needs.

Optical Support, Inc. is an engineering services company specializing in design and manufacturing of precision optical instruments and equipment. Optical Support, Inc. has the CNC machining, clean room assembly, alignment and test capabilities to provide both rapid prototyping and volume manufacturing to ensure faster time-to-market. OSI's experienced staff can solve complex design problems, working with your engineering team through preliminary, conceptual, and detailed design reviews. Contact: Mark Bigelow, Vice President Business Development, mbigelow@opticalsupportinc.com; Mike Savard, President, msavard@opticalsupportinc.com

#### **Opticoelectron Group JSCo.**

#565

Industrial Park Opticoelectron, Panagyurishte, 4500 Bulgaria +359 357 64183; fax +359 357 64115

oeg@opticoel.com; www.opticoel.com/en

### Featured Product: Optical, opto-mechanical, optoelectronic and laser devices and systems for defence applications

Established 45 years ago, Opticoelectron is one of the most high-tech companies in Bulgaria, specialized in design, manufacture and trade of optical, opto-mechanical, optoelectronic and laser devices and systems for defence applications. With 600 employees, from which 150 highly qualified engineers, we remain the biggest Bulgarian, and one of the leading East European, companies in the field of optical devices. Contact: Boyan Garchev, Director Business Development, boyan.garchev@opticoel.com

#### Exhibition Map, Meterboard Sponsor

#### **Optics Balzers**

#830

SPIE Corporate

11941 W 48th Ave, Wheat Ridge, CO 80033-2166 USA +1 303 502 5401; fax: +1 720 974 5901 info@opticsbalzers.com; www.opticsbalzers.com

Featured Product: http://www.opticsbalzers.com/datasheets\_all

Optics Balzers is a globally recognized leader in customized optical thin-film coatings and components for the photonics industry. The company possesses a broad and in-depth know-how in optical thin-film coating processes, complemented by sophisticated patterning, glass bonding/sealing, and further processing capabilities necessary for producing optical thin film coated components and optical sub-assemblies. Contact: Steffen Capello, Sales Manager, steffen.capello@opticsbalzers.com

Optics for Hire #1744

455 Massachusetts Ave Ste 1, Arlington, MA, 02474 USA +1 781 583 7810; fax +1 781 583 7812

info@opticsforhire.com; www.opticsforhire.com

#### Featured Product: Expert optical system design and prototyping

Visit our booth to find out why top tech firms use OFH for cutting edge system design, including applied research, optical modeling and complete opto-electronic prototype development. Technology developed by OFH is inside sophisticated optical metrology instruments, mass selling consumer products, medical devices and hundreds of unique commercial and industrial products. Contact: John Ellis, Founder, info@opticsforhire.com

#### Optics Technology, Inc.

#3030

SPIE Corporate Member

3800 Monroe Ave Ste 3, Pittsford, NY, 14534-1330 USA +1 585 586 0950; fax +1 585 248 2371

ben@opticstechnology.com; www.opticstechnology.com

### Featured Product: NIR physiology objective: 14mm long x 6.5mm OD, 0.80 N.A. (water/saline), diffraction limited

Optics Technology, Inc., is a major provider of miniature-size optical system assemblies serving the sophisticated needs of technically advanced industries. We will design, manufacture and assemble your next optical system completely in-house. Take advantage of our ability to manufacture optical components less than 1mm in diameter and/or our full service machine shop capable of manufacturing parts as small as .005" with no minimum order quantities. We make single components to complete systems. Contact: Ben Piatt, Optical Production/Sales, ben@opticstechnology.com; John Warda, President, jwarda@opticstechnology.com

#### **Promotional Partner**

#### optics.org

#1100

Ffordd Pengam, 2 Alexandra Gate, Cardiff, CF24 2SA United Kingdom

+44 117 905 5330

sales@optics.org; www.optics.org

Optics.org is the longest-running online resource targeted toward OEMs and system integrators in the core growth markets for photonics applications, and is your gateway to thousands of potential new customers looking to buy your products and services. From LEDs to industrial lasers and from sensing to microscopy, optics.org covers all the latest company, product and business news as well as in-depth articles on product application and market analysis. Contact: Robert Fisher, Head of Sales & Marketing - optics.org, rob.fisher@optics.org; Henry Tipping, Business Executive, henry.tipping@optics.org

#### **OPTIDA**

#5266

SPIE Corporate

Savanoriu Str 231, Vilnius, Vilniaus, 02300 Lithuania +370 5 2621508; fax +370 5 2621508 sales@optida.lt; www.optida.lt

### Featured Product: Ultrahigh LIDT mirror, low-loss optics, complementary chirped mirror pairs, low tension coating.

OPTIDA is one of the largest optical engineering company in the eastern and central region of the European Union, focused on the development and in-house production of optical coatings and components for laser systems, and optical devices targeting leading original equipment manufacturers. Contact: Donatas Sirgedas, Head of Business Development, donatas@optida.lt; Greta Vaitkeviciute, Head of Business Development, greta.vaitkeviciute@optida.lt

#### **Optiforms**

#304

SPIE Corporate

42310 Winchester Rd, Temecula, CA, 92590-4810 USA +1 951 296 1300; fax +1 951 296 1178 sales@optiforms.com: www.optiforms.com

### Featured Product: Replicated optical reflectors and precision thin-film coatings

Our mission has been to provide the best product possible for customers seeking the highest levels of performance. We continually advance our technology base providing precision electroformed optics and high performance optical coatings. We have extended our leadership position by utilizing the latest technology in high performance optical coatings and became the first in-house source for multi-layer coated electroformed optics. Contact: Michael Birdsell, Director of Sales and Marketing, sales@optiforms.com

#### OptiGrate Corp.

#2205

SPIE Corporate Member

562 S Econ Cir, Oviedo, FL, 32765 USA +1 407 542 7704; fax +1 407 542 7804 info@optigrate.com; www.optigrate.com

### Featured Product: Holographic volume Bragg gratings and THz Raman filters

OptiGrate is a pioneer of commercial volume Bragg gratings and supplies VBGs to more than 500 customers on 6 continents for laser line narrowing, spectroscopy, laser-pulse stretching and compression, etc. We are located in Oviedo (Florida, USA) where we design, develop and make all of our products. Contact: Igor Ciapurin, Director, Operations, iciapurin@optigrate.com

#4629 Optik +

Leiferder Weg 44a, Braunschweig, 38122 Germany +49 531 2379497; fax +49 531 2379601 info@optik-plus.de; www.optik-plus.de

#### Featured Product: precision spherical lenses, prisms, mirrors, windows, filters, laseroptics

Our company specializes in the production of precision spherical lenses from 6mm to 120mm made from all kinds of optical materials and large spherical mirrors up to 400mm for entertainment applications. We offer our measuring service for lenses and flat surfaces and have devoted a large area to prism processing where we can customize with the highest level of accuracy. Contact: Michael Sandelmann, Owner, info@optik-plus.de

#### **Optikos Corporation**

#2131

SPIE Corporate Member

107 Audubon Rd, Bldg 3, Wakefield, MA, 01880-1245 USA +1 617 354 7557; fax +1 617 354 5946 sales@optikos.com; www.optikos.com

#### Featured Product: Expert Optical Engineering from Optikos®

Anywhere light goes™ -- Optikos® optically-based solutions are found in applications that range from medical devices to automotive cameras to consumer electronics and defense. Organizations from small startups to Fortune 500 turn to us for standard products or services that will assess lens and camera system performance: and for engineering design and manufacturing of custom products or complete systems development. Learn more about our expert engineering team and solutions at optikos.com. Contact: Jim Scott, Key Account Manager, jscott@optikos.com; George Meyer, Key Account Manager, gmeyer@optikos.com

#### Optikron GmbH

**#712** 

Loebstedter Str. 70. Jena. 07749 Germany +49 3641 384970; fax +49 3641 384978 info@optikron.de; www.optikron.de

#### Featured Product: Micro-camera modules and miniaturized vision systems

Optikron is a partner for the development and production of microoptical components, thin-film optics, complex optical assemblies and micro-optical systems for both medical and technical applications such as endoscopes, laser systems, sensor systems, measuring instruments and innovative applications for aerospace industry. Optikron also develops and manufactures miniaturized vision systems and high integrated micro-camera modules with sensor, optics and LED illumination in smallest dimensions. Contact: Gerrit Seyffert, Managing Director, seyffert@optikron.de; Thoralf Wassmann, Administration / Sales, wassmann@optikron.de

**Optilab LLC** 

#4246

SPIE Corporate Member

600 E Camelback Rd, Phoenix, AZ, 85012 USA +1 480 719 1502; fax +1 602 343 1489 info@optilab.com; www.oeguest.com Contact: Wanli Chuang, Business Development

#### **Optimax Systems, Inc.**

#600

SPIE Corporate

6367 Dean Pkwy, Ontario, NY, 14519-8939 USA +1 585 265 1020: fax +1 585 265 1033 sales@optimaxsi.com: www.optimaxsi.com

#### Featured Product: OTR - Protective coatings under the harshest conditions. Stain Resistant, Durable, and Increased Life

For 25 years, customers have counted on Optimax for reliability, quality, and technical expertise for high precision optics. During this time, we've grown to be America's largest prototype optics manufacturer, producing aspheres, cylinders, prisms, spheres, and freeforms to customer specifications. We remain committed to small volume, high quality, and quick delivery. Contact: Joseph Spilman, Sales Manager, sales@optimaxsi.com

#### OptiPro Systems

#616

SPIE Corporate Member

6368 Dean Pkwy, Ontario, NY, 14519-8970 USA +1 585 265 0160; fax +1 585 265 9416 sales@optipro.com; www.optipro.com

#### Featured Product: PRO 160A: deterministic CNC asphere polishing machine. Revolutionize your asphere manufacturing.

OptiPro Systems, located in Rochester, NY, has more than 30 years' experience designing and manufacturing precision optical fabrication machines and metrology systems. OptiPro develops cutting edge machines for a variety of precision optics, including spheres, aspheres, freeforms, aspheric cylinders, torics, and more. These solutions are designed to yield prototype to high volume production of parts manufactured from a range of materials including optical glasses, ceramics, crystals, and alloys. Contact: Michael Bechtold, President, mike@optipro.com; Ron Colavecchia, Director of Optics Technology, rcolavecchia@optipro.com

#### **OptiSource, LLC**

#300

SPIE Corporate Member

102 Mountain Park Pl NW Ste D, Albuquerque, NM, 87114-2292

+1 505 792 0277; fax +1 505 792 0281 sales@optisourcellc.com; www.optisourcellc.com

#### Featured Product: Large Aperture Waveplates, Ultra thin and Low-Order Waveplates for prototype and OEM applications

OptiSource, LLC is a small Optical component manufacturer that specializes in waveplate fabrication for R&D and OEM quantities. OptiSource also supplies other optical components such as windows, mirror blanks, lenses, and prisms as either coated or uncoated elements. Contact: Greg Woodhouse, General Manager, woody@optisorucellc.com; Kevin Christensen, Engineer, kevin@ optisourcellc.com

#### **OPTITEC Cluster**

#1123-G

38 rue Joliot Curie, Marseille Cédex 13, 13388 France +33 4 91 05 59 69; fax +33 4 91 62 11 90

victoria.dupuy@pole-optitec.com; www.pole-optitec.com

OPTITEC is a community of 205 highly committed members with over 130 companies, 40 labs, 14 institutions of higher education, and 30 partners. We play a key role in industrial development, research and higher education in the field of optics/photonics and image processing. OPTITEC lives, communicates, and works to promote a field of photonics expertise, with the goal of elevating to rank first among national and European competitive clusters. Meet us at the French Pavilion. Contact: Victoria DUPUY, Chargée d'Affaires SMEs, victoria. dupuy@pole-optitec.com; Jérôme LOPEZ, Manager R&D Projects & Structure-Building projects, jerome.lopez@pole-optitec.com

#### **Optiwave Systems Inc.**

#2540

SPIE Corporate

7 Capella Ct Suite 300, Ottawa, ON, K2E 8A7 Canada +1 613 224 4700; fax +1 613 224 4706 info@optiwave.com: www.optiwave.com

#### Featured Product: OptiFDTD

Optiwave is the emerging leader in the development of innovative software tools for the design, simulation, and optimization of components, links, systems and networks for the dynamically growing fields in photonics nanotechnology, optoelectronics, optical networks and other photonic applications. Since its inception in 1994, Optiwave's software has been licensed to more than 1000 industry-leading corporations and universities in over 70 countries worldwide. Contact: Bryan Tipper, VP, Sales and Marketing, info@ optiwave.com

OPTIX Co. #4613

Zahari Stoyanov Str 65, Panagyurishte, 4500 Bulgaria +1 359 357 4125; fax +1 359 357 3097 sales@optixco.com; www.optixco.com

### Featured Product: Micro-optics with submillimeter diameters start from 0.7mm and radii from 0.5mm, assemblies

OPTIX Co. has quickly built a reputation for designing, manufacturing, and testing cutting edge quality optical components and assemblies, opto-mechanical, and opto-electronic systems for a wide range of civil and defense applications. A contemporary enterprise with a completely closed production cycle, OPTIX Co. is a 100% privately owned company with a wide range of expertise to meet the demands of customers. Contact: Janice Hunter, US Sales Manager, janice.hunter@primoptix.com; Stoyan Novakov, Sales Manager, sales@primoptix.com

### Optizone Technology (Shenzhen) Limited

#5555

123 Guanguang Rd Guanlan Sub-District, Longhua New District, Shenzhen Guangdong, 518110 China +86 755 2799 5900; fax +86 755 2799 5500 sales@optizonetech.com; www.optizonetech.com

#### Opto Diode Corp.

#4522

SPIE Corporate Member

1260 Calle Suerte, Camarillo, CA, 93012 USA +1 805 499 0335; fax +1 805 499 8108 sales@optodiode.com; www.optodiode.com

### Featured Product: IR Detectors, Emitters, Photodiodes, Position Sensors, Hi-Power LEDs, E-O Modules & Assemblies

We supply high-performance, reliable detectors, emitters, LEDs, and integrated photonic assemblies from extreme UV to mid-IR. For more than 30 years, we have provided standard and custom designs. Our UV-XUV products detect high-energy particles/ photons, and our IR detectors provide superior sensitivity to discriminate trace gases or detect heat, sparks or flames in the mid-IR spectrum. Opto Diode's manufacturing process, from start to finish, is in a cleanroom environment. Contact: Russ Dahl, Business Unit Manager, russdahl@optodiode.com; Raymond Fontayne, Product Manager, rfontayne@optodiode.com

#### Floor Plan Logo Sponsor

#### **Opto-Alignment Technology, Inc.**

#4515

SPIE Corporate

1034 van Buren Ave Ste A, Indian Trail, NC, 28079-5632 USA +1 704 763 2330; fax +1 704 789 0403 sales@optoalignment.com; www.optoalignment.com

### Featured Product: OATi offers Distance Measurement Interferometer and Vertex Height Measurement modules for the LAS

OATi is a leading US manufacturer of precision lens alignment, assembly and inspection technologies. Our product line of MW/LWIR LASER ALIGNMENT AND ASSEMBLY STATION™ provides repeatable sub-micron lens centration and sub-arcsecond tilt measurements of spherical and aspeherical lenses using a single objective. This technology allows for inspection measurements of lens alignment errors inside an assembled optical system. Also, consider our other products - LensHandler™, RotoWand™ and OptoWipes™. Contact: Sasha Pearlman, President, sasha. pearlman@optoalignment.com; Ron Garden, VP Busines & Product Development, ron.garden@optoalignment.com

#### Optocap Ltd.

#1923

5 Bain Sq, Livingston, EH54 7DR United Kingdom +44 1506 403 550; fax +44 1506 403 551 info@optocap.com; www.optocap.com

### Featured Product: Contract package design and assembly services for Optoelectronic and Microelectronic devices.

Optocap Ltd provides contract packaging design and assembly services for microelectronic and optoelectronic devices.

Optocap provides a range of assembly services/applications including; Wafer Saw, Au Ball, Au/Al Wedge and Ribbon wire bonding, Au stud bumping, Pick and Place, Die bonding (eutectic and epoxy attach), Wire pull/Die Shear, Epoxy dispense and stamping, Flip Chip Assembly, Fiber alignment and attach, Hermetic sealing, Ceramic and Plastic packaging, Chip on Board, Opto. Contact: Stephen Duffy, Director, stephen.duffy@optocap.com

### Optoelectronic Industry & Technology Development Association

#4571

1-20-10 Sekiguchi, 7F Sumitomo Edogawabashiekimae Bldg, Bunkyo-ku Tokyo, 112-0014 Japan +81 3 5225 6431; fax +81 3 5225 6435 ioex@oitda.or.jp; www.oitda.or.jp

#### **OPTOFLUX GmbH**

#4629

Andernacher Str 29b, Nürnberg, 90411 Germany +49 911 98328 0; fax +49 911 98328 119 info@optoflux.com; www.optoflux.com/home

### Featured Product: Custom-build optical components manufactured from plastic and silicone

Optoflux is the specialist in the design and production of optical devices and precision optics manufactured from plastic and silicone. Our products are used with great success in many different fields, such as the automotive, medical technology, lighting, sensor technology and low vision sectors. When it comes to our customers, we are both partner and solution provider in all areas associated with optics, optical fibres and reflectors with the finest tolerances. Contact: Andreas Zenker, Head of Marketing and Sales, andreas. zenker@optoflux.com

#### **Optogear Oy**

#4266

Kuormatie 14, Nummela, 03100 Finland +358 9 2227799; fax +358 9 2227789 optogear@optogear.fi; www.optogear.fi

Optogear offers innovative equipment and technology for optical fiber manufacturing both for research and commercial applications. More than 150 deliveries have been successfully completed since year 2009. Fiber draw towers, preform manufacturing systems, fiber handling systems and furnaces are our key products. Optogear works in close cooperation with globally leading research groups. Through this operation model novel technologies and equipment are launched to market regularly. Contact: Alexey Malinin, Vice President, Marketing & Sales, alexei.malinin@optogear.fi

#### **Opto-Line International, Inc.**

#4040

265 Ballardvale St, Wilmington, MA, 01887-1036 USA +1 978 658 7255; fax +1 978 658 7299 psumner@opto-line.com; www.opto-line.com

Featured Product: Custom precision patterns and thin film coatings

Since 1967, Opto-Line International has built a reputation for excellence, providing companies in the industrial, medical, optometry, and military sectors with the very best precision patterns and thin film coatings available for custom applications. Opto-Line International's expertise in photolithography, combined with our thin film coating capability enables us to provide our customers with the finest custom precision patterned optics available...often the most complex and demanding. Contact: Paul Sumner, COO, psumner@opto-line.com; Joh Sumner, Principal, jsumner@opto-line.com

#### **Optometrics Corporation**

#607

119 Russell St Ste 10, Littleton, MA, 01460-1274 USA +1 978 772 1700; fax +1 978 772 7100 sales@optometrics.com; www.optometrics.com

Featured Product: Extended range diffraction gratings: Advanced design adding over 50% increased useful spectral range

With production exceeding 1,000 replicated optics daily, and available capacity for over 500,000 ft2/year of high quality optical coatings, Optometrics is your preferred ISO certified, ITAR registered supplier. We offer: Optical coatings, bandpass filters, diffraction gratings, custom master diffraction grating design and production, optical replication, patterned coatings, infrared wire grid polarizers, compact OEM and research monochromators. Contact: Jay Zakrzewski, Vice President, Business Development, jayz@ optometrics.com; Michele Jones, Customer Service Specialist, mjones@optometrics.com

**Optonics** 

#4067

63 Cheomdan Venture So-ro 15 Beon-gil Buk-gu, Gwangju, 61003 Korea, Republic of +82 62 973 1260; fax +82 62 973 1261 good@optonics.biz; www.optonics.biz

#### Conference Bag Insert Sponsor

#### **OptoSigma Corporation**

#1730

SPIE Corporate Member

3210 S Croddy Way, Santa Ana, CA, 92704 USA +1 949 851 5881; fax +1 949 851 5058 sales@optosigma.com; www.optosigma.com

### Featured Product: Thin-film coatings: full range of catalog and custom thin-film coatings for laser applications

Part of the Sigma Koki Group, OptoSigma Corporation offers both catalog and custom precision laser optics, custom optical coatings, opto-mechanical positioning systems, motorized positioning systems and optical assemblies. Global manufacturing provides worldwide access to OEM pricing without sacrificing quality and precision. Call 949-851-5881 for OEM and engineering support. OptoSigma is your first choice for all of your needs. Go to www. optosigma.com and request your free catalog. Contact: Dan Denison, Regional Sales Manager, dan@optosigma.com; Clayton Summers, Sr. Mechanical Engineer, clayton@optosigma.com

#### **Optoskand AB**

#5355

Aminogatan 30, Mölndal, 431 53 Sweden info@optoskand.se: www.optoskand.se

### Featured Product: A new generation of our already well proven high power fiber to fiber switch design is now released.

Our goal is to optimize the beam delivery from your high power laser to the work piece. Since our customers demand high performance, flexible solutions, and no loss of power or time, we continuously work to improve and increase the possibilities of laser transmission technology. We have developed and manufactured a wide range of beam delivery products for high power lasers for our customers: fiber optic cables, incoupling optics, and external optics. Contact: Magnus Pålsson, Sales & Marketing Manager, info@optoskand.se

#### OptoTech Optical Machinery Inc.

#4640

PO Box 7, Palm, PA, 18070 USA +1 215 679 2091; fax +1 215 679 2013 info@optotech.de; www.optotech.de

OptoTech designs, develops, and manufactures machinery and new process technology for precision optics and ophthalmics. We offer more than 90 pieces of equipment including CNC and non-CNC high-speed generators/polishers (1 - 2000+mm), 5 axis machining centers, centering, plano/prism, rod, cylinder, aspheric and coating machines, Astro optics generators to 2m, interferometers, autocollimators, IBF and software. Receive complete US based support for parts, tooling, service, consumables and sales. Contact: Matthias Pfaff, Business Unit Director Precision Optics, m.pfaff@optotech.de

#### Digital Signage Sponsor

#### **Optotune Switzerland AG**

#5528

SPIE Corporate Member

Bernstr 388, Dietikon, 8953 Switzerland +41 58 856 3000; fax +41 58 856 3001 info@optotune.com; www.optotune.com

### Featured Product: Focus tunable lenses and laser speckle reducers

Optotune®, Inc., develops and manufactures adaptive optical components based on elastic polymers. Optotune's focus-tunable lenses and laser speckle reducers offer new solutions for several industries including machine vision, laser processing, ophthalmology, and laser projection. Visit www.optotune.com. Contact: Joerg Wertli, Senior Sales Manager, joerg.wertli@optotune.com; Mark Ventura, VP Marketing & Sales, mark.ventura@optotune.com

Optowide #4165

SPIE Corporate Member

1 Chashan Road, Mawei High-Tech Park, Fuzhou, Fujian, 350015 China

+86 591 3827 8233

sales@optowide.com; www.optowide.com

#### Optromix, Inc.

#4169

2464 Massachusetts Ave, Cambridge, MA, 02140 USA +1 617 558 9858

info@optromix.com; optromix.com

#### **ORAFOL Fresnel Optics GmbH**

#4629

Flurstedter Marktweg 13, Apolda, 99510 Germany +49 3644 5011 0; fax +49 3644 5011 50 info@fresnel-optics.de; www.fresnel-optics.de

### Featured Product: Fresnel lenses, diffusers, optical windows, light guides, AR-nanostructures

ORAFOL Fresnel Optics GmbH is a global supplier of plastic microstructured optics for the lighting, solar power, instrumentation, and display industries. Our product range includes: fresnel lenses, diffusers, light guides, and hybrid systems. We provide the complete chain from optical design and tool fabrication, prototyping, precision polymer replication, custom finishing and final inspection of the finished good. For quality assurance we work according to DIN ISO 9001:2008. Contact: Ina Zeidler, Sales Manager OSB, ina.zeidler@fresnel-optics.de

#### OrangeTek Corp.

#4157

No132 Ln 158 Sec 2 Yuanlu Rd, Changhua, 51449 Taiwan +886 4 882 7188; fax +886 4 882 6818

Sale.orange@orange-tek.com.tw; orange-tek.com.tw/en

#### Featured Product: Precise lens array.

We are engaging in ultra-precision mold and molding manufacturing over decade, utilizing state-of-the-art CNC milling cutters, machining centers and wire electric discharge machines, machining micron-level high-precision mold inserts for mold dies. We provide solutions and services to industry manufacturers. Contact: Sylvia Li, International Sales, sylvia.li@orange-tek.com.tw

### Oriel® Instruments/A Newport Company

#1400

1791 Deere Ave, Irvine, CA, 92606 USA +1 949 863 3144; fax +1 949 253 1680

sales @newport.com; www.newport.com

Oriel® Instruments, a brand of Newport Corporation, is recognition in the optical research field as a highly reliable source for well-engineered, durable light sources and their dedicated power supplies, as well as light detection systems and spectroscopy instrumentation. Oriel also manufactures dedicated broadband light sources, monochromatic light sources and detectors for light measurement and characterization in sophisticated dedicated instrumentation. Contact: John Park, Manager, Product Development, john.park@newport.com

#### **OSELA Inc.**

#1038

SPIE Corporate

1860 32nd Ave, Lachine, QC, H8T 3J7 Canada +1 514 631 2227; fax +1 514 631 2462 info@oselainc.com; www.oselainc.com



# Ultrafast Pulse Picking Solutions

Synchronizes with laser operating at up to **100 MHz** repetition rate.

Picks pulses from the train at up to **1 MHz** repetition rate.



#### **OSI Laser Diode, Inc.**

#2117

Oxxius SA
SPIE Corporate

#2823

4 Olsen Ave, Edison, NJ, 08820-2419 USA +1 732 549 9001; fax +1 732 549 1371 sales@osilaserdiode.com; www.laserdiode.com

OSI Laser Diode Inc. offers a comprehensive line of high power laser diodes and detectors. Products include: short pulse laser from 850, 905, and 1550 nanometers and high power 808nm CW lasers for DPSS, direct diode medical, and dental applications. Telecom products include F-P, OTDR and DFB lasers, APDs, detectors, PINFETs and PINAMPs. Contact: Peggy Scarillo, Sales Manager, pscarillo@osilaserdiode.com; Christine Base, Customer Service Rep, cbase@osilaserdiode.com

#### Banner Sponsor

#### **OSI Optoelectronics**

#2117

12525 Chadron Ave, Hawthorne, CA, 90250-4807 USA +1 310 978 0516; fax +1 310 644 1727 sales@osioptoelectronics.com: www.osioptoelectronics.com

### Featured Product: New back illuminated surface mount silicon photodiodes

OSI Optoelectronics is a leader in the design and manufacture of high performance standard, custom, and OEM Silicon and InGaAs photodiodes. With more than 30 years of combined experience in the field of optoelectronics and two world-class manufacturing facilities in India and Malaysia, we continue to put forth excellent engineering solutions aligned with efficient manufacturing to meet high-volume production requirements. Contact: Steven Cuffel, VP: Sales & Marketing, SCuffel@osi-systems.com

OWIS GmbH #5047

Im Gaisgraben 7, Staufen i. Br., 79219 Germany +49 7633 9504-0; fax +49 7633 9504-440 info@owis.eu; www.owis.eu

### Featured Product: Optical beam handling systems and positioning systems

OWIS GmbH was founded in 1980 and is headquartered in southwestern Germany. The medium-sized family-owned enterprise offers worldwide optical beam handling systems and positioning systems. With its own development and manufacturing ("Made in Germany") OWIS is a global leading manufacturer of these systems. OWIS focuses high-quality standard and customized rails, slides, mounts, manual/motorized positioning systems (linear, elevator, rotary and XY stages, goniometers) and controls. Contact: Export Department, export@owis.eu

#### **Oxide Corporation**

#1742

1747-1 Makihara Mukawa, Hokuto, Yamanashi, 408-0302 Japan +81 551 26 0022; fax +81 551 26 0033 sales@opt-oxide.com; www.opt-oxide.com

### Featured Product: CW 266nm DUV lasers, 3-band CW laser, a variety of single crystals, optical device, and Dr. Speckle

We are providing one-stop service from R&D to fabrication. Applicable products we offer include high-performance optical single crystals, devices, modules and lasers. These high quality products leverage our technology and know-how to live up to your expectations. Showcasing will include "Frequad-C" that is in the product line of CW 266nm deep ultra violet laser, a variety of single crystals, optical devices such as PP-LBGO, PPMgSLT, and CW 3-band laser. Contact: Daigo Fukushi, sales@opt-oxide.com

4 rue Louis de Broglie, Lannion, 22300 France +33 2 96 48 70 28; fax +33 2 96 48 21 90

sales@oxxius.com; www.oxxius.com

### Featured Product: L5C beam combiner up to 6 lasers, LCX series ultra-compact DPSS up to 500mW at 532, 553, and 561nm

Since 2002, Oxxius has developed advanced CW laser modules targeting numerous applications in biophotonics, metrology, and spectroscopy: the new LCX series "all-in-one" DPSS offering up to 500mW at 532, 553, and 561nm; the LBX laser diode modules from UV to IR with high beam quality, the LUV series, ultra-compact "all-in-one" at 266 or 280nm, and the L5C and L2C, ultra-stable laser launchers from microscopy. Oxxius offers a world-class level of quality, customer care, and services. Contact: Pascal Voluer, VP Sales & Marketing, pvoluer@oxxius.com; Thierry Georges, President & CEO, tgeorges@oxxius.com

#### Conference Bag, Conference Bag Insert, Floor Graphics Sponsor

#### **OZ Optics Ltd.**

#4529

SPIE Corporate

219 Westbrook Rd, Ottawa, ON, KOA 1LO Canada +1 613 831 0981; fax +1 613 836 5089 sales@ozoptics.com; www.ozoptics.com Contact: Chris Song, Marketing Manager

PA&E #4663

434 Olds Station Rd, Wenatchee, WA, 98801 USA +1 509 667 5480; fax +1 509 663 5039 sales@pacaero.com; www.pacaero.com

### Featured Product: High reliability hermetic connectors and electronic packaging

PA&E specializes in the manufacture of hermetic electronic packaging and connectors. Our products are widely used in defense, space, energy, and medical applications where absolute reliability in the harshest environments is required. We help our customers optimize designs for light-weight, thermal conductivity, electrical performance and more. PA&E utilizes unique materials in its manufacturing processes and offers a range of production capabilities, machining at a single location. Contact: Rick Kalkowski, Marketing Manager

#### **Pacific Laser Equipment**

#5047

SPIE Corporate

3941 S Bristol St Unit D-122, Santa Ana, CA, 92704 USA +1 714 809 5588

service@plequipment.com; www.plequipment.com

### Featured Product: Ultra-miniature linear and rotational stages for OEM applications.

We design and manufacture micro-positioning equipment. We specialize in custom OEM designs at a low cost. Applications in miniature opto-mechanics include polarizers, irises and delay lines. Our electronic controls are designed in house and produced in USA. OEM customers receive access to unlimited technical support. Automation projects include: robots, CAN bus, Ethernet and wireless for motion controllers for DC, stepper servo and piezo actuators. Contact: Sabin Husariu, Technical director; Eugene Brumar, Design Enginneer, eugen@plequipment.com

#### Pacific PAC Technologies, Inc.

#1746

30306 Esperanza, Rancho Santa Margarita, CA, 92688 USA +1 949 459 8811; fax +1 949 459 8816

info@ppactech.com; www.ppactech.com/contact.htm

#### Featured Product: Permanent magnet and magnetic assembly

PPAC is an industrial leading supplier of custom precision magnetic components and assemblies for a variety of industries. We offer magnetic solutions with premium materials, tight dimensional tolerances, reliable coating protections. We provide seasoned engineering support, quality product, competitive pricing, and ontime delivery of: NdFeB magnets, SmCo magnets, Alnico magnets, ceramic magnets, bonded magnets, and magnetic sub-assemblies. Contact: Ken Wu, Sales Manager, kenwu@ppactech.com; David Dai, V.P., daviddai@ppactech.com

#### **Pantec Engineering AG**

#2809

Industriering 21, Medical Laser, Ruggell, 9491 Liechtenstein +423 377 1333; fax +423 377 1334

3um@pantec.com; www.pantec-medicallaser.com

### Featured Product: High-power, diode pumped laser modules (2 to 3 µm); High brightness diode lasers (400 nm to 5.5 µm)

Pantec Medical Laser strives for innovative solutions in the field of minimally invasive laser based medical engineering. As exclusive supplier of unique laser technologies, 3mikron™ and fam™ - Pantec Medical Laser provides customized solutions from single laser units to complete application devices. Pantec Medical Laser is a business unit of Pantec Engineering AG, located in Ruggell, Liechtenstein. Contact: Clemens Hagen, clemens.hagen@pantec.com; Arne Heinrich, Senior Laser Scientist, arne.heinrich@pantec.com

#### **Pantron Automation, Inc.**

#4214

109 Hubbard St, Belmont, NC, 28012 USA +1 704 825 4965; fax +1 704 825 4969 sales@pantron.com; www.pantron.com

#### Featured Product: Pantron High-Powered Infrared Photoelectric Sensors

Pantron Automation, Inc. offers high-quality specialty sensors for applications in a variety of industries. Products include infrared photoelectric sensors, infrared amplifiers, and multi-channel amplifiers. Pantron's photoelectric sensors are designed to work in harsh environments, but are versatile enough to be used in applications to detect small objects. The ISG-A124 series photoelectric amplifier from Pantron features built-in diagnostic and alignment tools. Contact: Wayne Finley, Vice President, wayne@ pantron.com; Rick Pettus, Industrial Sales, rick@pantron.com

#### **Paradigm Research Optics**

#2308

595 W 66th St, Loveland, CO, 80538-4670 USA +1 970 776 8900

rfg@research-optics.com; www.research-optics.com

### Featured Product: Optical thin film coatings, optical fabrication, optical assemblies

Paradigm Research Optics is an industry leader in optical coatings and assemblies located in Loveland, CO. Paradigm Research Optics brings more than 30 years of custom coating design for both R&D and production environments. Paradigm Research Optics understands every application is specific and our solutions prove to be a cutting edge in both R&D and production runs. Our customers demand seamless transition from R&D to production and Paradigm delivers. Contact: Matthew Morgan, CEO, mmorgan@researchoptics.com

#### **Particle Measuring Systems**

#3072

5475 Airport Blvd, Boulder, CO, 80301-2886 USA +1 303 443 7100; fax +1 303 546 7393 info@pmeasuring.com; www.pmeasuring.com

#### Featured Product: Lasair® III 110 Aerosol Particle Counter.

Particle Measuring Systems (PMS) has the technology and applications expertise to help you solve your production monitoring challenges and guard against yield loss. A global technology leader in the environmental monitoring industry, PMS, a Spectris company, is the inventor of laser particle counting and the largest particle counter manufacturer in the world. Regardless of industry or monitoring requirements, without measurement there is no control. Contact: Ben Findley, Marketing & Trade Show Coordinator, bfindley@pmeasuring.com; Jim Fusco, Sales Director, Americas, ifusco@pmeasuring.com

#### **Pavilion Integration Corp.**

#502

SPIE Corporate Member

2380 Qume Dr Ste F, San Jose, CA, 95131 USA +1 408 453 8801; fax +1 408 453 8802

sales@pavilionintegration.com; www.pavilionintegration.com

#### Featured Product: Low noise and compact laser module system

Pavilion Integration Corporation (PIC) designs and manufactures lasers and laser modules covering the UV, visible, and IR wavelength ranges for instrumentation applications, predominantly for biotechnology and inspection. PIC's WhisperIT lasers utilize a patented technology that creates a beam with excellent mode quality, low noise under all conditions, and low speckle, but at a substantially reduced cost, footprint, and power consumption compared to ion or DPSS lasers. Contact: Min Chen, director of business development, min.chen@pavilionintegration.com

#### PCO S.A. #4204

28 Jana Nowaka-Jezioranskiego Street, Warsaw, 03-982 Poland +48 22 515 75 30; fax +48 226137844 pco@pcosa.com.pl; www.pcosa.com.pl

#### PCO-TECH Inc.

#1017

SPIE Corporate Member

6930 Metroplex Dr, Romulus, MI, 48174 USA +1 248 276 8820; fax +1 248 276 8825 info@pco-tech.com; www.pco-tech.com

PCO is a world leader in the manufacture of sCMOS, CMOS, and CCD cameras for scientific and research applications. Our product line includes high speed, high resolution and high sensitivity cameras. Contact: Barry Brandon, Operations Manager, barry. brandon@pco-tech.com

#### PCT Systems, Inc.

#3032

49000 Milmont Dr, Fremont, CA, 94538 USA +1 510 657 4412; fax +1 510 657 0112 info@pctsystems.com; www.pctsystems.com

### Featured Product: Megasonic and ultrasonic cleaning tanks for precision and submicron substrate cleaning.

For over 20 years, PCT Systems has pioneered and developed leading cleaning, drying, and process systems, including ultrasonic and megasonic tanks, and RF generators, as well as quartz, stainless steel, and plastic process tanks. With the development of finer geometries and more fragile structures and wafers, customers need more process development options than ever before to be successful. PCT Systems is at the forefront in aiding our customer to improve their yields, quality, and throughput. Contact: Sharyl Maraviov, President, smaraviov@pctsystems.com; Julie Garcia, Customer Service, jgarcia@pctsystems.com

#### PD-LD, Inc.

#1029

SPIE Corporate

30B Pennington Hopewell Rd, Pennington, NJ, 08534-3612 USA +1 609 564 7900: fax +1 609 564 7901 info@pd-ld.com: www.pd-ld.com

PD-LD, Inc. is a manufacturer of customized laser products headquartered in Pennington, NJ. Since 1993, PD-LD, Inc. has been leveraging top-notch technical and manufacturing capabilities to create active and passive laser products that are high quality, costeffective, tailored to customers' needs, and delivered in a timely fashion. Furthermore, PD-LD continues to innovate on its patented Volume Bragg Grating (VBG) technology for which the company has been awarded 18 patents since 2003. Contact: Tom DeBerardine, VP of Sales, tomd@pd-ld.com; Robert Struthers, VP of Business Development, robert.struthers@pd-ld.com

#### **PERFOS** #1223-C

4, rue Louis de Broglie, Lannion, 22300 France +33 2 96 48 58 89; fax +33 2 96 48 79 81 contact@perfos.com; www.photonics-bretagne.com

#### **Featured Product: Specialty optical fibers**

PERFOS is the R&D platform of Photonics Bretagne. It is a research and technology organization that develops custom microstructured fibers from conception to integration and offers a large panel of services including scientific studies, consulting in photonics, and modelling. Contact: David Méchin, Director, dmechin@photonicsbretagne.com

#### PerkinElmer, Inc.

#1242

#2307

710 Bridgeport Ave, Shelton, CT, 06484-4750 USA +1 203 925 4600; fax +1 203 944 4904

customercareus@perkinelmer.com; www.perkinelmer.com

### Featured Product: Total measurement system for LAMBDA

PerkinElmer is a global company focused on improving the health and safety of people and their environment. From earlier medical insights and more effective therapies to cleaner water and safer homes, PerkinElmer touches the lives of millions of people every day. Our environmental health business develops analytical instrumentation, illumination and detection technologies, and support services to protect the quality and sustainability of our environment and the people who live there. Contact: Customer Care, +1 (203) 925-4602, CustomerCareUS@perkinelmer.com; Michele Romero, Senior Sales Specialist - Materials Characterizati, michele. romero@perkinelmer.com

#### **Perkins Precision Developments, LLC**

SPIE Corporate

4110 N Valley Dr, Longmont, CO, 80504-9312 USA +1 970 785 2706; fax +1 970 535 6368 sales@perkinsprecision.com; www.perkinsprecision.com

#### Featured Product: Custom high energy beam splitters and polarizing cubes for laser applications

Perkins Precision Developments (PPD) manufactures coated and uncoated optics for both prototype and volume OEM requirements, as well as custom Ion Beam Sputtering (IBS) coatings on customer supplied substrates. Typical components that are manufactured in-house include wedge windows, curved and plano laser mirrors, spherical lenses, right angle prisms, plate polarizers, penta prisms, filter glass and Brewster windows. Coatings include HR, dual HR, AR, bandpass filters and plate polarizers. Contact: Emily Kubacki, Sales & Marketing Manager, sales@perkinsprecision.com; Jay Perkins, Pres, info@perkinsprecision.com

#### **PFC Flexible Circuits Limited**

#5650

11 Canadian Rd Unit 7, Scarborough, ON, M1R 5G1 Canada +1 416 750 8433; fax +1 416 750 0016 sales@pfcflex.com; www.pfcflex.com

#### Featured Product: PFC designs, manufactures and assembles flexible printed circuits and rigid flex all under one roof!

PFC Flexible Circuits Limited designs, manufactures and assembles flexible printed circuits and rigid flex. We provide single- and double-sided circuits, multilayer and rigid flex up to 16 layers. Our specialties are high-speed, low-loss circuits, impedance control, and HDI technology. We provide 50 microns line and space in production and 37.5 microns for prototypes. PFC is ISO 9001 and 13485 approved. We have a vast array of UL qualified materials ready for use. Contact: Michael Morando, VP Sales and Marketing, mmorando@pfcflex.com: Steve Kelly, President, skelly@pfcflex.com

#### **PFG Precision Optics**

#5129

SPIE Corporate

733 Bienville Blvd. Ocean Springs, MS, 39564-2842 USA +1 228 875 0165

sales@pfgoptics.com; www.pfgoptics.com

#### Featured Product: Extensive UV to IR manufacturing and coating capability.

PFG is a high quality manufacturer of precision optical components, coatings, and assemblies from 193nm to 5.5 microns. We consistently produce ultra-tight tolerance lenses, specializing in high index glasses and IR materials with high included angles, truncated or cemented spherical lenses. Additionally we're proficient manufacturing all types of prisms, wedges, windows, mirrors, beamsplitters and filters. E-beam & ion-assisted deposition coatings make the difference with all PFG components. Contact: Colin Green, VP Sales & Supply, cody@pfgoptics.com; Travis Green, President, tygreen@pfgoptics.com

#### **PHASICS** #1123-I

Bâtiment Explorer - Parc Technologique, Route de l'Orme des Merisiers, Saint Aubin, 91190 France +33 1 8 075 06 33; fax +33 1 6 909 38 37 contact@phasics.fr; www.phasicscorp.com

#### Featured Product: Wavefront sensors (193nm-14 µm) for laser beam testing & correction, lens testing and bio-imaging

Phasics offers high resolution wavefront sensors (up to 120000 phase pixels) from 193nm to 14µm. Their patented technology ensures both accurate measurement and ease-of-use. They are versatile tools for laser facility: a single instrument covers beam testing, adaptive optics and plasma diagnostics. For optics quality control, they provide aberrations and MTF in a single shot and enable rigorous comparison to design. In biology, they are a plugand-play solution for quantitative phase microscopy. Contact: Raphaël SERRA, Sales Manager, serra@phasics.fr; Yoann PRIOL, US Sales Manager, priol@phasics.fr



### BEIJING SCITLION TECHNOLOGY CO.,LTD #1540

VISIT SCITLION AT BOOTH

### **FLUORIDE CRYSTAL SPECIALIST**



	Max. Diameter	Max. Length	
CaF <sub>2</sub> Crystal	375mm	180mm	
BaF <sub>2</sub> Crystal	180mm	350mm	
MgF <sub>2</sub> Crystal	170mm	180mm	
LiF Crystal	170mm	150mm	

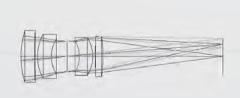
### **Regular Dimension**

D18x8mm D25x10mm D30x10mm etc...



MgF<sub>2</sub> Crystal Coating Target **Massive Production** 

### **OPTICAL DESIGN & COATING SERVICES**









Tel: 86-10-81508344 86-10-81508393 Fax: 86-10-81508384

E-mail: sales@scitlion.com

Address: No.5, Xingguang 4 Ave, Opto-Mechatronics Industrial Park, Tongzhou

District, Beijing 101111, China

Web: www.scitlion.com

#### **Phoenix Optical Technologies Ltd.**

#5145

Glascoed Rd, Lakeside St Asaph Business Park, Saint Asaph Denbighshire, LL17 OLJ United Kingdom +44 1745 584484; fax +44 1745 584050 sales@potl-ltd.co.uk; www.potl.co.uk

### Featured Product: Armourdillo Windows. Toughened optical glass windows, used for HUD, UAV and other military systems

Phoenix Optical Technologies Ltd is well known as a fast growing, forward thinking precision optics manufacturing company based in North Wales, UK. We specialise in the manufacture, polishing and diamond turning of machined and moulded blanks for optical components such as lenses, prisms, plano optic windows, mirrors and filters including spherical and aspherical/diffractive and freeform parts across a range of wavelengths, Visible, Ultra Violet (UV), and long wave Infra – Red (LWIR). Contact: Lizzie Peters, USA Finished Optics Sales Manager, lizzie@potl.co.uk; Tony Palframan, CEO, tony@potl.co.uk

#### Photodigm, Inc.

#4764

1155 E Collins Blvd Ste 200, Richardson, TX, 75081 USA +1 972 235 7584; fax +1 972 235 1609

sales@photodigm.com; www.photodigm.com

Photodigm DBR laser diodes are precisely fabricated to deliver single frequency, single mode output in the near-IR spectral band from about 740 nm to 1100 nm. The ridge waveguide selects a single spatial mode, and the monolithic DBR grating selects a single longitudinal mode. With a narrow bandwidth on the order of 1 MHz, Photodigm DBR lasers are uniquely suited to applications in atom sensors, nonlinear, and spectroscopy. Contact: Esther Moreno, Sales Administrator, emoreno@photodigm.com; Marty Edwards, Director of Business Development, medwards@photodigm.com

#### Featured Exhibitor Sponsor

#### **Photometrics**

#5347

3440 E Britannia Dr, Tucson, AZ, 85706 USA +1 520 889 9933; fax +1 520 889 8701 info@photometrics.com; www.photometrics.com

#### **Featured Product: QI Series CCD cameras**

Founded in 1978, Photometrics has a breadth of knowledge and expertise in the design and manufacture of high-performance scientific cameras. The original architect of the world's first scientific-grade microscopy EMCCD camera, Photometrics today provides cutting edge, sophisticated imaging solutions for biomedical instrumentation. Its comprehensive support includes dedicated expertise through the entire product design and manufacturing process. Contact: Cyndy Nawrocki, Marketing Director

#### **Photon Control Inc.**

#4449

#200 8363 Lougheed Hwy, Burnaby, BC, V5A 1X3 Canada +1 604 422 8861; fax +1 604 422 8418 info@photon-control.com; www.photon-control.com

### Featured Product: UV/Vis/NIR spectrometers, light sources & accessories; fiber optic temperature sensors

Photon Control Inc. provides precision measurement solutions; specializing in OEM Manufacturing, UV/VIS/NIR spectroscopy, light sources & accessories, along with fiber optic temperature and positioning sensors. Photon Control's recognized team of optical, mechanical and electrical engineers have many years of experience in creating solutions through product design and precision manufacturing processes located in an ISO 9001:2008 certified facility. Contact: Jessica Dunn, Sales & Marketing Manager, jdunn@ photon-control.com; Nicholas Goertz, Technical Sales & Support, ngoertz@photon-control.com

#### **Photon Design**

#2533

SPIE Corporate Member

34 Leopold St, Oxford, OX4 1TW United Kingdom +44 1865 324990; fax +44 1865 324991 info@photond.com; www.photond.com

### Featured Product: OmniSim/FETD: innovative new Maxwell simulator, faster than FDTD for tough problems like plasmonics

Photon Design was started in 1992 and now provides a wide range of innovative photonics CAD tools to 35 countries around the world, supplying most of the world's leading photonics companies, universities and government research labs. CAD products include tools for both passive and active (semiconductor) component and optical circuit modelling. The company has a team of the brightest people in photonics modelling, developing innovative solutions for tomorrow's photonics design projects. Contact: Dominic Gallagher, CEO, info@photond.com; Vincent Brulis, Technical Support, info@photond.com

#### **Internet Pavilion Sponsor**

#### **PHOTON ENERGY GmbH**

#811

9 Trinity Dr, West Springfield, MA, 01089 USA +1 413 562 4040; fax +1 413 562 6167

arb@alliedlasersolutions.com; www.photon-energy.de

PHOTON ENERGY GmbH is German ISO-9001 & -13485 certified manufacturer of ns & ps DPSS-lasers for precision micro-machining with 20 years' experience. Their lasers are designed for industrial and medical use with ease of integration and superior performance. Applications include scribing, drilling, cutting, marking and structuring. PHOTON ENERGY is exclusively distributed by Allied Laser Solutions in the U.S. Contact: Alain Bourdon, US Sales, arb@ alliedlasersolutions.com

#### Meter Board Sponsor

#### **Photon Engineering LLC**

#301

SPIE Corporate Member

310 S Williams Blvd No 222, Tucson, AZ, 85711 USA +1 520 733 9557; fax +1 520 733 9609 info@photonengr.com; www.photonengr.com

#### Featured Product: FRED optical engineering software

Photon Engineering, LLC is a consulting and software development firm based in Tucson, Arizona. Photon Engineering develops and markets FRED, the premier software proven to solve today's challenging optical engineering problems. Users working within FRED's 3D virtual prototyping CAD environment can model and analyze virtually any optomechanical system containing arbitrary coherent, incoherent, and partially coherent sources. Engineering consulting and short courses are offered worldwide. Contact: Donata Pfisterer, Sales & Customer Service, donatap@photonengr.com

### PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88-90 for complete times, schedules, and locations.



## The building block of motion systems

#### New! - Miniature optical incremental encoder system

Accurate and reliable position feedback is essential—accuracy and reliability at an unrivalled size; a world first.

The new ATOM™ optical encoder is the world's first miniature encoder with filtering optics, bringing you leading-edge dirt immunity and signal integrity.

And with class-leading speed, Atom has you in the starting block towards building uncompromising motion systems in space-critical applications.

#537

- Long-term signal stability Auto Gain Control (AGC) and Auto Offset Control (AOC)
- Comprehensive range
  Linear and rotary scales:
  20 µm and 40 µm pitch
- □ Ultra-compact readhead 6.7 x 12.7 x 20.5 mm
- Quick & easy readhead installation Built-in set-up LED and auto CAL routine enable faster optimization



Renishaw Inc Hoffman Estates, IL www.renishaw.com/atom





#### Photon etc. Inc.

SPIE Corporate

5795 De Gaspé Ave #222, Montreal, QC, H2S 2X3 Canada +1 514 385 9555; fax +1 514 279 5493

info@photonetc.com; www.photonetc.com

### Featured Product: Hyperspectral Raman/PL/EL imager, infrared camera, widely tunable laser, laser line tunable filter

Photon etc. develops hyperspectral imaging and spectroscopic instruments that work from ultraviolet to infrared. Its main technology is based on volume Bragg gratings, which are used as filters for swept lasers or global imaging. Their hyperspectral imaging systems provide solutions to industrial challenges, and give researchers access to the latest innovations in optical and photonic instrumentation. Photon etc. has also developed unique near infrared cameras adapted to industrial application. Contact: Laura-Isabelle Dion-Bertrand, Application Scientist, lidion.bertrand@photonetc.com; Francesca Mangiarini, Application Scientist, fmangiarini@photonetc.com

#### Photon Gear, Inc.

245 David Pkwy, Ontario, NY, 14519-8955 USA +1 585 265 3360; fax +1 585 265 3364

sales@photongear.com; www.photongear.com

Photon Gear specializes in the design, assembly and characterization of high-precision optical systems. Custom lens assemblies are verified with interferometric test capabilities from 266 nm to 1600 nm. Supported application areas include semiconductor inspection and processing, military, metrology, biomedical, laser scanning and polymer optics. We also provide contract optical engineering and optical design as well as systems engineering support for custom software and optical hardware. Contact: Gary Blough, President, sales@photongear.com; John Bowen, Senior Optical Engineer, sales@photongear.com

#604

#### **Photonfocus AG**

#6021

Bahnhofplatz 10, Lachen, 8853 Switzerland +41 55 451 0000; fax +41 55 451 0001 info@photonfocus.com; www.photonfocus.com

### Featured Product: Photonfocus MV1-D2048x1088-HS02-96-G2 GigE camera with IMEC snapshot mosaic CMV2K-SSM5x5-NIR sensor.

Photonfocus AG is a leading manufacturer of high-performance CMOS image sensor and camera technologies for the machine vision industry and other industries. Based on leading-edge, proprietary sensor designs, our products feature extremely high frame rates, high dynamic range, high full well capacity and extensive programmability for use in many industrial vision applications. Photonfocus offers CMOS sensors from VGA to 25MP in monochrome, color, IR and hyperspectral camera solutions. Contact: Peter Schwider, sales@photonfocus.com

#### **Photonic Cleaning Technologies**

#519

SPIE Corporate

1895 Short Ln, Platteville, WI, 53818-8977 USA +1 608 467 5396; fax +1 608 467 5397 sales@photoniccleaning.com; www.photoniccleaning.com

### Featured Product: First Contact Polymers™. Only no-residue strip coat available to clean & protect sensitive surfaces

Manufacturer of First Contact Polymers, the cleaning and protection system. Apply liquid polymer and peel the dried film leaving the surface nearly atomically clean. Independent XPS/ESCA and laser damage threshold testing shows no residue to the molecular level. Safe with high power laser optics. Remove dust & fingerprints. Reduce waste: non-toxic inert polymers. Clean nanostructures, gratings & phase masks, protect and clean microscope objectives & CCD sensors. Safe. Low adhesion. No residue. Contact: David Giesen, Sales & Marketing Manager, davidg@photoniccleaning.com; James Hamilton, CTO, hamiltonj@photoniccleaning.com

#### **Photonic Optische Geraete GmbH**

#5065

Seeboeckgasse 59, Vienna, 1160 Austria +43 148656910; fax +43 1486569133 office@photonic.at; www.photonic.at

### Featured Product: LED light sources for endoscopy and microscopy as well as minor surgical lights

Photonic (a member of the Wild Group) develops, manufactures and distributes opto-mechatronic products such as universal lighting modules, complete light sources as well as security technology equipment. Photonic is established in the medical technology (endoscopy/microscopy), life science, and security technology segments, and is continuously expanding its applications for industrial use. Contact: Annette Stampfer, sales & product manager, stampfer@photonic.at; Stefan Zotter, sales & product manager, zotter@photonic.at

#### **Photonic Science Ltd.**

#4224

Mountfield, Robertsbridge E Sussex, TN32 5JU United Kingdom +44 1580 881199; fax +44 1580 880910

info@photonic-science.co.uk; www.photonic-science.co.uk

### Featured Product: Cooled gen 11, colour sCMOS Gemcam, compliant camera $1920 \times 1080$

Photonic Science is a high technology independent manufacturer with 30 years design experience of high sensitivity cooled CCD / EMCCD/Scientific CMOS and InGaAs cameras, with spectral coverage from X-ray to short wave infrared. We serve customers in scientific, industrial, medical and military activity domains. Imaging systems and cameras sold are designed to customer specific requirements with cost-effective volumes production for OEM users. Contact: Diane Brau, Marketing Communication Manager, diane@ photonic-science.com

#### **Photonics & Imaging Technology**

#4440

261 5th Ave Ste 1901, Tech Briefs Media Group, New York, NY, 10016 USA

+1 212 490 3999; fax +1 212 986 7864

drothwell@techbriefs.com; www.techbriefs.com

#### Featured Product: Photonics & Imaging Technology

Photonics & Imaging Technology (P&IT) marries the best of Photonics Tech Briefs and Imaging Technology in a new standalone supplement, poly-bagged with NASA Tech Briefs. P&IT reaches qualified buyers of optics and imaging products and features exclusive reports of innovations in optics, fiber optics, electro-optics, cameras and imaging systems, and optical design and analysis software. Sign up for a FREE subscription at www. techbriefs.com/subscribe. Contact: Debora Rothwell, Director of Marketing, drothwell@techbriefs.com; Joe Pramberger, President/Publisher, joe@techbriefs.com

#### **Photonics Bretagne**

#1223-C

4, rue Louis de Broglie, Lannion, 22300 France + 33 2 96 48 58 89; fax + 33 2 96 48 79 81

contact@photonics-bretagne.com; www.photonics-bretagne.com

Photonics Bretagne is an innovative cluster of research centers, schools and companies all in the field of photonics in Brittany (France). Its mission is to bring together expertise and experience of the members to create value for every involved organization and partner. Contact: David Méchin, Director, dmechin@photonics-bretagne.com

#### **Photonics Finland**

#5269

Länsikatu 15, Joensuu, 80110 Finland +358 50 35438 32; fax +358 20 7619 551 www.photonics.fi

#### Photonics Industries International, Inc. #1901

SPIE Corporate Member

1800 Ocean Ave, Ronkonkoma, NY, 11779 USA +1 631 218 2240; fax +1 631 218 2275 info@photonix.com; www.photonix.com

### Featured Product: 3.4um to 193nm wavelength selectable ns pulse width lasers providing mJs of energy at kHz rep rates

Photonics Industries International, Inc. manufactures a wide range of DPSS laser systems for industrial, scientific and biophotonic applications. Nanosecond and picosecond lasers with either TEM00 or multi-spatial modes are available in Nd:YAG, Nd:YLF and Nd:YVO4. Output powers range from 100mW-300W at 1064nm, 100mW-300W at 532nm, 50mW-40W at 355nm, and 5mW-10W at 266nm; pump lasers up to 200mJ at 1kHz at 527nm; eye-safe, OPO, Ti:Sapphire tunable ns lasers are also available from 3.4um to 193nm. Contact: Joyce Kilmer, Director of Marketing, Jkilmer@photonix.com; Matt Corrello, Director of Sales, mcorrello@photonix.com

### Photonics Industry & Technology Development Association

#4422

9 Roosevelt Rd Sec 2, Taipei, 100 93 Taiwan +866 2 2396 7780; fax +866 2 2341 4559 jason.cheng@mail.pida.org.tw; www.optotaiwan.com

#### Featured Product: Automotive Photonics in Opto Taiwan 2016

The automotive industry gradually moves towards the development of intelligent vehicles and adopts various photonics technologies such as LED lighting, optical lens, CMOS/CCD image sensor, IR laser/LED, LCD displays, and so on. These automotive photonics technologies help to push vehicle designs to another level. Contact: Jason Cheng, manager, jason.cheng@mail.pida.org.tw; Simon Hwang, promotion, simon@mail.pdia.org.tw

PhotonicsNL #5132

Prins Bernhardstraat 64, Kouderkerk aan den Rijn, 2396 GN Netherlands

+ 31 628615334

www.photonicsnl.org

As an association PhotonicsNL is the unique Dutch platform for photonics. We aim to create more awareness in the Netherlands about the importance of photonics as Key Enabling Technology for our economy, resulting in new companies, more employment and captivating jobs for younger people. We stimulate education in Photonics at all levels from primairy education up to engineering level. PhotonicsNL is in close collaboration with several EU-partners under the umbrella of Photonics21. Contact: Guus Taminiau, Director, guus.taminiau@photonicsnl.org

Promotional Partner, Conference Bag Insert Sponsor

#### **Photonics Online**

#522

2009 Mackenzie Way Ste 280, Cranberry Township, PA, 16066 USA +1724 940 7555; fax +1724 940 7707

info@photonicsonline.com; www.photonicsonline.com

#### Featured Product: The information source for the photonics industry

Photonics Online, the Internet's leading source of cutting-edge technical information about the laser, optics, optoelectronics, fiber optics, and imaging industries. If you are a scientist, engineer, designer, or system integrator working in any of these fields, you now have instant access to a comprehensive website that delivers the latest information on a wide variety of pertinent topics. Contact: Nathan Miller, Account Executive, nmiller@vertmarkets.com

#### Photonics Solutions Group LLC

#5165

6300 Montano Rd Nw Ste A-2, Albuquerque, NM, 87120 USA +1 505 503 1544; fax +1 505 503 1408

info@photonicsllc.com: www.photonicsllc.com

#### Featured Product: High-precision cylindrical lenses and optical flats

Photonics Solutions Group (PSG) is an American optics supplier located in Albuquerque, New Mexico. PSG provides an unmatched spectrum of optics, from deep UV to long-wave IR, addressing a wide range of markets including defense and homeland security, microelectronics, life and health sciences, industrial laser material processing and more. PSG serves high-precision optical markets around the world. Contact: Lou Primaveri, President, Louie@ photonicsllc.com; Mary Bennett, Inside Sales, mary@photonicsllc.com

#### **Promotional Partner**

#### Photonics Spectra, a Photonics Media Publication #904; 905

SPIE Corporate Member

100 West Street, 2nd Floor, Pittsfield, MA, 01202-4949 USA +1 413 499 0514; fax +1 413 442 3180

info@photonics.com; www.photonics.com

### Featured Product: Photonics Spectra magazine: defining the science and industry of photonics

Photonics Spectra is your comprehensive connection to the global photonics industry, providing technical and practical information for every aspect of the global industry and promoting an international dialogue among the engineers, scientists and end users who develop, commercialize and buy photonics products. Stay current with our continual coverage or expand your knowledge through our extensive archives. Stop by our booth to subscribe for free or visit www.photonics.com/subscriptions. Contact: Ryan Laurin, Vice President, advertising@photonics.com; Karen Newman, Group Publisher, editorial@photonics.com

#### **Photonik Austria**

#5065

Franz-Pichler-Str 30, Weiz, 8160 Austria +43 316 876 3000

office@photonik-austria.at; www.photonik-austria.at

#### **Photonik Inkubator GmbH**

#4629

Hans-Adolf-Krebs-Weg 1, Göttingen, 37077 Germany +49 551 30724 135; fax +49 551 30724 137

office@photonik-inkubator.de; www.photonik-inkubator.de

The Photonik Inkubator in Göttingen is focused on innovative ideas in the field of optics. Ideas from communications engineering and information technologies, analytics and sensor technology, microscopy, surface refinement and medical engineering can proceed from laboratory to industrial application with time, money and milestones in mind. Contact: Julia Altmann, Project Manager, altmann@photonik-inkubator.de; Diana Brand, Project Assistance, brand@photonik-inkubator.de

#### Photonik-Zentrum Kaiserslautern

#4629

Kohlenhofstr 10, Kaiserslautern, 67663 Germany +49 631 415 575 0; fax +49 631 415 575 10

info@pzkl.de; www.pzkl.de

The Photonic-Center K-Town (PZKL) with its department's laser micromachining, laser- and systems technology, as well as optical measurement technologies, is a valuable partner of the industry. From the first steps in optical technologies up to the integration in production lines, the institute together with its partners supports and accompanies its customer. Contact: Dr. Johannes L'huillier, CEO, johannes.lhuillier@pzkl.de; Dr. Bernhard Henrich, bernhard.henrich@pzkl.de

#### **PHOTONIS**

#5229

SPIE Corporate Member

660 Main St, Sturbridge, MA, 01566 USA +1508 347 4000; fax +1508 347 3849 sales@usa.photonis.com; www.photonis.com

### Featured Product: Nocturn low-light CMOS cameras for surveillance and security provide day-through-night imaging.

PHOTONIS is a global leader in photonic detection and amplification products for use in research, industrial and defense applications. We provide a wide range of photon detectors and sensors with custom options for specialized applications. Our complete line of digital CMOS cameras provide day-through-night images in either monochrome or color, with many standard-compliant outputs for use in surveillance, mobile, man-portable or security applications. www.photonis.com Contact: Margaret Cooley, International Marketing Manager, m.cooley@usa.photonis.com

#### **Photonsense Technologies**

#4646

440 West Duarte Rot, Arcadia, CA, 91007 USA +1 818 312 5850

simon@photonsensetech.com; www.photonsensetech.com

### Featured Product: Fiber optics interrogator, distributed fiber sensor (subsystem & component), DTS, DAS

PST is devoted to offering reliable, cost-effective, durable solutions to fiber optics sensing applications. Contact: Simon Xu, VP, Business Development

#### Featured Exhibitor Sponsor

#### PhotonTransfer

#4134

SPIE Corporate Member

Travessera de les corts 269 atico 1, Barcelona, 08014 Spain +34 9300 43980

info@photontransfer.info; photontransfer.com

### Featured Product: Technology transfer & intellectual property brokerage in photonics

We bridge the gap between science and market. PhotonTransfer. com is a trusted community marketplace for companies, research institutions and individuals to accelerate technology transfer for light-based technologies. Enhanced visibility for a low price will result in faster and better licenses or assignments. PhotonTransfer brings together the right partners, both businesses and scientists, to strengthen scientific ventures, ensure technology development and market entry. Contact: Ernesto Barrera, Director, ebarrera@ photontransfer.info; Daniel Salart, Scientific Manager, dsalart@ photontransfer.info

#### Photron Ltd.

Kanda Jinbocho 1-105, 21F Jinbocho Mitsui Bldg, Chiyoda-ku Tokyo, Tokyo, 101-0051 Japan

+81 3 3518 6271; fax +81 3 3518 6279

polarizing-camera@photron.co.jp; www.photron.co.jp

### Featured Product: New high-speed polarization camera with a sampling rate of 100kH

Photron Ltd., the leading supplier of digital high-speed cameras for slow motion analysis offers a brand new high-speed polarization camera that is ideally suited for use in various high-speed measurement applications and visualization of two-dimensional polarization phenomena such as object recognition, stress visualization, birefringence measurement and thickness measurement. Photron Ltd. has developed two types of polarization cameras; one is a high-speed camera with a sampling rate of 100kHz. Contact: Takashi Onuma, Engineer, oonuma@photron.co.jp; Emi christensen, Accounting, emi@photron.com

#### Photron USA, Inc.

#2406

#5343

9520 Padgett St Ste 110, San Diego, CA, 92126-4446 USA +1 858 684 3555; fax +1 858 684 3558 image@photron.com; www.photron.com

### Featured Product: FASTCAM Mini AX: megapixel resolution at 6,400 frames per second with the highest light sensitivity

Photron's high speed cameras enable fast occurring events and phenomena to be recorded and replayed in detailed slow motion to see, analyze and understand exactly what occurred. Products include the highest light sensitive cameras available with megapixel resolution to 21000 frames per second (fps), high definition (both 180HD and 720HD), and tiny high-G remote camera heads for easy access to difficult or hazardous locations. Photron has a slow motion solution for your every high-speed challenge. Contact: Andrew Bridges, Director, Sales & Marketing, image@photron.com; Tim Callenbach, Sales Manager, image@photron.com

#### **Physics Today**

#5541

One Physics Ellipse, College Park, MD, 20740-3843 USA +1 301 209 3040; fax +1 301 209 0842 ptpub@aip.org; www.physicstoday.org

#### **Featured Product: Physics Today**

Physics Today has a whole new look! Now more than ever, Physics Today is the magazine with journal credibility: reliable coverage you want, from fields inside & outside your own. Every month, Physics Today's readership of 120,000+ scientists & engineers engage with authoritative content, including feature articles on peer-reviewed research & overviews of cutting-edge advances, historical perspectives, & novel tools. SPIE member special: Subscribe for just \$25/year at www.physicstoday.org/SPIEW16 Contact: Christina Unger, Marketing Manager, cunger@aip.org

#### PI (Physik Instrumente) L.P.

#4829; 4929

SPIE Corporate

16 Albert St, Auburn, MA, 01501-1304 USA +1 508 832 3456; fax +1 508 832 0506 info@pi-usa.us; www.pi-usa.us

#### Featured Product: Air bearing stages, linear and rotation; highspeed/dynamics hexapod; mini-piezo motors.

Leader in nanopositioning, hexapod systems, ultra-precision motion control and Piezo positioners for OEM and research. Products: Piezo stages; nanopositioning systems; air bearing stages, 6-axis hexapod alignment Systems, automated 3D to 6D fiber aligners; photonics alignment systems, microscope stages; fast lens positioners; fast steering mirrors; long-life multilayer Piezo actuators; Piezo linear motors, Piezo drivers & digital controllers; motorized actuators, stages & motion controllers. Contact: Sales, info@pi-usa.us

#### Pi Photonics #4837

35-1 Shogen-Cho, Higashi-Ku, Hamamatsu-city, Aichi, 430-0802 Japan

+81 53 581 9863; fax +81 53 581 9864

info@piphotonics.co.jp; www.piphotonics.co.jp/EN

### Featured Product: HOLOLIGHT: High directional LED lighting for forming patterns

We provide you with integrated photonics products for peace on the earth. HOLOLIGHT is a unique LED lighting using high brightness LED and large refractive optics. It utilizes a patented innovative lighting device for forming pattern, square, round, line, arch, rainbow, ring, cross, arrow, heart, star, number, alphabet, and so on. Contact: Takahiro Ikeda, CEO, info@piphotonics.co.jp

#### **PicoLAS GmbH**

#2023; 4629

Kaiserstr 100, Herzogenrath, 52134 Germany +49 2407563580; fax +49 24075635829 info@picolas.de; www.picolas.de

### Featured Product: cw, qcw & short-pulse drivers for Laser Diodes and LED's

The PicoLAS GmbH, headquartered in Herzogenrath, Germany, is specialized in developing and manufacturing drivers for diode lasers. PicoLAS's diode laser drivers are compact, efficient and have achieved a couple of market prominences: Base plate cooled cw drivers for fanless designs; High-efficiency digital controlled cw and qcw drivers; Short pulse drivers for seeding and rangefinding applications. PicoLAS is Europe's number one for high-speed seeding of fibre lasers (400 ps up to cw). Contact: Dr. Markus Bartram, CEO, info@picolas.de

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#### **PicoQuant Photonics**

#811; 4854

SPIE Corporate Member

9 Trinity Dr, West Springfield, MA, 01089 USA +1 413 562 6161; fax +1 413 562 6167

info@picoquant-usa.com; www.picoquant-usa.com

Our product lines includes: pulsed diode lasers, time-correlated single photon counting (TCSPC) electronics and detectors, fluorescence lifetime spectrometers, time-resolved fluorescence microscopes, and upgrade kits for laser scanning microscopes. Applications include single molecule spectroscopy, fluorescence lifetime imaging (FLIM), fluorescence resonance energy transfer (FRET), fluorescence correlation spectroscopy (FCS), optical tomography, and quantum key distribution. Contact: Alain Bourdon, Vice President, bourdon@picoquant-usa.com

#### PiezoElectric Technology

#4067

Sangbong-dong 485, 501-503 Sinnae Technotown, Jungrang-gu Seoul, 131-863 Korea, Republic of +82 10 9375 4408; fax +86 2 3421 0374 www.piezo-tech.com

#### piezosystem jena, Inc.

#4755

SPIE Corporate Member

2B Rosenfeld Dr, Hopedale, MA, 01747 USA +1 508 634 6688; fax +1 508 634 6868 usa@piezojena.com; www.piezosystem.com

### Featured Product: Digital piezo controller: d-Drive Pro 24bit resolution, 3 channel amp with 120 mA continuous current

Piezosystem Jena has provided high precision nano-positioning solutions in up to 5 axis of travel for 20+ years. X, XY, XYZ, tip/tilt positioning with sub-nm resolution can be achieved, with high resonant frequencies which allow for fast scanning. Using a closed-loop feedback we can eliminate any hysteresis and drift. Complete digital systems are also readily available with micro manager and lab view drivers. A leader for research & OEM solutions. Contact: Peter Viglas, Sales Engineer, pviglas@piezojena.com

#### **PIKE Technologies**

#5230

SPIE Corporate Member

6125 Cottonwood Dr, Madison, WI, 53719 USA +1 608 274 2721; fax +1 608 274 0103 info@piketech.com; www.piketech.com

### Featured Product: The PIKE 100x Schwarzschild Objective: achieves a numerical aperture of 0.80NA.

Since 1989, PIKE Technologies has been a leading developer and manufacturer of spectroscopy accessories and custom optics. Our core infrastructure for optical manufacturing features four diamond-turning lathes, precision metrology instrumentation, and more. Advanced optical capabilities include design, prototyping, metrology measurement, and CNC grinding and polishing. Spectroscopy products include ATR, diffuse and specular reflectance, integrating spheres, and transmission sampling accessories. Contact: info@ piketech.com

#### **PixeLINK**

#4030

1900 City Park Dr Ste 410, Ottawa, ON, K1J 1A3 Canada +1 613 247 1211; fax +1 613 247 2001

sales@pixelink.com; www.pixelink.com

PixeLINK® provides customers with the best machine vision, medical imaging, and microscopy camera hardware, software, and expertise possible to help them achieve their business goals. At PixeLINK, we help customers select, optimize, and integrate the machine vision camera or microscope camera that best meets their imaging requirements in a timely, cost-effective manner to reduce costs and improve profitability. Contact: Paul Saunders, President, paul.saunders@pixelink.com; Brigitte Vachon, Director, OEM Sales, brigitte.vachon@pixelink.com

#### Pixelteq, Inc.

#1717

SPIE Corporate Member

8060 Bryan Dairy Rd Ste A, Largo, FL, 33777 USA +1 727 897 5665

info@pixelteq.com; www.pixelteq.com

### Featured Product: PixelSensor: customizable spectral sensing for in vitro diagnostics, biochemical assays & imaging

Pixelteq provides OEM spectral sensing and imaging solutions, micro-patterned optical filters, and custom electro-optical devices for a variety of aerospace, biomedical, industrial, scientific, and security applications. At the heart of each multispectral device is an array of pixel-level spectral filters purpose-built for your application. Pixelteq specialists collaborate with your team to provide expert design assistance and custom-engineered solutions. Contact: Marco Snikkers, VP Sales & Marketing, info@pixelteq.com

#### **Plant for Optics**

#5658

Industrial Area Opticoelectron, Panagyuriste, 4500 Bulgaria +359 357 62156; fax +359 357 62085 pfo@opticoel.com; www.pfo-bg.com

### Featured Product: SWIR objective lens with high efficient AR coating in range 0.6-1.7mkm, Rave<1% per coated surface

Plant for Optics is a manufacturer of precise optical components, laser optics, optical coatings, reticles for sights, optical assemblies, and optical-mechanical assemblies. Plant for Optics make, design, and engineer optical products and systems, as well as produce optical components under customer's specification. The production is based on proven and advanced optical technologies and equipment, and we have implemented an integrated system for quality assurance ISO 9001:2008 Contact: Vladimir Nedialkov, Executive Director, pfo@opticoel.com; Zvetan Rakov, Deputy Executive Director/Technical, rakov@opticoel.com

#### **SPIE INDUSTRY EVENTS**

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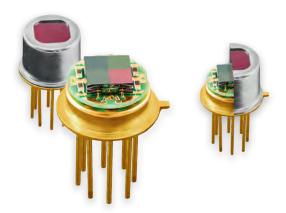
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#### New Miniaturized Four-channel Detector in TO39 Housing

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- IR filters protected inside

- Hermetic sealing
- Wide field of view
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InfraTec infrared LLC Plano, TX – USA

Phone 877-pyros4u (877-797-6748)

#5445

#4229

Internet

info@InfraTec-infrared.com www.infratec-infrared.com

#### **Plasma Process Group**

7330 Greendale Rd, Windsor, CO, 80550 USA +1 970 663 6988; fax +1 970 669 2312

info@plasmaprocessgroup.com; www.plasmaprocessgroup.com

#### Featured Product: Techne IBD System: a next-gen system with fast cycle time and advanced geometry for max throughput

Plasma Process Group specializes in simple ion beam solutions. From replacement parts and equipment for existing systems, to the new Techne Ion Beam Deposition System, Plasma Process Group offers modern solutions for any ion beam needs. Everything is manufactured in-house, giving us complete control over the quality of our products and guaranteeing you top-quality results. Whether you need simple ion beam etching or complex optical deposition, Plasma Process Group has your solution. Contact: Jim Topper, Marketing & Communications Manager, jtopper@ plasmaprocessgroup.com; Dan Bouillez, Sales Manager, dbouillez@ plasmaprocessgroup.com

#### Plasmaterials, Inc.

2268 Research Dr, Livermore, CA, 94550 USA +1 925 447 4030: fax +1 925 447 4031

info@plasmaterials.com; www.plasmaterials.com/

#### Featured Product: Planar/rotatable sputtering targets, evaporation materials, backing plates/tubes, bonding services

Plasmaterials, Inc. has been supplying the thin film industry with high purity planar/rotatable sputtering targets and evaporation materials for use in PVD equipment and related applications since 1987. In addition, we offer backing plates/tubes, e-beam starter sources, crucible liners, bonding and reclamation services. These materials are well suited for industrial applications, laboratory processing, R&D applications, pilot production applications as well as full scale production. Contact: Rob Eidson, Sales Engineer, rob@plasmaterials.com; Pete Norlander, Sales Engineer, pete@ plasmaterials.com

#### Plasmo Industrietechnik GmbH

Dresdner Str 81-85, Wien, 1200 Austria +43 1 2362607 0; fax +43 1 2362607 99 info@plasmo.eu; www.plasmo.eu/

#### Pleiger Laseroptik GmbH & Co. KG

Im Hammertal 51, Witten, 58456 Germany +49 23 2439 8401: fax +49 23 2439 8402

info@pleiger-laseroptik.de; www.pleiger-laseroptik.de

#### Featured Product: fs-optics and CO<sub>2</sub>-mirrors and lasers

Complete mirrors and coatings for laser mirrors made by Pleiger Laseroptik are used in almost all laser applications. This is testament to the high quality of our products, and the high level of flexibility of our research, development and production. Pleiger is an innovative, family-owned, German high-tech company with a long tradition at its location in Witten. The Pleiger Group has production facilities in Germany, Korea, China, and the United States.

#### Pleora Technologies

#5634

#5065

#4629

340 Terry Fox Dr Ste 300, Kanata, ON, K2K 3A2 Canada +1 613 270 0625; fax +1 613 270 1425

info@pleora.com; www.pleora.com

#### Featured Product: Embedded video interfaces, external frame grabbers, eBus SDK, transcoder gateway

Pleora Technologies is the world's leading supplier of video interfaces for system manufacturers and camera companies serving the military, medical, intelligent transportation, and industrial automation sectors. The company delivers end-to-end solutions built on field-proven hardware and software platforms that meet all imaging and vision standards. Our products help system and camera manufacturers bring new offerings to market quickly, while lowering system cost and reducing design risk. Contact: Brad Ostman, Regional Sales Manager, brad.ostman@pleora.com

#### **Plymouth Grating Lab.**

#4565

5 Commerce Way, Carver, MA, 02330-1080 USA +1 508 503 1719; fax +1 508 503 1727

sales@plymouthgrating.com; www.plymouthgrating.com

#### Featured Product: Diffraction gratings and optical coatings

Plymouth Grating Laboratory is the primary commercial source for the largest diffraction gratings in the world and is dedicated to making the highest quality gratings available. We specialize in diffraction gratings with periods of 200 nm to 20,000 nm on a substrate size of 1 meter x 0.6 meters with excellent diffraction wavefront characteristics. We manufacture multilayer dielectric reflection, metal reflection, transmission, and amplitude gratings. Contact: Gretchen Hurley, Sales Associate, ghur@plymouthgrating.com

#### **POG Precision Optics Gera**

#2209

1090 Delacroix Cir, Nokomis, FL, 34275-4563 USA +1 941 803 4927; fax +1 941 237 4800 info@pog.eu; www.pog.eu

POG designs, develops and processes custom optical and EO-mechanical systems and components from the UV through IR for machine vision, semiconductor industry, aerospace and defense. POG is a leading manufacturer of custom and standard microstructures on glass and ceramics: reticules, scales, calibration targets and test patterns. In-house photolithographic processes result in the highest possible quality for serial production and small batch quantities. Contact: Buzz Nesti, buzz.nesti@pog.eu; Andre Miessler, Sales Manager, andre.miessler@pog.eu

#### **Point Grey**

#2811

12051 Riverside Way, Richmond, BC, V6W 1K7 Canada +1 604 242 9937; fax +1 604 242 9938 sales@ptgrev.com; www.ptgrev.com

Point Grey is a global leader in the design and manufacturing of innovative, high-performance digital cameras for industrial, scientific, medical, traffic, and security applications. We offer a unique and comprehensive portfolio of USB3 Vision, GigE Vision, FireWire, and USB 2.0 products known for their outstanding quality, ease-of-use, and unbeatable price-performance. Contact: info@ptgrey.com

#### **Polaris Motion**

#4662

SPIE Corporate

3-512 Frances Ave, Victoria, BC, V8Z 1A1 Canada +1 250 382 7249; fax +1 250 382 1830 sales@pmdi.com; www.pmdi.com

### Featured Product: Polaris Motion Control System for Laser Micro-Processing.

Polaris Motion offers CNC motion control systems for laser micro-processing with powerful technologies that synchronize stage motion, Galvoscanners and lasers. Special features include infinite field of view (IFOV) and synchronized laser triggering. Ease of use is achieved with an intuitive CNC operator interface running industry standard G-code. Polaris leads the industry in performance and ability to add custom features. Contact: Tom Erlic, Co-Founder, terlic@pmdi.com; Mile Erlic, Co-Founder, merlic@pmdi.com

#### PolarOnyx Laser Inc.

#510

SPIE Corporate Member

2526 Qume Dr Ste 18, San Jose, CA, 95131-1870 USA +1 408 573 0931; fax +1 408 573 0932 sales@polaronyxlaser.com; www.polaronyxlaser.com

### Featured Product: High energy (0.5 mJ) /high power (100W) femtosecond fiber lasers

World leading company in high energy (0.5mJ) and high power (100W) femtosecond fiber lasers. Excellent for material processing, micromachining, spectroscopy, microscopy, biomedical instrumentation & optical sensing applications. OEM and instrument versions are available. Wavelength ranges from UV to mid-IR. Contact: Lihmei Yang, Vice President, yang@polaronyxlaser.com; Jian Liu, President, jliu@polaronyxlaser.com

### Polish Technological Platform on Photonics

#4204

Jana Nowaka-Jezioranskiego 28, Warszawa, 03-982 Poland +48 698 679 184 pco@pcosa.com.pl; www.pptf.pl

#### Power Technology, Inc.

#4270

PO Box 191117, Little Rock, AR, 72219 USA +1 501 407 0712; fax +1 501 407 0036

ptimarketing@powertechnology.com; www.powertechnology.com

#### Featured Product: Illumina For Lithography

Engineered for exceptional lithographic performance, the Illumina features a convenient and durable fiber coupled output at a wavelength of 405 nm enabling high resolutions. With scalable power and up to 176 Watts, seven unique power levels guarantee the Illumina laser is a perfect match for your application. Illumina provides 20,000 hours of reliable illumination without the need for liquid cooling. Illumina eliminates the dangers associated with expensive bulbs, and the associated high costs.

#### **Powerlase Photonics Ltd.**

#5135

Maxwell Way, Units 3 & 4 Meadowbrook Industrial Est, Crawley W Sussex, RH10 9SA United Kingdom +44 1293 456 222; fax +44 1293 456 235 enquiries@powerlase-photonics.com; www.powerlase-photonics.com

#### PowerPhotonic Ltd.

#5145

1 St Davids Drive, St Davids Business Park, Dalgety Bay Fife, KY11 9PF United Kingdom

+44 1383 825910; fax +44 1383 825739

info@powerphotonic.com; www.powerphotonic.com

### Featured Product: Single mode beam shapers offering near diffraction limited performance.

PowerPhotonic is a global leader in the design and manufacturing of precision micro-optics products. Using our unique wafer scale laser machining process, we manufacture a large range of micro-optics including standard and custom microlens arrays, beam shapers and freeform surfaces. Manufactured exclusively in UV-fused silica, our optics are particularly suited for demanding high accuracy applications or where high power handling is needed. Contact: Julian Hayes, Sales and Marketing Director, julian.hayes@powerphotonic.com

#### **Powertip Technology Inc.**

#4465

26231 Enterprise Ct, Lake Forest, CA, 92630 USA +1 949 859 8168 x30; fax +1 949 859 8118 sales@powertipusa.com; www.powertipusa.com

### Featured Product: Mono display (LCD), TFT, touch panel, and smart displays

Founded in 1991, Powertip has grown profitably through the years to become one of the leading manufacturers of Liquid Crystal Display (LCD) technology. Today, Powertip factories are located in Taiwan and China. With a total of 90,200 square meters of manufacturing space, and more than 79 series (over 1000 configurations) of standard LCD modules, Powertip is uniquely positioned in the marketplace today. Very few manufacturers of LCD modules can affirm this diversity of standard product. Contact: Susan Wang, Regional Sales Manager, susan@powertipusa.com; Leslie Tsai, Regional Sales Manager, leslie@powertipusa.com

#### PR Hoffman Machine Products, Inc. #5434

1517 Commerce Ave, Carlisle, PA, 17015 USA +1 717 243 9900; fax +1 717 243 4542 prhoff@prhoffman.com; www.prhoffman.com

### Featured Product: PR Hoffman Machine Products offering polishing template, carrier and machine enhancements.

PR Hoffman has been dedicated to innovations in flatness since 1938. Sapphire, silicon carbide, glass, fused silica, silicon, ceramics along with virtually any compound substrate, can be processed using our simultaneous double sided lapping & polishing machinery, lapping & polishing carriers and wax free polishing templates. PR Hoffman is dedication to making the highest quality products and offering exceptional global customer service. Your success = our success! Contact: Kerry Woods, Sales Manager, kwoods@prhoffman.com; Evan Bates, International Sales, ebates@prhoffman.com

#### Pranalytica, Inc.

#4523

1101 Colorado Ave, Santa Monica, CA, 90401-3009 USA +1 310 458 4493; fax +1 310 458 0171 www.pranalytica.com

Contact: Francis McGuire, Vice President-Finance

#### Precipart

#4161

100 Finn Ct, Farmingdale, NY, 11735 USA +1 631 694 5900

precisionsolutions@precipart.com; precipart.com

### Featured Product: Custom precision components: ferrules, connectors, housings, synthetic ruby & sapphire ball lenses.

Precipart is a global company engaged in the engineering, design and manufacture of high precision custom solutions. We provide mechanical components, assemblies, gears and motion control solutions to the most recognized names in the medical, aerospace and industrial markets. With offices in Switzerland, the U.S., the U.K. and India, we have over 230 employees dedicated to enhancing lives through innovative solutions. Contact: David Rodriquez, Regional Sales Manager, drodriquez@precipart.com; Andreas Wenger, Operations Manager, awenger@precipart.com

#### **Precision Asphere, Inc.**

#322

SPIE Corporate Member

48860 Milmont Dr Unit 105-C, Fremont, CA, 94538 USA +1 510 668 1508; fax +1 510 668 1595 sales@precisionasphere.com; www.precisionasphere.com

### Featured Product: Standalone OAP, off-axis hyperbola, general OAP aspheres, freeform optics made of glass, Si, SiC

Precision Asphere, Inc is a proud U.S. company specialized in the manufacturing of high precision custom aspheres. Working with glasses, silicon, and silicon carbide, we can fabricate aspheric optical surfaces to less than 1/50 waves PV @633nm surface figure, with slope error <1µRad, roughness < 2Å. Possessing the unique CAST technology and over 20 years' experience of aspheres manufacturing, Precision Asphere offers you the highest performance-to-cost ratio in the industry. Contact: John Kong, President, jkong@precisionasphere.com; Kevin Young, Vise President, kyoung@precisionasphere.com

#### Digital Signage Sponsor

#### Precision Glass & Optics (PG&O)

#5462

SPIE Corporate

3600 W Moore Ave, Santa Ana, CA, 92704 USA +1 714 540 0126; fax +1 714 540 1482 info@pgo.com; www.pgo.com Contact: Daniel Bukaty. President

#### **Precision Optical**

#2040

SPIE Corporate

320 Kalmus Dr, Costa Mesa, CA, 92626-6045 USA +1 949 631 6800; fax +1 949 642 7501 sales@precisionoptical.com; www.precisionoptical.com Contact: Jeremy Gordon, Materials Manager

#### ,

**Precision Optics Corp.** 

#2800

22 E Broadway, Gardner, MA, 01440-3338 USA +1 978 630 1800; fax +1 978 630 1487 info@poci.com; www.poci.com

Contact: Charles Gerlowski, Director Business Development

#### Precitec USA

#4223

28043 Center Oaks Ct, Wixom, MI, 48393 USA +1 248 446 8100; fax +1 248 446 9409 info@precitec.com; www.precitec.us

### Featured Product: Sensors for optical, noncontact measurements: chromatic-confocal sensors, line sensors

Precitec is the specialist for optical measuring technology and laser material processing. Our expertise in the area of optical measuring technology is essential in the photonics, glass and semiconductor industries as well as in coordinate measuring technology, mechanical engineering, automotive, plastics, R&D, and aerospace. CHRocodile sensors and sensor systems of Precitec Optronik are technology and quality leaders on distance & layer gauge measurement and surface topography. Contact: Jim Tylka, Western Regional Sales Manager, jimt@precitec.com; Scott Reidinger, Eastern Regional Sales Manager, scottr@precitec.com

#### Precitech

#2323

SPIE Corporate Member

44 Blackbrook Rd, Ametek, Keene, NH, 03431-5040 USA +1 603 357 2511; fax +1 603 358 6174 sales@precitech.com; www.precitech.com

#### **Featured Product: Precision turning machines**

Precitech is a global manufacturer of innovative ultra-precision machining solutions for diamond turning, milling, and grinding. Precitech's machines are used to produce optical lenses, mold inserts, mirrors, and precision mechanical components. With 50+ years of experience, an installed base of 1,500 systems in 46 countries, and sales, service, and application engineers located throughout North America, Europe and Asia, we have the global reach to quickly solve your complex machining challenges. Contact: Mike Tanniru, Business Director, mike.tanniru@ametek.com; Kirk Rogers, North American Sales Manager, kirk.rogers@ametek.com

#### **PRIMES GmbH**

#4629

Max-Planck-Str. 2, Pfungstadt, 64319 Germany +49 6157 9878 0; fax +49 6157 9878 28 info@primes.de; www.primes.de

### Featured Product: Optics Quality Monitor (OQM), Focus Parameter Monitor (FPM), Power Measuring Cassette (PMC)

PRIMES has over 20 years of experience in the development of diagnostics solutions for the complete range of laser technology and especially in custom tailored OEM beam analysis devices and absorbers. We offer laser beam diagnostics for quality assurance in industrial manufacturing, maintenance, trouble shooting and R&D applications. Our focus lies on measuring devices for the characterization of  $\rm CO_2$ -, solid state-, fiber- and diode-lasers used for material processing and scientific applications. Contact: Dr. Harald Schwede, Head of Marketing & Sales, info@primes.de

#### Primoceler, Inc.

#5269

Kauhakorvenkatu 52, Tampere, 33720 Finland +358 40 5057623

info@promoceler.com; www.primoceler.com

### Featured Product: Hermetic packaging technology. Glass bonding.

Primoceler is a Finnish company that has developed a patented breakthrough technology for hermetic packaging. The packaging technology is based on laser welding and offers an additive free room temperature bonding for chip or for wafer scale packaging. Also unique packages with various dimensions and shapes can be manufactured. Contact: Antti Peltonen, Sales Manager, antti. peltonen@primoceler.com; Ville Hevonkorpi, Managing director, ville. hevonkorpi@primoceler.com

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#### Digital Signage Sponsor

#### **Princeton Instruments**

#1811

SPIE Corporate Member

3660 Quakerbridge Rd, Trenton, NJ, 08619-1208 USA +1 609 587 9797; fax +1 609 587 1970 info@princetoninstruments.com; www.princetoninstruments.com

### Featured Product: NIRvana FPA scientific-grade InGaAs cameras for quantitative NIR/SWIR imaging & spectroscopy

Princeton Instruments provides state-of-the-art CCD, ICCD, EMCCD, emICCD, x-ray and InGaAs cameras; spectrometers; spectrographs; imaging systems; optics and coatings that are key to the success of your application. We take pride in partnering with our customers to solve their most challenging problems in unique innovative ways. Innovative products include awardwinning IsoPlane spectrographs, PI-MAX4 ICCD cameras, NIRvana SWIR/IR cameras and ProEM-HS high-speed EMCCD cameras. Contact: Matt Lyons, Sales Manager - Americas, mlyons@princetoninstruments.com; Manjul Shah, OEM Manager, mshah@princetoninstruments.com

#### **Princeton Lightwave, Inc.**

#5243

SPIE Corporate

2555 Rte 130 South, Cranbury, NJ, 08512 USA +1 609 495 2600; fax +1 609 395 9114 sales@princetonlightwave.com; www.princetonlightwave.com Contact: Joseph Poekert, VP of Business Operations

#### **Princeton Optronics, Inc.**

#4155

1 Electronics Dr, Sales & Marketing, Mercerville, NJ, 08619-2054 USA +1 609 584 9696; fax +1 609 584 2448 info@princetonoptronics.com; www.princetonoptronics.com

#### Featured Product: VCSELs & VCSEL arrays

Princeton Optronics is a privately held, venture funded company engaged primarily in the development and manufacture of high power vertical cavity surface emitting diode lasers (VCSELs), diode pumped solid state lasers and low noise diode pumped ultra-stable lasers. Princeton Optronics was founded in 1993 and has since been working in various cutting edge technology areas including low noise diode pumped solid state lasers, VCSELs and other high power diode laser products. Contact: Tim McGarry, Director Sales, tmcgarry@princetonoptronics.com; Marc Doyle, Sales Manager, mdoyle@princetonoptronics.com

#### **Prior Scientific Inc.**

#516

SPIE Corporate Member

80 Reservoir Park Dr, Rockland, MA, 02370-1062 USA +1 781 878 8442; fax +1 781 878 8736 info@prior.com; www.prior.com

### Featured Product: Leading manufacturer of microscope automation equipment and accessories

Prior Scientific is the leading manufacturer of microscope automation equipment. Prior specializes in the production of high precision motorized microscope stages, robotic sample loading systems, LED and metal halide high intensity fluorescence illumination systems, physiology stage platforms, nano-positioning Piezo Z stages, motorized filter wheels, high speed shutters, laser autofocus systems, custom optical systems and a wide array of microscopy accessories and custom designed solutions. Contact: John Commesso

**Prizmatix Ltd.** 

#5072

SPIE Corporate

POB 244. Givat-Shmuel. 5410102 Israel +1 248 436 8085: fax +1 248 281 5236 sales.usa@prizmatix.com; www.prizmatix.com

#### Featured Product: Ultra-high power low noise modular LED light sources, collimated & fiber-coupled. UV-IR & white

Prizmatix Ltd. specializes in ultra-high power LED systems for industrial and scientific use. Featuring ultra-high power and advanced low noise drivers our modular design delivers maximum performance in light delivery. We have a full range of products for applications such as UV curing & inspection, fluorescence & general microscopy, spectroscopy, and optogenetics. Our OEM solutions include collimated and fiber-coupled LEDs that deliver maximum design options with low development costs. Contact: Nathaniel Sperka, USA Sales Consultant, sales.usa@prizmatix.com; Ruth Lapidus, Prizmatix EU Sales, sales.europe@prizmatix.com

#### PROTECT- Laserschutz GmbH

#4629

Mühlhofer Hauptstr 7. Nürmberg, 90453 Germany +49 9119644730; fax +49 9119644731

info@protect-laserschutz.de; www.protect-laserschutz.de

#### Featured Product: Laser safety spectacles. Ontor: spectacle for prescription wearers. Bodyguard: laser safety clothing

PROTECT-Laserschutz GmbH as a manufacturer of laser safety, welding protection and work safety products has always been committed to the needs of the customers. Excellent consulting, comprehensive quotations, competitive prices and conditions, immediate order processing and shipping, as well as fair dealing with all of our business partners in general have top priority at PROTECT-Laserschutz GmbH.

#### Proto Labs, Inc.

#312

SPIE Corporate

5540 Pioneer Creek Dr, Maple Plain, MN, 55359 USA +1 877 479 3680; fax +1 763 479 2679 customerservice@protolabs.com; www.protolabs.com

#### Featured Product: Over-molding

Proto Labs is the world's fastest source for custom prototype and low-volume parts. Our 3D printing, CNC machining, and injection molding services use proprietary computing technology and automated systems to produce quality parts in a range of materials within days. It provides product designers and engineers' versatility in manufacturing that is unmatched in the industry. Contact: Kristen Weis, Tradeshow Specialist, kristen.weis@protolabs.com

#### PT Photonic Tools GmbH

#4629

Johann-Hittorf-Str 8, Berlin, 12489 Germany +49 30639278000; fax +49 30639799 info@photonic-tools.de; www.photonic-tools.de Pure Photonics

#4044

3851 Perie Ln, San Jose, CA, 95132 USA +1 510 497 0815

support@pure-photonics.com; www.pure-photonics.com

#### Featured Product: Low-noise tunable laser products with 10kHz linewidth and extremely low phase noise

Pure Photonics provides narrow linewidth, ultra-low noise 1550nm tunable laser solutions for sensing and scientific applications. Using a volume manufactured device, our solution is cost-effective and has proven performance and reliability. Our focus is sensing and scientific applications and we can customize the performance to your needs and/or provide integration solutions. Contact: Heino Bukkems, manager, heino\_bukkems@pure-photonics.com

#### Pvreos Ltd.

West Mains Rd, Scottish Microelectronics Center, Edinburgh, EH9 3JF United Kingdom

+44 131 650 7009; fax +44 131 650 7458

info@pyreos.com; www.pyreos.com

Pyreos is the world's only volume supplier of lead zirconate titanate (PZT) pyroelectric detectors. The proprietary, un-cooled, device technology operates over a wide spectral range and has superior characteristics in the mid-IR range. Small channel counts (single dual and guad) are used for gas and flame sensing. High channel count linear arrays are used for rapid spectral analysis of a range of samples. Pyreos devices are incorporated into a range sensors and niche spectroscopic analysers. Contact: info@pyreos.com

#### **Pyxalis**

#1123-F

Zone d'activité Centr'Alp - 170 Rue de Chatagnon, BP 40034, Moirans, 38430 France +33 4 26 78 48 41

pyxalis.com

#### Featured Product: HDPYX: a digital 3 MP, 120dB linear HDR sensor with 2.5 e- readnoise

Pyxalis is a supplier of custom image sensors and design services specialized in advanced CMOS image sensors serving a wide range of applications from niche to high volume markets. Pyxalis application domains are Machine Vision, Medical Xray, scientific imaging and high-end digital photography and motion capture. Founded in August 2010, the company is located in the Grenoble Imaging valley in the French Alps. Specialization in advanced image sensors design makes Pyxalis unique in this region.

#### QD Laser, Inc.

#4946

SPIE Corporate

1-1 Minamiwataridacho Kanagawa-ku, Keihin Bldg 1F Laser Device Div, Kawasaki, Kanagawa, 210-0855 Japan +81 443333338

info@gdlaser.com; www.gdlaser.com

#### Featured Product: 532, 561 and 594nm compact visible lasers with high brightness and retina imaging laser eyewear

QD Laser, Inc. is a leading provider of high-performance semiconductor lasers/wafers and retina imaging laser eyewear based on semiconductor laser technologies. Semiconductor lasers for industrial and data communication application are made on GaAs platform with core technologies of epitaxial growth and laser chip/module design abilities. The retina imaging laser eyewear is a new wearable device which directly projects images on human retina using RBG semiconductor lasers and MEMS mirror. Contact: Yoshi Ouchi, Sales Manager, ouchi@qdlaser.com; Keizo Takemasa, General Manager Laser Device Division, takemasa@gdlaser.com

**QED Optics** 

#3034

SPIE Corporate Member

1040 University Ave, Rochester, NY, 14607-1282 USA +1 585 256 6540; fax +1 585 256 3211 QEDOptics@gedmrf.com; www.gedmrf.com

#### Featured Product: Precision optics manufacturing.

Rely on the expertise of QED Optics to have your precision optics completed to spec every time, on time. Products and services include: prototypes, volume quantities, final finishing with full aperture metrology, manufacturing from raw material to finished component, challenging shapes and sizes, system correction, aspheres, and unfamiliar materials. Contact: Mike DeMarco, Business Manager, demarco@qedmrf.com; Chris Hall, Sr. Applications Engineer, hall@qedmrf.com

### Qioptiq, An Excelitas Technologies Company

#1323

44370 Christy St, Fremont, CA, 94538-3180 USA +1 855 382 2677; fax +1 781 290 4702 photonics@gioptig.com; www.gioptig.com

Qioptiq is a global technology leader delivering innovative, high-performance optical and photonic solutions in Sensors & Detection, Optics & Imaging and Lasers & Illumination. Now a proud part of Excelitas Technologies, Qioptiq leverages an extensive technology portfolio and global footprint to enable our customers' success with single-source, end-to-end photonic solutions in medical, life science, consumer electronics, safety & security, industrial, defense & aerospace sectors.

#### Banner Sponsor

#### QPC Lasers/Laser Operations LLC #5328

SPIE Corporate Member

15632 Roxford St, Sylmar, CA, 91342-1265 USA +1 818 986 0000; fax +1 818 698-0428 info@gpclasers.com; www.qpclasers.com

Laser Operations LLC, manufacturer of the industry leading QPC Lasers product line, is a vertically integrated laser diode manufacturer shipping high brightness lasers globally into several markets including medical, industrial and consumer, from its high volume 40,000 sq. ft. laser manufacturing facility located in Sylmar, CA. Contact: Yossi Gewirtz, Director of Sales and Marketing, ygewirtz@qpclasers.com

#### Q-Peak, Inc.

#4421

135 South Rd, Bedford, MA, 01730 USA +1 781 275 9535; fax +1 781 275 9726 webcontact@qpeak.com; www.qpeak.com

### Featured Product: Sunda G: thumb-sized DPSS resonator, range finding, dazzler, LIBS, and industrial monitoring.

For over 30 years, Q-Peak, Inc. has provided cutting-edge laser architectures and nonlinear optical systems for defense, industrial, medical, and scientific applications. Our ongoing mission is to continue pushing the boundaries of laser technology with ultrafast, solid-state and fiber-based laser architectures. Q-Peak continues to provide its customers with high-energy hardened laser systems and sub-systems based upon its extensive portfolio of field-proven technical knowledge. Contact: Kevin Ezzo, Manager, Program Transition, ezzo@qpeak.com; Eric Park, Vice President, epark@qpeak.com

#### **QPhotonics, LLC**

#405

3830 Packard Rd Ste 170, Ann Arbor, MI, 48108-2276 USA +1 734 477 0133; fax +1 734 477 0166

info@gphotonics.com; www.gphotonics.com

QPhotonics is a specialist supplier of semiconductor light emitting devices in wavelength range 240nm-1650nm for research, development, and production. We offer a large variety of laser diodes, super-luminescent diodes, semiconductor optical amplifiers and UV LEDs. Individual devices can be selected from stock and purchased online. We also provide controllers, mounts, collimators, and photodiodes for building laser systems. Contact: George Loutts, Chief Executive Officer/Owner, gloutts@qphotonics.com; Wei Yang, Sales Engineer, wyang@qphotonics.com

#### **QPS Photronics**

#4355

217 St Louis Ave, Pointe Claire, QC, H9R 5L7 Canada +1 514 697 4728; fax +1 514 697 8693 info@apscom.com; www.apscom.com

### Featured Product: QPS's expertise and competence is in advanced fiber Bragg gratings

QPS is in the business of development and marketing of advanced fiber grating technology and their interrogation. The company has the expertise to produce matching FBG pair for fiber lasers, phase shift gratings, system level solutions have been developed to measure vibration, temperature and moisture in transformers, large motors, and generators. Contact: Peter Kung, President, peter@ qpscom.com

#### **Quality Thin Films, Inc.**

#2210

141 Burbank Rd, Oldsmar, FL, 34677-4900 USA +1 813 855 1900; fax +1 813 855 5580 sales@qtf.com; www.qtf.com

### Featured Product: Low-loss, super high damage threshold mirrors for 1064nm. LDT>50J, 20ns pulse has been qualified

Quality Thin Films supplies optics, laser crystals and thin film coatings. We specialize in ultra-high damage threshold coatings on super polished crystals and optics. State of the art equipment for substrate fabrication and leading edge coating chambers enable QTF to continuously improve on quality with emphasis on customer service. Contact: Karl George, Vice President, sales@qtf.com; Patricia Jadus, Sales, pattyj@qtf.com

#### **Quantel Laser**

#2123

SPIE Corporate

601 Haggerty Ln, Bozeman, MT, 59715-1738 USA +1 406 586 0131; fax +1 406 586 2924 sales@quantelusa.com; www.quantel-laser.com

### Featured Product: The new Q-scan is a high resolution tunable nanosecond dye laser for accurate wavelengths scans.

Leader in the solid-state laser industry since 1970, Quantel offers a wide range of products that meet the requirements of both industrial, scientific and military applications: pulsed solid-state lasers (Nd:YAG and Nd:Glass), fiber lasers, high power laser diodes, tunable lasers, custom lasers to meet specific customer application requirements. Quantel has also been providing manufactures and optical users worldwide with industry leading laser damage testing. Contact: Greg Smolka, VP, Sales & Marketing, sales@quantelusa.com



# Photonics West 2016 CHINA PAVILION

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- 2001-A Guoguang Optical Glass Co., Ltd.
- 2001-B Filtech Photonics Co., Ltd.
- 2001-C Beijing Jiepu Trend Technology Co., Ltd.
- 2001-D HG Optronics, Inc.
- 2001-E Beijing Golden Way Scientific Co., Ltd.
- 2001-F Innowit Co., Ltd.
- 2001-G Crystrong Photoelectric Technology Co., Ltd.
- 2001-H Chengdu Juka Optical Component Co., Ltd.
- **2001-I** Lingbao Shenghe Optical Glass Material Co., Ltd.
- 2001-J Shanghai Gem Optoelectronic Technology Co., Ltd.
- 2011-A Dayoptics, Inc.
- 2011-B Sino-Galvo (Beijing) Technology Co., Ltd.
- 2011-C Shenyang Academy of Instrumentation Science Co., Ltd.
- 2011-D Giai Photonics Co., Ltd.
- **4536** Yunnan Olightek Opto-Electronic Technology Co., Ltd.
- **4537** Beijing Bodian Optical Tech. Co., Ltd.
- **4538** Shandong Yanggu Constant Crystal Optics, Inc.
- **4539** Suzhou Bofei Optics Co., Ltd.
- **4540** Beijing Opto-Electronics Technology Co. Ltd.
- **4541** Yunnan KIRO-CH Photonics Co., Ltd.

#### **Quantum Composers, Inc.**

#4620

SPIE Corporate Member

212 Discovery Dr, Bozeman, MT, 59718-5934 USA +1 406 582 0227; fax +1 406 582 0237

sales@quantumcomposers.com; www.quantumcomposers.com

### Featured Product: Diode-pumped solid state lasers & digital delay pulse generators.

Quantum Composers is a leading manufacturer of digital delay pulse generator, DPSS lasers and laser technology. We offer a full suite of pulse generators, lasers, and laser instruments designed to meet the needs of any application and have a team of design engineers who specialize in custom and OEM development. Contact: Will Bomar, Director of Sales & Marketing, sales@quantumcomposers.com; Erin Prieskorn, Sales & Marketing Manager, marketing@quantumcomposers.com

#### **Quantum Design**

#4267

6325 Lusk Blvd, San Diego, CA, 92121-3733 USA +1 858 481 4400; fax +1 858 481 7410

info@qdusa.com; www.qdusa.com

Quantum Design manufactures automated material characterization systems providing temperatures from 0.05 to 1000 K and magnetic fields up to 16 Tesla. Instruments include the PPMS®, MPMS®3, VersaLab, and DynaCool. Quantum Design also manufactures advanced helium liquefiers along with configurable helium recovery systems. In addition, Quantum Design International distributes direct write and thermal scanning probe lithography systems, NanoMOKE, FMR spectrometers, scanning probe and scanning ion conductance microscopes, and single photon spectroscopes.

#### **Quantum Opus**

#4854

409 Burr Oak St, Albion, MI, 49224 USA +1 269 248 1004

www.quantumopus.com

### Featured Product: Single photon counting detectors based on superconducting nanowires

Quantum Opus supplies single photon counting detectors based on superconducting nanowires. Efficiency is >80% at 1550nm, by tuning the resonate cavity they provide greater than 85% efficiency at target wavelengths between 700nm and 1300nm. Low dark counts, fast timing resolution and 20Mcps count rates. We provide complete turnkey solutions with a compact closed cycle cryocooler that can support up to 16 detector channels, systems with more channels are also available as custom designs. Contact: Nick Bertone, Nick.Bertone@optoecomponents.com; Natalie Raymond, Natalie.Raymond@optoecomponents.com

#### **Quartus Engineering Inc.**

#2818

10251 Vista Sorrento Pkwy Ste 250, San Diego, CA, 92121-3776 USA

+1 858 875 6000; fax +1 858 875 6001

www.quartus.com

Quartus Engineering provides innovative, accurate, and efficient optical system solutions. Our team specializes in optical design via ray-trace or wavefront propagation software, image processing, electrical engineering, thermal/structural/dynamic FEA, optomechanical and electro-mechanical design, lab assembly/alignment, and performance/environmental testing. Quartus' strengths in analytical methods, DFMA, and manufacturing ensure systems are built on schedule and meet performance requirements. Contact: Brad Steele, Director Engineering, brad.steele@quartus.com; Pete Zeidler, Business Development, pete.zeidler@quartus.com

#### **Quebec Photonic Network**

#4355

1111 rue Lapierre, Montreal, QC, H8N 2J4 Canada +1 866 344 1677

info@photoniquequebec.ca; www.photonquebec.org

The Quebec Photonic Network is the gathering point for photonics companies, research centers, and institutions. Known as a global leader in photonics, Quebec boasts top-notch infrastructures, a strong network of researchers, and an active industrial cluster. Contact: info@photoniquequebec.ca

### Queensgate, a brand of Elektron Technology UK Ltd #723

Woodland Rd, Torquay Devon, TQ2 7AY United Kingdom +44 1223 371017; fax +44 1803 407 699 info@queensgate.com; www.nanopositioning.com

#### **R&D Interconnect Solutions**

#5171

1660 E Race St, Allentown, PA, 18109 USA +1 610 443 2299

sales@rdis.com; www.rdis.com

#### Featured Product: Invisipin\* -- The World's First Solderable, Individual Pin Conductive Elastomer Contactor.

R&D Interconnect Solutions (RDIS) is a full turnkey provider of high performance elastomer contact solutions. This includes all aspects of design, engineering, fabrication, and customer support. RDIS is headquartered in Allentown, Pennsylvania and is a division of R&D Altanova. Contact: Tom Bresnan, Account Executive, tbresnan@rdaltanova.com

#### R. Mathews Optical Works, Inc.

#3040

26280 Twelve Trees Ln NW, Poulsbo, WA, 98370-7199 USA +1 360 697 6160; fax +1 360 697 7417

info@mathewsoptical.com; www.mathewsoptical.com

#### **Featured Product: Acylinder lenses**

Manufacturer of custom aspheric optics from all glass types. Symmetric, off-axis and aclyindrical aspheric optics to specification. We can take your product from prototype to production utilizing our full aspheric volume capabilities. Made in the USA. Contact: Bob Mathews, President/Owner, bob@mathewsoptical.com; Nathaniel Mathews, nathaniel@mathewsoptical.com

#### **Radiantis**

#4423

SPIE Corporate Member

Carrer Copèrnic 2-4 nave 1, Polígon Camí Ral Gavà Barcelona, 08850 Spain

+34 936 38 97 63

sales@radiantis.com; www.radiantis.com

### Featured Product: SeaWave: a compact IR spectrometer with excellent performance and user-friendly software interface

Radiantis' state-of-the-art instrumentation and broadly tunable laser systems provide compact and effective solutions for laboratory analysis as well as precise off-line and real-time process analytics in a broad range of industries, including the food and beverage, pharmaceutical, chemical, petrochemical and agricultural industries. Contact: Sara Otero, sara.otero@radiantis.com; Marie France Guillebot, mariefrance.guillebot@radiantis.com

#### **Raicol Crystals Ltd.**

#2403

SPIE Corporate

22 Hamelacha Str Park Cible New Industrial Area, Rosh Ha-Ayin, 48091 Israel

+972 3 936 7412; fax +972 3 906 8969 info@raicol.com; www.raicol.com

#### Featured Product: KRTP electro-optic q-switch, BBO electrooptic q-switch, PPKTP, PPSLT

Raicol manufactures nonlinear optical elements, including KTP, HGTR KTP, RTP, PPKTP, PPLN and PPSLT. Raicol's newest products are the KRTP electro-optic Q-switch operating for high-power high-repetition rate applications, BBO electro-optic Q-Switch and the monolithic KTP OPO. Raicol also supplies Cr:YAG, BBO and LBO elements. Contact: info@raicol.com Contact: Moshe Shapira, Sales Director, moshe@raicol.com; Aner Yarden, CEO, aner.varden@raicol.com

#### Rainbow Photonics AG

#5333

Farbhofstr 21, Zürich, 8048 Switzerland +41 44 419 0505; fax +41 44 419 0506

info@rainbowphotonics.com; www.rainbowphotonics.com

### Featured Product: New TeraSys\*-AiO terahertz instrument covering from 1-16 THz, transmission, reflection and imaging.

Rainbow Photonics Ltd. offers unique terahertz instruments featuring wide bandwidth and tunability between 1–20 THz, and components for THz generation and detection based on novel organic crystals (DSTMS, OH1, DAST). Our compact turnkey, broadband THz spectrometers TeralMAGE®, TeraTune® and the new TeraSys® AiO offer solutions to THz spectroscopy and imaging. Our highly stable organic crystals are also available for ultrafast electro-optical and other nonlinear optical applications. Contact: Carolina Medrano, CEO, info@rainbowphotonics.com

#### General Sponsor

#### Rainbow Research Optics, Inc.

#2628

SPIE Corporate Member

6830 S Dawson Cir, Englewood, CO, 80112-4208 USA +1 303 371 3000

sales@rroptics.com; www.rainbowoptics.com

#### **Featured Product: IR aspheres**

Rainbow Research Optics (RROI) is an American optics manufacturer. We have been providing high-quality optics to the defense, medical, commercial, and laser markets for over 20 years. RROI specializes in custom optics built to print. We will work with you in any quantity from prototype to production. We cover all wavelengths and materials from 193 nm to 16 um. We can provide you with in-house optical design engineering as well. Contact: Mike Pagano, Sales Manager, m.pagano@rroptics.com

#### **RAM Photonics, LLC**

#4273

4901 Morena Blvd Ste 128, San Diego, CA, 92117-3557 USA +1 858 490 1030

info@ramphotonics.com; www.ramphotonics.com

### Featured Product: TeraTone™ low-noise frequency comb provides more than 100 optical carriers over continuous C+I -band

RAM Photonics specializes in high-performance optical sources, like low-noise optical frequency combs: TeraTone for C+L band coverage and TeraTone-DataCenter, providing 1000+ wavelength clusters. Other low-noise sources include Cavityless picosecond sources and SPA single-pulse fiber amplifiers. RAM Photonics has a unique intellectual property portfolio that spans across telecommunication, signal processing, remote and specialty sensing, defense, and biomedical and medical instrument markets. Contact: Andreas Wiberg, andreas.wiberg@ramphotonics.com

#### **Raptor Photonics Ltd.**

#515

SPIE Corporate

Willowbank Business Park, Larne N Ireland, BT40 2SF United Kingdom

+44 2828 270141; fax +44 2828 275685 sales@raptorphotonics.com; www.raptorphotonics.com

### Featured Product: Ninox 640: the best in class visible-SWIR camera on the market & cooled to -30C to minimize noise.

Raptor Photonics, Ltd. is a leading developer and supplier of next generation, high performance digital camera solutions for global scientific, surveillance, and industrial markets. The company offers complete cameras and core engine solutions using CCD, EMCCD, scientific CMOS, and InGaAs sensors. In addition to its portfolio of commercial off the shelf (COTS) products, Raptor provides custom solutions to OEM and instrumentation companies throughout the world. Contact: Mark Donaghy, VP Sales & Marketing, md@ raptorphotonics.com

#### Featured Exhibitor Sponsor

#### **RAYLASE AG**

#**Z**08

Argelsrieder Feld 2+4, Wessling, Not Applicable, 82234 Germany +49 815 388 980; fax +49 815 388 9810 info@raylase.de: www.raylase.de

### Featured Product: Vision control: intelligent image processing for the automation and monitoring of laser processes.

RAYLASE offers highly accurate components for the fast deflection and modulation of laser beams. They consist of world-class optics, galvanometers, and control electronics with comfortable software interfaces. Customers from all over the world build on the unparalleled performance and reliability of our scan heads and deflection units. RAYLASE also develops and manufactures a series of different sub-modules and solutions for the integration in devices and machines. Contact: Harnesh Singh, Head of CRM, h.singh@raylase.de; Werner Grünwald, Technical Sales Manager, w.gruenwald@raylase.de

#### Raytheon ELCAN Optical Technologies #4355

SPIE Corporate

450 Leitz Rd, Midland, ON, L4R 5B8 Canada +1 705 526 5401; fax +1 705 526 5831

info@elcan.com; www.raytheon.com/ELCAN

Raytheon ELCAN Optical Technologies, a leader in ideas and technology for the global optics industry, specializes in the design and manufacture of technologically sophisticated and superior quality optical solutions that meet strict military and commercial specifications. Raytheon ELCAN offers superior design and engineering capabilities, proprietary production technologies, and fully integrated manufacturing capabilities to provide custom, turnkey solutions. Contact: John Dutchyshyn, Regional Sales Manager, john\_dutchysyn@raytheon.com; Debra Childers, Regional Sales Manager, Debra.S.Childers@raytheon.com

#### RedWave Labs Ltd.

#5135

173 Curie Ave, Harwell Innovation Ctr, Didcot, OX11 OQG United Kingdom

+44 1235 838 529; fax +44 1235 838 501

info@redwavelabs.com; www.redwavelabs.com

### Featured Product: Laser Drivers from W to 10s of kW, Power Supplies, Temperature controllers, Photoreceivers.

RedWave Labs design and manufacture high quality custom electronics, specializing in photonics. We produce cost effective systems for hostile environments and the most demanding situations.. Analog Hardware: - Laser Controllers (DFB, QCL, Pump (DC and pulse up to kW) with temperature control - AC/DC and DC/DC low noise and high efficiency power supplies - Temperature controllers - Ultralow noise amplifiers (voltage and current) and photoreceivers - Embedded control solutions / PC-104 and TI DSPs Contact: Dmitri Permogorov, info@redwavelabs.com

#### Reliance Precision Ltd.

#5145

Penistone Rd, Rowley Mills, Huddersfield West Yorkshire, HD8 0LE United Kingdom

+44 1484 601000; fax +44 1484 601001

www.reliance.co.uk

### Featured Product: Mechanical design & manufacture of complex linear & rotary sub-assemblies.

Reliance Precision Limited will be exhibiting its breadth of specialist design, manufacturing and assembly capabilities. Reliance specialises in high performance opto-mechanical and electro-mechanical sub-systems and precision motion control products. Reliance is an established supplier to global prime contractors and OEMs in the scientific, analytical and medical industries, providing standard and modified catalogue products through to custom designed components and assemblies. Contact: Charlie Allen, Sales, cdta@reliance.co.uk

#### **ReMAP Network**

#4355

844 Don Mills Rd, Toronto, ON, M3C 1V7 Canada +1 416 318 4571

info@remapnetwork.org; www.remapnetwork.org

#### Remtec, Inc.

#4315

100 Morse St, Norwood, MA, 02062 USA +1 781 762 9191; fax +1 781 762 9777 sales@remtec.com; www.remtec.com

#### Featured Product: Custom ceramic substrates and packages.

In business for more than 25 years, Remtec is a manufacturer of cost effective ceramics with plated copper metallization (PCTF®) on alumina, BeO and AIN. Products include laser and photodiode submounts, LED substrates, and optoelectronic circuits. Specialty features are zero pull-back copper metallization with 75 microns of copper, low cost gold-tin plating, four sided metallization and hermetic thermal vias. Metallization exhibits high reliability after die attach, assembly and stress testing. Contact: Nahum Rapoport, President, nrapoport@remtec.com; Lynn Magliozzi, Inside Sales Manager, Imagliozzi@remtec.com

#### Renishaw Inc.

#4558

5277 Trillium Blvd, Hoffman Estates, IL, 60192-3602 USA +1 847 286 9953; fax +1 847 286 9974 usa@renishaw.com; www.renishaw.com

### Featured Product: ATOM™ incremental encoder system with RTLF linear scale.

Renishaw is a global company with core skills in measurement, motion control, spectroscopy, and precision machining. We create high performance encoders for industries' toughest applications. Renishaw offers a comprehensive range of encoders used by OEMs globally for exact positioning, reliability, and superior performance-to-cost value. Three encoder technologies, optical, magnetic and laser interferometer, provide designers with proven solutions to difficult applications.

#### Research Electro-Optics, Inc.

#2617

SPIE Corporate Member

5505 Airport Blvd, Boulder, CO, 80301-2339 USA +1 303 938 1960; fax +1 303 447 3279 sales@reoinc.com; www.reoinc.com

### Featured Product: Opto-mechanical assemblies, optics, and thin film coatings.

REO is a precision manufacturer of opto-mechanical assemblies, optics, thin film coatings, and HeNe lasers. Located in Boulder, Colorado, USA, the company primarily services medium to high volume OEMs, including: manufacturers of projection displays, defense and aerospace systems, industrial laser systems, semiconductor manufacturing equipment, and medical laser systems. REO provides engineering support from concept design to high volume manufacturing. Contact: Betsy Hall, Marketing Manager, betsy.hall@reoinc.com

#### **Exhibition Map Sponsor**

#### **RESOLUTION Spectra Systems**

#5260

13 Chemin du Vieux Chene, Meylan, 38240 France +33 458001249

info@resolutionspectra.com; www.resolutionspectra.com

### Featured Product: The ZOOM Spectra laser spectrum analyzer: high speed now combined with ultra-high resolution.

RESOLUTION Spectra Systems offers ultra-high resolution laser spectrum analyzers and wavemeters for characterization of narrow-linewidth lasers that operate in visible and NIR, cw and pulsed lasers, and even single pulse. Thanks to SWIFTS technology, these are easy-to-use instruments with speeds of up to 30 kHz, absolute accuracy down to 650 MHz (1pm), and no re-calibration needed. Miniature OEM versions are available to be embedded into your laser system. Contact: Thierry Gonthiez, General Manager, ; Eleonore Hardy, Regional Sales Manager, info@resolutionspectra.com

#### **SPIE INDUSTRY EVENTS**

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Free Seminars—open to all exhibitors, exhibition visitors, and conference attendees *Refer to pages 20–29.* 













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# **Reynard Corp.**

#3048

#4629

SPIE Corporate

1020 Calle Sombra, San Clemente, CA, 92673-6227 USA +1 949 366 8866; fax +1 949 498 9528 sales@reynardcorp.com; www.reynardcorp.com

# Featured Product: Circular variable neutral density: custom gradient filters adjust light intensity of any source.

Reynard Corp. supplies custom & standard optical components & thin film coatings of 0.2um to 50um (UV-FAR IR) to demanding specs for military, aerospace, medical, & telecommunication applications. Our expertise in these markets enables us to stay on the leading edge of technological advancements through research partnerships, commercial development programs, SBIR programs & internal R&D. Other services include optical & mechanical fabrication, photolithography patterns, & environmental testing. Contact: Sales Department, sales@reynardcorp.com

# **RGB Lasersysteme GmbH**

SPIE Corporate Member

Donaupark 13, Kelheim, 93309 Germany +49 9441 175033 0: fax +49 9441 175033 92 info@rgb-laser.com; www.rgb-laser.com

### Featured Product: Laser systems, spectrometers, and customer solutions for different applications.

RGB Lasersysteme GmbH designs and manufactures highly integrated laser and spectroscopy systems for scientific and industrial applications. We specialize in very compact designs while maintaining high-end technical characteristics. We offer miniaturized laser modules with high output powers, a large selection of wavelengths, and excellent beam quality and stability. Our compact USB spectrometers feature high resolution, sensitivity, thermal stability, and application software. Contact: Carina Buechl, Head of sales, carina.buechl@rgb-laser.com; Christoph Eckert, Application

# Richardson Gratings/A Newport Company

#1400

705 Saint Paul St, Rochester, NY, 14605-1730 USA +1 585 262 1331: fax +1 585 454 1568

grating.sales@newport.com; www.newport.com/gratings

Richardson Gratings™, a branch of the Newport Corporation, is a world leader in the design and manufacture of diffraction gratings for spectroscopic, telecommunications, and laser applications, as well as for research and education. Contact: Tom Miller, Director, Segment Marketing, tom.miller@newport.com

### RICOR USA. Inc.

#4318

SPIE Corporate Member

200 Main Street, 1rst Fl, Salem, NH, 03079 USA +1 603 458 6346; fax +1 603 718 8910 info@ricor-usa.com; www.ricor-usa.com

Contact: Rodney Harris

### RIEGL Research Forschungsgesellschaft #5065 **GmbH**

Riedenburgstr 48, Horn, 3580 Austria +43 2982 4211; fax +43 2982 4210 office@rieal.co.at: www.rieal.com

### Featured Product: LiDAR sensors and laser scanning systems for applications in surveying.

RIEGL is a performance leader in research, development, and production of terrestrial, industrial, mobile, bathymetric, airborne, and UAS-based laser scanners and scanning systems. RIEGL's innovative hard- and software provide powerful solutions for nearly all imaginable fields of surveying applications. Contact: Martin Pfennigbauer, Director Research & Intellectual Property, mpfennigbauer@riegl.com

### Rikola Ltd.

#5269

Kaitovavla 1 F2. Oulu, 90590 Finland +358 40 540 8794

info@rikola.fi: www.rikola.fi

# Featured Product: Rikola hyperspectral camera, miniature spectrometers, and custom multichannel- & LED-modules.

Rikola Ltd. offers a lightweight hyperspectral camera for UAVs. This product is a snapshot spectral system providing only true image pixels without any interpolation. The frame based approach enables easy image stitching for the mosaics with high resolution images. The solution doesn't need IMU for its operations, which makes the system low cost and low weight, and the camera enables handheld use with computers. Rikola also offers OEM multichannel, LEDmodules, and miniature spectrometers. Contact: Jussi Soukkamaki, CTO. Jussi@rikola.fi; Raimo Rikola, CEO, Raimo.Rikola@rikola.fi

# **RIO-OptaSense**

#4648

3350 Scott Blvd, Bldg 1, Santa Clara, CA, 95054-3104 USA +1 408 970 3500

sales@rio-lasers.com; www.rio-lasers.com

### Featured Product: Low noise, ultra stable narrow linewidth lasers.

RIO-OptaSense Inc., headquartered in Santa Clara CA, develops & manufactures optical sources & subsystems based on its proprietary planar external cavity laser technology (PLANEX™), which delivers unique price-performance advantages in energy, security, infrastructure & other markets. RIO's product lines include 1550nm & 1064nm single frequency narrow linewidth lasers and modules with very low noise, unparalleled wavelength stability, low cost, small size & high lifetime reliability. Contact: Martin Reeves, Global Sales Manager, martin.reeves@optasense.com; Lew Stolpner, CTO, lew. stolpner@optasense.com

# Rising Electro-Optics Ltd.

#4225

No 869 PanYu Rd, Fuzhou, Fujian, 350002 China +86 591 8334 9016; fax +86 591 8330 0646 sales@rising-eo.com; www.rising-eo.com

Contact: Steven Zheng



Talk with representatives from companies currently looking to hire Refer to page 27 for more information.

Banner Sponsor

RMT Ltd. #5360

SPIE Corporate Member

46 Warshavskoe shosse, Moscow, Moscow, 115230 Russian Federation

+7 499 678 2082; fax +7 499 678 2083 info@rmtltd.ru; www.rmtltd.ru

# Featured Product: Thermoelectrical coolers, thermoelcetrical generators, heat flux sensors.

RMT Ltd. focuses on thermoelectric cooling microsolutions (TECs), generators (TEGs) and heat flux sensors (HFS). We offer more than 2000 different standard TEC and TEG types and full featured flexibility with development and customization. Contact: Daria Shapovalova, Sales Manager

### Escalator Panels, Digital Signage Sponsor

# **Rochester Precision Optics, LLC**

#635

SPIE Corporate Member

850 John St, West Henrietta, NY, 14586-9748 USA +1 585 292 5450; fax +1 585 292 5459 sales@rpoptics.com; www.rpoptics.com

# Featured Product: RPO's CMOS night observation device (CNOD)

The CNOD is neither an image intensified system nor a thermal system; it is a digital system. It can be deployed in three ways: as a hand held monocular, a clip-on in line weapon sight, or as a standalone weapon sight. Currently there is no image intensification night vision sight or thermal sight on the market that can perform all these functions. Contact: Matthew Pembroke, Director of Sales, sales@rpoptics.com; Richard Bryant, Director of Advanced Programs, rbryant@rpoptics.com

# **Rocky Mountain Instrument Co.**

#1300

SPIE Corporate Member

106 Laser Dr, Lafayette, CO, 80026-2930 USA +1 303 664 5000; fax +1 303 664 5001 sales@rmico.com; www.rmico.com

# Featured Product: Optics, coatings, assemblies, ZnSe material, and custom solutions for UV through IR applications.

Founded in 1957, RMI is proud to be one of the original precision optics companies in the US and is headquartered in Lafayette, Colorado. The cornerstone of the RMI service policy is a collaborative approach with our customers. RMI specializes in precision optics that operate in the widest range of wavelengths, from deep UV to far IR. Products include: optical components (such as lenses, mirrors, and beamsplitters), high power coatings, and optical assemblies. Contact: Rae Hunt, Sales Manager, rae.hunt@rmico.com; Steven Hahn, CEO, shahn@rmico.com

### **ROFIN-LASAG AG**

#923

CFL-Lohnerstr 24, Gwatt bei Thun, 3645 Switzerland +41 33 227 4545; fax +41 33 227 4573 sales@lasag.ch; www.lasag.com

# **ROFIN-Sinar, Inc.**

#923

40984 Concept Dr, Plymouth, MI, 48170 USA +1 734 455 5400; fax +1 734 455 2741

info@rofin-inc.com; www.rofin-inc.com

 $\mathrm{CO}_2$  lasers, solid-state lasers, fiber lasers, ultrashort pulse lasers or diode lasers, the ROFIN Group provides the entire spectrum of industrial lasers for laser cutting, laser welding, laser marking or laser surface treatment. Our product portfolio includes the full power spectrum, from single-digit watts right up to multi-kilowatts. With extensive application know-how, ROFIN is the ideal partner for your individual laser solutions, providing worldwide expert advice and service.

# Rogers Germany GmbH (curamik)

#309

Am Stadtwald 2, Eschenbach, 92676 Germany +49 9645 9222 0; fax +49 9645 9222 22

info@rogerscorp.com; www.rogerscorp.com/pes

# Featured Product: Products include curamik\* laser diode coolers and curamik\* micro-channel coolers.

Rogers Corporation (NYSE:ROG), headquartered in Connecticut (USA), is a global leader in engineered materials that power, protect, and connect our world. With more than 180 years of materials science experience, Rogers delivers high-performance solutions that enable clean energy, internet connectivity, safety and protection applications, as well as other technologies where reliability is critical. Contact: Rebecca Auger, Sr. Marketing Communications Specialist

# **Ross Optical Industries**

#316

SPIE Corporate Member

1410 Gail Borden Pl A3, El Paso, TX, 79935-4809 USA +1 915 595 5417; fax +1 915 595 5466 sales@rossoptical.com; www.rossoptical.com

# Featured Product: Custom & standard lenses from under 1mm ideal for R&D, biomedical, & military OEM applications.

Ross Optical Industries provides custom precision engineered solutions, as well as standard aspheres, micro-optics, and other hard-to-find optics for OEM applications. Customers in R&D, electronics, semiconductors, biomedical, and military markets look to Ross Optical for custom optical and mechanical design, prototyping, coating, and manufacturing. Overseas sourcing and other inventory options are available to reduce supply chain risk. Ross Optical is ITAR registered and ISO9001:2008 certified. Contact: Divaker (Divi) Mangadu, President, divi@rossoptical.com; Charlie Metzger, Sales Engineer, charlie@rossoptical.com

### RPC Photonics. Inc.

#608

SPIE Corporate Member

330 Clay Rd, Rochester, NY, 14623-3227 USA +1 585 272 2840; fax +1 585 272 2845 info@rpcphotonics.com; www.rpcphotonics.com

## **RPMC Lasers, Inc.**

#2511; 2613

SPIE Corporate

203 Joseph St, O'Fallon, MO, 63366-2614 USA +1 636 272 7227

rpmc@rpmclasers.com; www.rpmclasers.com

RPMC Lasers is the source for all of your solid state laser needs. We offer laser diodes & modules from leading manufacturers in wavelengths 375nm-2.3um. We have a full range of products from single emitters to high power fiber coupled packages, including laser diode drivers, TEC controllers, & heatsinks. We also offer lamp, DPSS, fiber lasers from nJ to 300J & CW, & nanosecond, picosecond, or femtosecond outputs. We also have custom lasers for industrial, military, scientific, & medical needs. Contact: Chuck Ratermann, President, chuck@rpmclasers.com; Dean Micke, Vice President, dean@rpmclasers.com

# **Rubicon Technology Inc.**

#2405

SPIE Corporate Member

900 E Green St, Bensenville, IL, 60106-2553 USA +1 847 295 7000; fax +1 847 295 7555 sales@rubicontechnology.com; www.rubicontechnology.com

Featured Product: Sapphire-finished windows, large-shaped blanks, sapphire wafers, cores, tubes, & SapphirEX coatings.

Rubicon Technology, Inc. is a vertically integrated provider of very high quality sapphire for applications in LEDs, optical, semiconductor, military, & mobile devices. Rubicon is ISO 9001 certified & ITAR registered. We provide finished components, cores & blanks, tubes, rods, & other sapphire. Rubicon leads the market in providing high quality, large-sized sapphire up to 200kg boules, 16" rounds, & up to 36L x 18W x2"T window sizes. For more information, visit http://rubicontechnology.com/. Contact: Tom D'Arcy, Optical Sales Manager, tdarcy@rubicontechnology.com; Michelle Kim, Account Manager, mkim@rubicontechnology.com

# Ruda-Cardinal, Inc.

#6039

SPIE Corporate

1101 N Wilmot Ste 211, Tucson, AZ, 85712-4410 USA +1 520 546 1495; fax +1 520 546 1481 accounting@ruda.com; ruda-cardinal.com Contact: Giovanna Dietz

# **S&R Optic GmbH**

#4629

Ludwig-Rinn-Str 14, Heuchelheim, 35452 Germany +49 641 960 76 18; fax +49 641 960 79 43 info@sr-optic.com; www.sr-optic.com

Featured Product: Mica- quartz-polymer waveplates for VUV-NIR spectrum and polarizing components and units.

S & R Optic provides standard and customized crystal optics and units for VUV-NIR. Product lines include: quartz and polymer retardation plates; cost effective mica retardation plates zero order for higher and low power applications; prism polarizer and depolarizer; polarizing filters, compensator plates, and wedges; crystal windows and optical flats; and pre-produced, glass and crystal raw material. Contact: Wolfgang Schneider Dr., Owner, info@sr-optic.com

# S.E.Technologies Ltd.

#5040

2305 S. Syracuse Way, Unit 1, Denver, CO, 80231 USA +1 303 7550 988; fax +1 303 755 0100

info@setechnologiesItdusa.com; www.setechnologiesItdusa.com

# Featured Product: Owlift USB 2.0 micro thermal broadcasting camera and full HD wearable micro broadcasting camera.

S.E. Technologies is a contract manufacturing firm that specializes in optics. We offer an array of services, including turnkey product development for embedding optics equipment into custom packages. We meet our customers' requirements throughout several industries, such as security, defense, and factory automation. Our expertise in micro-technology allows us to keep packages small and unobtrusive. We also specialize in image broadcasting through mobile devices. Contact: Thomas Itoh, Director of Sales, t.itoh@set-japan.com; John Fangman, Business Development Manager, ifangman@setechnologiesItdusa.com

# S.I. Howard Glass Co., Inc.

#4235

SPIE Corporate

379 SW Cutoff, Worcester, MA, 01604 USA +1 508 753 8146; fax +1 508 797 4740 www.howardglass.com

### Sacher Lasertechnik GmbH

#4855

SPIE Corporate Member

Rudolf Breitscheid Str 1-5, Marburg, 35037 Germany +49 6421 305 290; fax +49 6421 305 299 contact@sacher-laser.com; www.sacher-laser.com Contact: Joachim Sacher, Chief Executive Officer

# **Sagem Reosc**

#5466

Ave de la Tour Maury, St Pierre du Perray, 91280 France +33 169 897 200

reosc@sagem.com; www.reosc.com

# Salem Advanced Materials

#4554

SPIE Corporate

5901 Gun Club Rd, Winston Salem, NC, 27103-9732 USA +1 336 766 1104; fax +1 336 766 1119 sales@salemdist.com; www.salemdist.com

# Featured Product: Synthetic coolants for use in critical grinding applications from optical glass to ceramic materials

Salem Advanced Materials is an employee-owned source for surfacing and finishing materials used in manufacturing precision optics, as well as any critical surface preparation from acrylic to sapphire. Contact: Steve Albright, Product Development, salbright@salemdist.com

### Samtec, Inc.

#4561

520 Park East Blvd, New Albany, IN, 47150 USA +1 812 944 6733; fax +1 812 948 5047 info@samtec.com; www.samtec.com

Samtec, Inc. is recognized as the connector industry service leader. Besides featuring our Active Optical Cables including the new FireFly<sup>TM</sup> Micro Flyover System, Board Mount and IC co-packaged Miniature Optical Engines, custom Optical Interconnects and PCle® over FiberSystems, Samtec offers a wide range of High Speed Mezzanine Strips, 28, 40 and 56Gb Backplane Solutions, High Speed Cable Assemblies as well as Rugged, Power, RF, Board-to-Board Interconnects and Microelectronic packaging services. Contact: Glenn Dixon, Sales Manager, glenn.dixon@samtec.com

# **Sandia National Laboratories**

#5173

1515 Eubank SE, Albuquerque, NM, 87123-3453 USA +1 505 844 8066

partnerships@sandia.gov; www.sandia.gov/index.html

Sandia National Laboratories has developed and delivered custom, radiation-hardened microelectronics to the nuclear stockpile and other national security customers since 1975. Beyond its support for the nuclear stockpile, Sandia National Laboratories provides leading edge trusted microsystems technologies to enable new and increasingly powerful macro-system capability and functionality for critical national security platforms. Contact: Lauren Manzanares, Business Development Specialist, Imanza@sandia.gov; Irene Trujillo, Business Development Specialist, itrujil@sandia.gov



Beijing Golden Way Scientific Co., Ltd., established in 1994, focusing on high precision optical components manufacturing and lens assembling. After more than 20 years of sustained effort, now it has a whole set of optical processing facilities, from raw material cutting, grinding, polishing, to final coating and cementing, as well as a complete set of top-level metrological instruments, including ZYGO Interferometer, TRIOPTICS Spherometer, OptiSpheric, PrismMaster and Spectrometer Lambda 950 from P.E., etc. .

During the past 20 years, basing on our expereince in dealing with thousands of kinds of optics, we choosed very commonly used optical components, including optical lenses, prisms, windows and mirror substrates as our catalog items. Most of them will be on the way to you in 24 hours once you find the parts fit your application and place an order. Certainly, Golden Way always welcomes your any custom optics inquiries, and our affluent experience in OEM manufaturing will help you finding out the most economic performance.

According to our years of rich experience and practical ability on optical components production, now we have better capacity to branch out into lens assembling, which helps us to provide our customers more comprehensive and systematic products and service.

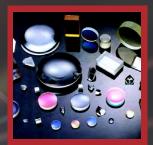
We believe that, through our continuous effort, Beijing Golden Way Scientific Co., Ltd. will become your reliable supplier and one of the best cooperators in your business.

You could reach us through fax, e-mail, letter, or by phone directly. Generally Golden Way will answer your optics inquires within 24 hours.

























# Santec U.S.A. Corp.

#2731

433 Hackensack Ave, Hackensack, NJ, 07601 USA +1 201 488 5505; fax +1 201 488 7702 info@santec.com; www.santec.com

# Featured Product: New tunable VCSEL for SS-OCT (PW#2731): long coherence, variable-speed, wide scan, and efficient.

Santec, a leading manufacturer of tunable lasers, offers a complete line of high speed scanning lasers specifically developed for OCT applications. Santec's HSL scanning lasers and OCT systems feature high power, wide tuning, and fast scan rates to achieve high resolution 3D imaging and high resolution real time 2D imaging. Additionally, Santec's TSL series offers high resolution and high accuracy swept solutions for photonic device characterization. Contact: Jonathan Evans, Director, jonathan@santec.com; Michael Davala, Sales Engineer

Santier #4560

10113 Carroll Canyon Rd, San Diego, CA, 92131 USA +1 858 348 1211; fax +1 858 271 1980 jennifer.gordon@santier.com; www.santier.com

# Featured Product: Santier will present precision materials and assemblies used specifically in laser diode assemblies.

Santier is a world-class manufacturer and thermal management solution provider of engineered photonic housings, precision metal matrix composites, and complex material set assemblies. Our products and technology solutions range in application from radar to internet backbone to lasers. Santier CTE matching, high thermal conductivity materials, and ceramic packages are used in machines that shape our world, sense what we cannot see, and cool the hottest, smallest devices imaginable. Contact: Brian Kopp, Technical Sales, brian.kopp@santier.com; Kevin Cotner, CEO, kevin.cotner@santier.com

# **Satisloh North America Inc.**

#508

SPIE Corporate Member

N106 W 13131 Bradley Way Ste 200, Germantown, WI, 53022-2484 USA +1 262 255 6001; fax +1 262 255 6002 tom.godin@satisloh.com; www.satisloh.com

# Featured Product: SPM/SPS 125: The grinding & polishing machines combine simple and clear operation with modern CNC.

The Satisloh line includes generators, polishers, laser centering, and coating machines (sputtering) for all applications and the powerful Synline for Windows software. A supplier of diamond wheels and pellets, spherometer rings, and spare parts, we offer a complete range of consumable products including distribution of Mueller diamonds, polishing pads, and Borer chemical ultrasonic cleaning products. Satisloh provides both consulting and tool Services. STEP is our premium maintenance program. Contact: Tom Godin, Sales Director, tom.godin@satisloh.com; Barry Tyler, Sales, barry.tyler@satisloh.com

# Savimex #1123-H

1 avenue Louison Bobet, Parc d'activités des bois de Grasse, Grasse, 06130 France

+33(0) 4 93 70 41 31; fax +33(0) 4 93 70 77 21

infos@savimex.fr; www.savimex.fr

Savimex is an international expert in the design and manufacturing of optical components in polymer materials and as opto-mechanical sub-systems. Savimex offers its customers a complete package, including design, industrialization, and serial manufacturing of complete opto-mechanical sub-assemblies at the leading edge of technology in terms of technical solution and manufacturing process. Contact: Laurent Coyon, CEO, infos@savimex.fr; François Houbre, Technical Director, infos@savimex.fr

### **Exhibition Map Sponsor**

# **SCANLAB America, Inc.**

#2317

SPIE Corporate Member

100 Illinois St Ste 200, Saint Charles, IL, 60174-1867 USA +1 630 797 2044; fax +1 630 797 2001 info@scanlab-america.com; www.scanlab-america.com

# Featured Product: excelliSCAN: premium scan-system brings more precision and productivity to micromachining

OEM manufactures high-performance galvanometer scanners and galvanometer-based scanning systems for deflection and positioning of laser beams in up to three dimensions. We serve industrial and medical applications. Product range includes standard and high-end scan heads (more than 1200 cps), scan systems for kW-range lasers, automated machine vision, customized systems, control electronics, laser processing software and accessories. Contact: Dale A. Sabo, VP Sales & Marketing, d.sabo@scanlab-america.com

### **ScannerMAX**

#4520

SPIE Corporate Member

9501 Satellite Blvd Ste 109, Orlando, FL, 32837 USA +1 407 299 2088; fax +1 407 299 6066 contact@scannermax.com; www.scannermax.com

# Featured Product: If you need high-performance galvos at affordable prices, the Compact-506 is an ideal solution.

ScannerMAX is a division of Pangolin Laser Systems, Inc. and specializes in the production of high speed galvanometers and rotary actuators for the industrial, aerospace, and entertainment sectors. Contact: Justin Perry, Chief Operating Officer, Justin@Pangolin.com; William Benner, President and CTO, wrb2@pangolin.com

### Schäfter + Kirchhoff GmbH

#5064

SPIE Corporate Member

Kieler Str 212, Hamburg, 22525 Germany +49 40 853997 0; fax +49 40 853997 79 info@sukhamburg.de; www.sukhamburg.com

Schäfter+Kirchhoff offers products regarding laser metrology and opto-electronic sensor systems for scientific research, aviation and space, and demanding medical and industrial applications. We specialize in three product lines: line scan cameras, fiber optics, and laser line generators. These complementary areas of expertise allow us to offer a specialized and custom-made development service. With all of our products, we strive for the highest quality and reliability. Contact: Michael Schulz, Physcial Engineering, m.schulz@ SuKHamburg.de

### Schmidt & Bender GmbH & Co. KG

#4629

Am Grossacker 42, Biebertal, 35444 Germany +49 6 40 9 81 15 0; fax +49 6 40 9 81 15 11 info@schmidt-bender.de; www.schmidt-bender.de

# Featured Product: Precision optics; fiber optics; optical groups; rifle scopes; and optical devices

Schmidt & Bender is a synonym for quality and precision, for tradition and innovation. As early as 1957 the family business engaged in the development, production and optimization of riflescopes that always meet the ever increasing requirements in this segment. In our Hungarian factory optics are produced since 1876 and under the management of Schmidt&Bender since 1992 we always have been a reliablev producer of optical components and optical devices as well. Contact: Peter Elek, Head of Technology and Projects, elek.peter@schmidt-bender.hu

# **Schneider Optical Machines Inc.**

#5237

SPIE Corporate

5916 Stone Creek Ste 120, The Colony, TX, 75056 USA +1 972 247 4000; fax +1 972 247 4060

info-usa@schneider-om.com: www.schneider-om.com

# Featured Product: The SCG 250 enables precision grinding of spherical, aspherical, and freeform optics up to 250 mm.

Designs and manufactures precision CNC equipment for optics fabrication and testing. Provides complete solutions for generating, polishing, centering, edging, diamond turning, and measuring of free form, aspheric, spherical, Plano and other optics. Offers training, service, applications support and custom tooling for optimizing machine use and production. Contact: Daniel Gauch, Manager Precision Optics, d.gauch@schneider-om.com; Thomas Danger, Vice President Sales Precision Optics, t.danger@schneider-om.com

# **Schneider Optics, Inc.**

#840

SPIE Corporate Member

285 Oser Ave, Hauppauge, NY, 11788-3609 USA +1 631 761 5000; fax +1 631 761 5090

industrial@schneideroptics.com; www.schneideroptics.com

# Featured Product: Our new Xenon-Ruby lenses cover a 1/1.8" format and provide excellent images and superior mechanics.

Schneider Optics designs, develops, and manufactures high performance lenses for machine vision and other image processing applications. Standard products include: compact C-mount lenses, bilateral telecentric lenses, a modular macro system, large format lenses (12K & 16K line scan), and industrial filters. Custom lens solutions are also available. Key markets include: machine vision, document & parcel scanning, industrial inspection, 2D & 3D metrology, surveillance, and hyperspectral imaging. Contact: Stuart Singer, Sr. Vice President & CTO, ssinger@schneideroptics.com; Jim Sullivan, Director, Industrial Optics, jsullivan@schneideroptics.com

# **Schölly Micro Optics GmbH**

#4629

An der Amtmannsmühle 11, Biebertal, 35444 Germany +49 6409 66110 0; fax +49 6409 66110 270

info@schoelly-microoptics.de; www.schoelly-microoptics.de

# Featured Product: Micro-optical components and modules.

Schölly Micro Optics GmbH is a German manufacturer of compact mechano-optical components and modules. Schölly performs high vertical integration, starting with optical design and mechanical engineering. Their core competence is producing optics, including coating as well as assembly. Schölly is well-experienced in the medical market, especially endoscopy, in addition to machine vision, metrology, and other markets. The company's main focal points are reliability and quality. Contact: Lutz Paliga, Technical Sales Manager, l.paliga@schoelly-microoptics.de; Info address, info@schoelly-microoptics.de

# **SCHOTT North America, Inc.**

#1314

SPIE Corporate Member

400 York Ave, Duryea, PA, 18642-2036 USA +1 570 457 7485; fax +1 570 457 7330

info.optics@us.schott.com; www.us.schott.com

SCHOTT is a leading international technology group in the areas of specialty glass and glass ceramics. The company has more than 130 years of outstanding development, materials, and technology expertise, and they offer a broad portfolio of high-quality products. SCHOTT is an innovative enabler for many industries, including the home appliance, pharmaceutical, electronics, optics, automotive, and aviation industries. Visit them at www.us.schott.com. Contact: info@us.schott.com

### **Schulz-Electronic GmbH**

#5329

Dr-Rudolf-Eberle-Str 2, Baden, 76534 Germany +49 7223 96 3630; fax +49 7223 96 3690

info@schulz-electronic.de; www.schulz-electronic.de

Schulz-Electronic GmbH is the leading provider of professional power supplies and laser diode drivers from watts to multi-kilowatts. Their portfolio includes laboratory units and OEM power supplies for pulsed, QCW, and CW operation. Additionally, they work with rack integration and production of entire laser supply systems, including cooling and adaption to analog and digital customer PLC interfaces. Contact: Barry Essig, Product Manager, Heiko.Seel@schulz-electronic.de; Hubert Maier, Managing Director, hubert.maier@schulz-electronic.de

# Scientific Materials Corp. -A FLIR Systems Company

#4624

SPIE Corporate

31948 Frontage Rd, Bozeman, MT, 59715-8642 USA +1 406 585 3772; fax +1 406 585 8606

sales@scientificmaterials.com; www.scientificmaterials.com

### Featured Product: Laser gain media & custom material

SMC is a global leader in high-purity, low-loss single crystal laser materials, precision laser components, 1-micron passive Q switches and mono block resonators. Our UP-grade YAG and LuAG has established a new standard of purity for the demands of high performance systems. Stock materials include: Nd:YAG, Cr<sup>4+</sup>:YAG, Yb:YAG, Yb:LuAG, Tm:YALO, YSO, Re:YAG, etc., and co-doped materials, supporting high volume manufacturing and custom R&D groups. Contact: Larry Alegria, Technical Sales Engineer, larry.alegria@flir.com; zackcole@flir.com

### Scitec Instruments Ltd.

#5145

6 Sandown Centre, Whitehorse Business Park, Trowbridge Wiltshire, BA14 OXD United Kingdom +44 1225 751542

www.scitecinstruments.com

# **SCIVAX Corp.**

#4024

7-7 Kawasaki-ku Kawasaki-shi, Kanagawa, 212-0032 Japan +81 44 820 0551; fax +81 44 820 0552

nil-contact@scivax.com; www.scivax.com/nil/index.html

# Scottish Pavilion (SCS Exhibition)

#1923

275 London Rd North End, Portsmouth Hants, P02 9HE United Kingdom

+44 23 9266 5133; fax +44 23 9262 9149 info@scsexhibitions.co.uk; www.scsexhibitions.co.uk

# **Seattle Photonics Associates LLC**

#4528

SPIE Corporate

16120 Woodinville Redmond Rd NE Suite 10, Woodinville, WA, 98072 USA

+1 425 949 8052; fax +1 425 483 7990

info@seattlephotonics.com; www.seattlephotonics.com

# Featured Product: Optical system design, analysis, and fabrication in both imaging and illumination systems since 1999

Our senior engineers have decades of experience in optical and opto-mechanical design over a wide range of applications. Areas of expertise include the overall system design of displays, HUDs, NTEs, lightpipes, space based applications, and stray light analysis. Recent additions include internal fabrication and prototyping capabilities with in-house machining facilities and plastic optical grinding and polishing. Contact: Pete Zeidler, Business Development

### Seiler Instrument

#5336

SPIE Corporate

3433 Tree Court Industrial Blvd, Saint Louis, MO, 63122 USA +1 314 968 2282: fax +1 314 968 2637 mseiler@seilerinst.com; www.seilerinst.com

# Seiwa Optical America Inc.

**Exhibition Map Sponsor** 

SPIE Corporate Member

SensL

6800 Airport Business Park Ave, Cork, T12CDF7 Ireland +353 21 435 0442: fax +353 21 240 7119 sales@sensl.com: www.sensl.com

# #4424

SPIE Corporate Member

3042 Scott Blvd. Santa Clara, CA, 95054 USA +1 408 844 8008: fax +1 408 844 8944 info@seiwaamerica.com; www.seiwaamerica.com

# Semiconsoft, Inc.

#6027

83 Pine Hill Rd, Southborough, MA, 01772 USA +1 617 388 6832: fax 1.508.858.5473 info@semiconsoft.com: www.semiconsoft.com/html/ContactInfo.htm Contact: Leo Asinovski, President

SemiNex Corp.

#4761

SPIE Corporate

100 Corporate PI Ste 201, Peabody, MA, 01960-3809 USA +1 978 326 7700

info@seminex.com: www.seminex.com

# Featured Product: High power lasers from 1300 to 1700 nm, chips, BARS, TO cans, fiber coupled packages, and submounts.

SemiNex is the leading manufacturer of high power InP lasers in the 1300 to 1700 nm region. These lasers are used in a variety of applications, including medical, range finding, LiDAR, targeting, and industrial processing. SemiNex has the highest efficiency lasers available and provides lasers in a variety of packages, including chips, BARS, TO Cans, fiber coupled packages, and submounts. Our patented processes assure our customers stable, low cost solutions to all of their SWIR needs. Contact: Neal Stoker, VP Sales and Markeing, nstoker@seminex.com; David Bean, CEO, dbean@ seminex.com

Semrock

#1113

SPIE Corporate

3625 Buffalo Rd, Rochester, NY, 14620 USA +1 585 594 7050; fax +1 585 594 7095 semrock@idexcorp.com; www.semrock.com

# Featured Product: Versachrome edge filters, fluorescence filters, Raman filters, tunable filters, & coatings

Semrock manufactures optical filters that set the standard for use in biomedical and analytical instrumentation. These include LED bandpass sets, sets for Brilliant dyes, and other high-performance fluorescence and Raman spectroscopy filters. These innovative products are built on the latest in optical coating technology for endusers or high-volume delivery demands.

# Featured Product: The R-Series is a new family of silicon photomultiplier (SiPM) sensor designed for 3D ranging.

SensL was formed in 2004 and has been driving the development of SiPM technology ever since. Our SiPM technology offers industryleading uniformity in operating voltage and optical response, enabling world-class system performance and compelling cost advantage. SensL has over 500 customers who have implemented its low-light sensors in a wide range of applications, including medical imaging, biophotonics, hazard and threat detection, and 3D ranging and sensing. Contact: Wade Appelman, VP Sales and Marketing, sales@sensl.com

### SENSOFAR METROLOGY

#4037

#4408

Crta BV1274 Km 1, Parc Audiovisual de Catalunya, Terrassa Barcelona, 08225 Spain

+34 93 700 14 92

info@sensofar.com: www.sensofar.com

# Featured Product: Sensofar provides high-accuracy 3D profilers based on confocal, interferometry, and focus variation.

Sensofar Metrology provides 3D profilers from standard setups for R&D and quality inspection laboratories to complete non-contact metrology solutions for online production processes. Sensofar offers technology that enables our customers to achieve real breakthroughs, particularly in the semiconductor, precision optics, micro-manufacturing, display devices, thick and thin film, and material testing technology fields. The Group is represented in over 20 countries. Contact: Alberto Aguerri, Sales Manager, aguerri@ sensofar.com

### Sensofar USA

#4035

SPIE Corporate

8655 E Via De Ventura Ste G168, Scottsdale, AZ, 85258 USA +1 800 530 3097

info@sensofarusa.com; www.sensofarusa.com

### Featured Product: S Neox, S Mart, S Lynx, PLu Apex, and AVIT5.

Sensofar USA is a leading-edge technology company that develops and manufactures advanced systems for non-contact surface metrology. Our systems provide fast and accurate 3D optical metrology, combining the patented technologies of interferometry, confocal microscopy, and focus variation measurements into a single instrument platform. Each of these technologies has advantages for specific applications, and having all three in the same fast, easy-to-use system provides the highest flexibility. Contact: Niels Schwarz, President, schwarz@sensofar.com

# Sensor Electronic Technology, Inc.

#423

1195 Atlas Rd, Columbia, SC, 29209 USA +1 803 647 9757: fax +1 803 647 9770 sales@s-et.com: www.s-et.com

SETi rethinks UV light sources and are the only one-stop shop for UV, LEDs, and UV LED solutions with full spectral coverage from 240nm to 405nm. Our leading applications are disinfection, analysis, sensing, and monitoring. SETi offers competitive solutions to a wide range of markets, like industrial, environmental, healthcare, military, and space exploration. We are committed to meeting and exceeding the needs of our customers and stakeholders through the highest levels of quality management. Contact: sales@s-et.com; info@s-et.com

# Colorado Photonics -

# When You Need a Helping Hand!

- Spectroscopy instrumentation
- Nano-resolution positioning
- Ultrafast lasers
- Extreme Ultraviolet lasers
- Laser Stabilization
- Polarization control
- Contamination monitors
- Helium Cadmium lasers
- Precision measurement
- Custom optical coating



# Special event: Wednesday 2pm - 3pm

Come join us at booth 2306! Learn about state incentives for photonics companies and job opportunities in Colorado.



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# Sercalo Microtechnology Ltd.

#932

#5451

Rue des Draizes 5, Neuchâtel, CH-2000 Switzerland +1 203 401 8093; fax +1 800 878 7282 sales@xsoptix.com; www.xsoptix.com Co., Ltd
SPIE Corporate
Member

#5551

### **Exhibition Map Sponsor**

Servometer

501 Little Falls Rd, Cedar Grove, NJ, 07009-1291 USA +1 973 785 4630; fax +1 973 785 0756 info@servometer.com: www.servometer.com

# Featured Product: Extremely lightweight, structurally rigid electroforms with cross sections from 0.020 to 8 inches.

Servometer® manufactures structurally rigid, hollow metal shell electroforms that can be made as small as .020 inch in diameter in nickel, copper, gold, silver, or any combination thereof with internal blackening. Electroforms are perfect for use as radiation or cold shields in electro-optical applications. Servometer also manufactures custom miniature metal bellows, bellows assemblies, bellows-type flexible shaft couplings, and gold-plated bellows contacts. Design assistance is also available. Contact: Jim Barkand, Business Development Manager, jimb@servometer.com; Donna Materna, Sales Representative, donnam@pentagonco.com

# Shandong Yanggu Constant Crystal Optics, Inc.

qiangxu\_0210@163.com; www.sdhengjing.com

#4538

North-South Economic Development Zone Yanggu, Yanggu, Shandong, 252300 China +86 531 85916633; fax +86 531 85915533

# Featured Product: High precision optical windows, prisms, lens, and crystal elements.

Shandong Yanggu Constant Crystal Optics was founded in 2006, and we have a good team with many years of experience in optical components manufacturing. Our products are used widely in chemical and medical treatments, as well as in other optical fields. Many customers all over the world have maintained good relationships with us for many years. We guarantee high quality, quick response, and on time delivery!

# Shanghai HXF LaiYi Precision Optics Co., Ltd.

#2700

Bldg 2 No 51, Ln 151, Jian Lan Rd, Jia Ding District, Shanghai, 201801 China

+86 2137776900; fax +86 2137776900 sales@hxfoptics.com; www.hxfoptics.com

# Featured Product: Optical filters, optical glass, and high precision optical components.

Shanghai HXF-LaiYi Precision Optics Co., Ltd is a technical leader in optical filters, optical glass, and high precision optical components. We provide customized development optical glass, imaging optical filters in semi-finished and finished forms, high precision asphere, and windows. We provide are more than 120 types of optical glass. The optical components we provide meet the highest quality standard, and we have upheld long-term partnerships with customers in Europe, USA, and Asia. Contact: Nicolas Yuan, Business Director, sales@hxfoptics.com

No 854 ZhenNan Rd, Shanghai, 200331 China +86 21 6250 7952; fax +86 21 6250 5697 office@jcop.com.cn; www.jcop.com.cn

Shanghai Jiaguang - O Store Optics

# Featured Product: All types and specifications of fine optical components, instruments, and assemblages.

Shanghai Jiaguang Optics Group was founded in 1989, has more than 600 employee, registering capital RMB 120 million. We produce all sorts and specifications of fine optical components, instruments and assemblage according to the coming drawings, which are widely used in the military affairs, R&D, medical treatment, optical telecommunication, consumable and so on. More than 90% products are exported to foreign countries Contact: Yaming Gao, Business, gym.ct@jcop.com.cn; Rui Huang, Business, wr.op@jcop.com.cn

# Shanghai Jingding O&E Technology Co., Ltd.

#2001-J

 $1300\,$  Jungong Rd, 2nd Fl/Bldg 10/Saite Industrial Park, Shanghai, 200433 China

021-55093416

sales@gem-oe.com; www.gem-oe.com

Shanghai Gem Optoelectronic Technology Co., Ltd. was founded by a number of outstanding talents, applying technology and management from the Chinese Academy of Sciences and an American company since June 2011. We believe that the trinity of high-technology enterprises is research, production, and sales.

# Shanghai Mega-9 Optoelectronic Co., Ltd.

#4551

NO.5, Lane 111, Shihui Road, Songjiang, Shanghai, 201613 China +86 21 57784688; fax +86 21 57784689 sales@mega-9.com; www.mega-9.com

# Featured Product: Hard coated optical filters for biochemical instruments with zero shift wavelengths.

Shanghai Mega-9 Optoelectronic Co., Ltd., founded in 2006, is a leading technology manufacturer in optical band pass filters and beam splitter cubes in China. Mega-9 has excellent fabricating facilities, including advanced coaters, ultrasonic cleaning line, high accuracy spectrophotometers, and super clean rooms. We have over 20 years coating research and developing experience, and the technical supporting or total solution providing is one of our strong points. Contact: Zhaosheng Tang, CTO, sales@mega-9.com

### Digital Signage Sponsor

# Shanghai Optics Inc.

#2240

SPIE Corporate

17 Brant Ave Ste 6, Clark, NJ, 07066 USA +1 732 321 6915; fax +1 732 875 0298 usoffice@shanghai-optics.com; www.shanghai-optics.com

# Featured Product: High-resolution telocentric lenses, ultra-long working distance 100X objective, SWIR imaging

SO is a leading custom lens supplier with services including lens design and optimization, including opto-mechanical assembly in UV, VIS, NIR, and SWIR to LWIR application. ISO:9001 certified with state-of-the-art metrology, our expert engineering team can optimize optical system with in-depth design for manufacturing knowledge. Our goal is to optimize your design with manufacturing input to bring your vision come to life with top cost-to-performance ratio without sacrificing quality or delivery. Contact: Joanna Lee, V.P. of Sales, rfq@shanghai-optics.com

**Shasta Crystals** 

#6011

SPIE Corporate

1750 Ceasar Chavez Unit J, San Francisco, CA, 94124 USA +1 415 426 7904; fax +1 216 928 9529

info@shastacrystals.com; www.shastacrystals.com

# Featured Product: Cladded Single Crystal Fiber (YAG,CALGO, Sapphire)

Shasta Crystals, Inc. (Shasta) is a crystal growth company located in San Francisco, CA. The company was incorporated in 2006 with the purpose of developing a disruptive technology to make single crystal rods or fibers with diameters below those enabled by the conventional fabrication methods, for example below 300 microns. Smaller diameter rods and fibers open up a wide range of new markets in a variety of industries, including the next generation of compact and powerful fiber lasers. Contact: Kevin McCarthy, EVP, kmccarthy@shastacrystals.com; Gisele Maxwell, CEO, gmaxwell@shastacrystals.com

# Sheaumann Laser, Inc.

#2822

#4305

SPIE Corporate Member

45 Bartlett St, Marlborough, MA, 01752 USA +1 508 970 0600; fax +1 508 970 0610 sales@sheaumann.com; www.sheaumann.com

# Featured Product: Compact, uncooled fiber-coupled laser modules for extreme environmental conditions

Sheaumann Laser specializes in the design and manufacture of semiconductor lasers, modules, and systems for industrial, defense, medical, and printing applications. All R&D and production activities, including epitaxial MOCVD growth from 780nm to 1080nm, take place in its ISO-9001 certified, ITAR registered facility in the U.S. This allows complete control over all processes and the flexibility to create custom solutions for OEMs with unique requirements. Contact: Jessica Wang, Sales Manager

# Shenyang Academy of Instrumentation Science #2011-C

242 Beihai Street, Shenyang, Liaoning, 110043 China +86 24 88710538; fax +86 24 88722312 info@hb-optical.com; www.hb-optical.com

# Shenzhen Oande Optical & Electronic Technology Co., Ltd.

Nanhai Rd Nanshan District, Rm 21G/21F Block B Neptunus Bldg, Shenzhen Guangdong, 518000 China +86 755 8619 5536; fax +86 755 8619 5596 sales@oande.cn; www.oande.cn

# Featured Product: Photoresistor, light dependent sensor, PIR sensor; optical lens, optical lens assembly

Oande is dedicated to developing, manufacturing, and marketing optical and electronic products. The marketing department is located in Nanshan Area, Shenzhen. R&D and product department are located in National Optoelectronic Industry Base, Henan Province. Contact: Wenxu Zhang, Operation Director, sales@oande.cn

# Shimadzu Corp.

#4049

1-3 Kanda-Nishikicho, Chiyoda-ku, Tokyo, 101-8448 Japan +81 3 3219 5797; fax +81 3 3219 5567 sensor@group.shimadzu.co.jp; www.shimadzu.com

# Featured Product: Fiber-coupled Blue Direct Diode Laser, SM-PM Fiber-coupled RGB Laser Module, and Diffraction Gratings.

140 years since its founding, Shimadzu Corporation has been providing society with high technology products used for measuring instruments, medical systems, and aircraft equipment under the corporate philosophy of "Contributing to society through science and technology". Its optical device division manufactures various types of diffraction gratings, laser mirrors, spectro-sensors, monochromator, fiber-coupled blue direct diode laser and SM-PM fiber-coupled RGB laser module for many applications. Contact: Masamura Kawada, mkawada@shimadzu.co.jp

# Shin-Etsu MicroSi, Inc.

#4029

10028 S 51st St, Phoenix, AZ, 85044-5203 USA +1 480 893 8898; fax +1 480 893 8637 info@microsi.com: www.microsi.com

# Featured Product: Shin-Etsu Chemical's optical isolators boast excellent wavelength characteristics.

Shin-Etsu Chemical has implemented vertical integration of its entire production system for optical isolators, covering every process from the processing of the raw material, the garnet crystals used to form the substrate for the Faraday rotators, to the device-finishing process. Contact: Edwin Nichols, Product Marketing Manager, enichols@microsi.com; info@microsi.com

# Showmark, LLC

#5542

SPIE Corporate

410 Eagleview Blvd Ste 102, Exton, PA, 19341 USA +1 610 458 0304; fax +1 610 458 0309 email@showmarkcorp.com; www.showmarkcorp.com

# Featured Product: DigiSpooler II precision bidirectional optical fiber respooler

Showmark manufactures a wide range of winding and spooling machines for optical fiber, fine wire, and other fine filaments. Machines are used for all areas of optical fiber and wire manufacturing. They are also used for general purpose respooling or precision winding applications such as EDFA's, fiber delay coils, fiber Bragg gratings, and fiber optic gyro coiling. Showmark also provides a range of contract spooling services. Contact: Scott Markovitz, President, scott.markovitz@showmarkcorp.com; Marcy Pearce, Administrator, marcy.pearce@showmarkcorp.com

# **Sierra Precision Optics**

#302

SPIE Corporate Member

12830 Earhart Ave, Auburn, CA, 95603 USA +1530 885 6979

sales@sierraoptics.com; www.sierraoptics.com

Sierra Precision Optics are manufacturers of precision optical components, including cylinders, sphericals, prisms, and panels. We manufacture to both military and commercial finishes. We are based in the Sierra Foothills in Auburn, CA and have a fully staffed facility to meet your most stringent requirements. Contact: Russ Lowe, Sales & Marketing Manager, rlowe@sierraoptics.com

Featured Exhibitor Sponsor

# Sierra-Olympic Technologies, Inc. #5340

SPIE Corporate Member

3100 Cascade Ave, Hood River, OR, 97031 USA +1 425 445 8884; fax +1 541 387 0443 info@sierraolympic.com; www.sierraolympic.com

# Featured Product: Continuous-zoom parfocal lens with a 3x optical zoom, 4x digital zoom

Sierra-Olympic Technologies, Inc., experts in thermal imaging technology, provides cameras, components, and systems solutions for infrared camera users and integrators. Sierra-Olympic partners with industry-leading manufacturers to offer complete solutions for SWIR, MWIR, and LWIR imaging applications. They offer numerous infrared cameras, components, and systems for online purchase and immediate shipment. Contact: Chris Johnston, CEO, chris@ sierraolympic.com; Charley Gilbert, Sales, charley@sierraolympic.com

# Sigmadyne, Inc.

#641

SPIE Corporate

803 West Ave Ste 311, Rochester, NY, 14611-2447 USA +1 585 235 7460; fax +1 585 235 6931 www.sigmadyne.com

# Featured Product: SigFit is a software product enabling engineers to link mechanical analysis with optical analysis.

Sigmadyne is an engineering consulting firm specializing in optomechanical analysis services and software. Our specialty is integrating mechanical predictions with optical predictions for photonic applications in a wide array of industries. Contact: Gregory Michels, Vice President

# Signal Recovery

#2323

801 S Illinois Ave, Oak Ridge, TN, 37831-0895 USA +1 865 483 2118; fax +1 865 481 2410 info@signalrecovery.com; www.signalrecovery.com

### **Featured Product: Amplifiers**

Specialized instruments for measuring low-level electrical signals or signals accompanied by unwanted noise or interference. Products include lock-in amplifiers, boxcar and signal averagers, optical choppers, preamplifiers, counter/timers, and multiplexers. Markets include optics, magnetics, mechanical testing and scanned probe, electronics, time-of flight mass spectrometry and OEM solutions. Contact: Ari Tampasis, Marketing, ari.tampasis@ametek.com

# Silicon Valley Optics Technology, Inc.

#4129

44141 S Grimmer Blvd, Fremont, CA, 94538 USA +1 510 623 1161; fax +1 510 217 2223 info@svotek.com; svotek.com

# Sill Optics GmbH & Co. KG

#1241

SPIE Corporate

Johann-Höllfritsch-Str 13, Wendelstein, 90530 Germany +49 9129 9023 0; fax +49 9129 9023 23 info@silloptics.de; www.silloptics.de

# Featured Product: Scan lenses, aspheres, fixed & zoom beam expanders, telecentric imaging lens, single lenses

Sill Optics develops and manufactures a wide range of telecentric lenses, illumination systems, CCD-lenses with c-mounts, either off the shelf or customized manufactured. Scan lenses for printing, beam expanders, yag focusing optics and profile projector lenses are in the program including custom made optical systems and components for prototypes and series. Contact: Christoph Sieber, General Manager, christoph.sieber@silloptics.de; Berndt Zingrebe, Managing Director, berndt.zingrebe@silloptics.de

# Simphotek Inc.

#4050

SPIE Corporate Member

211 Warren St, Newark, NJ, 07103-3568 USA +1 973 621 2340; fax +1 973 643 4502 info@simphotek.com; www.simphotek.com

# **Sinclair Manufacturing Co.**

#2142

12 S Worcester St, Chartley, MA, 02712 USA +1 508 222 7440; fax +1 508 226 0517 sales@sinclairmfg.com; www.sinclairmfg.com

### Featured Product: Hermetic packages, hermetic windows

Manufacturer of high reliability hermetic packages and windows for RF/microwave, fiber optic, detector, power and hybrid applications. Custom designs or choose from our thousands of standard tools. Contact: Michael O'Keefe, Vice President/Marketing & Sales, mokeefe@sinclairmfg.com

# Sinocera Photonics, Inc.

#5536

No 1258 BoXue Rd, Jiading, Shanghai, 201812 China +86 21 39160275; fax +86 21 59169897 sales@shanghaioptics.com; www.shanghaioptics.com

# Featured Product: waveplate, retarders, achromatic lens, optical prisms, cylindrical lens, filter, coating, Polarizer

Sinocera Photonics, Inc., established in 1988, produces middle-high precision glass and crystal components. In recent years, we have achieved a lot of experience in processing optical components with special shapes or small size. With the help of an effective management system and a group of technicians who grew with the company, our products are sold to over the world, and earn high customer satisfaction. Contact: Kathy Zeng, Sales Manager, sales@shanghaioptics.com; Winnie Lv, Sales Engineer, sales@shanghaioptics.com

# Sino-Galvo (Beijing) Technology Co., Ltd.

#2011-B

No 11 Shangdi Xinxi Rd Haidian District, No 209/2nd Fl/North Twr W/Caihong Mansion, Beijing, 100085 China +86 10 62979055; fax +86 10 62979755 info@sino-galvo.com; www.sino-galvo.com

Sino-Galvo (Beijing) Technology Co., Ltd. is a new technology enterprise. We specialize in optical scanning galvanometers. Since our company was established in 2001, we have developed a series of new laser galvanometer systems with independent intellectual property. Our scan heads are widely applied in the laser precision engraving, laser cutting, laser welding, rapid prototyping, medical cosmetology, and in scientific research.

### SIOS Meßtechnik GmbH

#4755

Am Vogelherd 46, Ilmenau, 98693 Germany +49 3677 64470; fax +49 3677 64478 sales@sios.de; www.sios.de

# Featured Product: SP15000 interferometer synchronous, continuous, 5 DOF-measurements: length, pitch, yaw, straightness

Manufacturer of high speed Michaelson interferometers with single, double and triple beam ports in a compact fiber-coupled head. Also manufactures microscope vibrometers, gage-block calibration systems and frequency stabilized HeNe lasers. These devices are ideal types of precision instruments for measuring lengths, angles, vibration motion as well as derived quantities like weights, forces, and pressures. Contact: Peter Viglas, Sales Manager, pviglas@piezojena.com

# **Siskiyou Corporation**

#2236

SPIE Corporate Member

110 SW Booth St, Grants Pass, OR, 97526-2410 USA +1 541 479 8697; fax +1 541 479 3314 reception@siskiyou.com; www.siskiyou.com

### Featured Product: Come see our new fast tune laser to singlemode fiber collimator.

Siskiyou Corporation manufactures motion control devices with manual and computer interfaced controllers, translation stages, mirror mounts, lens positioners, adjustment screws, construction hardware, fiber grippers, and other opto-mechanical components for use in research and manufacturing. Siskiyou Corporation will also custom tailor devices to fit your needs. Contact: Marion Murphy, Trade Show Coordinator, reception@siskiyou.com; Mark Mittlestaedt, Western Regional Sales Manager, markm@siskiyou.com

### Si-Ware Systems

#4965

3, Khaled Ibn Al-Waleed St., La Canada Flintridge, Al Qahira, 11361 Egypt +1 818 790 1151

info@si-ware.com; www.si-ware.com

### Featured Product: NeoSpectra FT-IR spectrometer

Si-Ware Systems (SWS) has developed the Prism award winning NeoSpectra™ spectral sensors that are the most compact and the lowest cost infrared spectrometers in the market today. They deliver the same functionality as standard bench top FT-IR spectrometer instruments. NeoSpectra's unique features bring a new perspective to optical spectroscopy - the core technology is based on semiconductor micro electro-mechanical systems (MEMS) fabrication techniques promising unprecedented economies of scale. Contact: Scott Smyser, EVP Worlwide Marketing and Business Development, scott.smyser@si-ware.com; Ahmed Korayem, Sr. Product Marketing Engineer, ahmed.korayem@si-ware.com

SlicingTech

#3020

SPIE Corporate Member

432 Mt Bethel Hwy, Bangor, NJ, 18013 USA +1 610 588 7884; fax +1 610 588 7885 srobinson@slicingtech.com; www.slicingtech.com

Featured Product: Meyer Burger rebuilds and retrofits using all OEM parts

SlicingTech serves the needs of companies who require high-precision high volume wafer slicing. Along with a wide range of Meyer Burger wafer slicing systems we now feature the world-renowned state-of-the-art Meyer Burger DW 288 Diamond Wire Slicing Systems for hard and brittle materials. Large table loading capabilities enable us to slice thousands of parts in as little as three hour cycle times, resulting in the lowest possible piece price. Plus inhouse processing of wire guide rolls. Contact: Sandy Robinson, VP/Office Manager, srobinson@slicingtech.com; Keith Robinson, CEO/President, krobinson@slicingtech.com

# **SLS Optics Limited**

#4425

Carrs Lane, Tromode Estate, Tromode, IM4 4QD Isle of Man +44 1624 616728; fax +44 1624 613520 enquiries@slsoptics.com; www.slsoptics.com

### Featured Product: Fabry-Perot etalons, high LDT coatings.

SLS Optics is a leading manufacturer and supplier of precision laser optics. We specialise in Fabry-Perot etalons, high laser damage threshold optics and thin-film coatings for the UV, visible and NIR spectral ranges. Contact: Ronald Cowell, Director, ron@slsoptics.com

### Conference Bag Insert Sponsor

### SmarAct Inc.

#835

SPIE Corporate Member

Schütte-Lanz-Str 9, STE 1103, Berkeley, CA, 94704 USA +1 415 766 9006

info@smaract.com; www.smaract.com

# Featured Product: Piezo stages with integrated PicoScale interferometer allow pico meter resolution on 0.5m travel.

Since 2005 SmarAct has developed, produced, and distributed piezo-based high performance micro- and nanopositioners, advanced control systems, and metrology solutions that provide an extremely high accuracy and work under extreme conditions. Our product portfolio includes different types of positioners, parallel kinematics, microscope stages and a high resolution laser interferometer. All of our products are robust yet and suited for industrial environments and cutting edge research. Contact: Marco Nordmann, info@smaract.com; Helge Huelsen, info@smaract.de

### SMART Photonics

#5031

Horsten 1, MMP gebouw, Eindhoven, 5612 AX Netherlands +31 40 247 54 53

info@smartphotonics.nl; www.smartphotonics.nl

# Featured Product: SMART Photonics an independent InP foundry offering POC and production services for the customers

SMART Photonics is an III-V foundry in the Netherlands offering POC and production services for creating discrete- and also integrated-indium phosphide based photonic components. We offer the full creation process from epitaxial growth, regrowth, and wafer processing up to the polishing and cutting of the wafers and coating of the dies. Individual process steps, like regrowth, can also be ordered. Contact: Richard Visser, CEO, richard. visser@smartphotonics.nl; Luc Augustin, TCO, luc.augustin@smartphotonics.nl

### **Smartek Vision**

#5636

UI Dobrise Cesarica 5, Cakovec, 40000 Croatia info@smartekvision.com; www.smartekvision.com

# **SMC Corporation of America**

#4047

10100 SMC Blvd, Noblesville, IN, 46060 USA +1 317 899 4440; fax +1 317 899 3102 sales@smcusa.com: www.smcusa.com

# Featured Product: Temperature control units: chillers and Thermocon equipment

Provider of pneumatic components and electro-pneumatic products. Included are airline filtration, vacuum ejectors, thermal chillers, directional control valves, cylinders and actuators, pressure and vacuum switches, electric actuators, fittings and tubing, flour polymer fittings and valves, static electricity elimination components.

# **Society of Vacuum Coaters**

#4140

71 Pinon Hill Place NE, Albuquerque, nm 87122 USA +1 505 856 6924; fax: +1 505 856 6716 svcinfo@svc.org; www.svc.org

# Featured Product: 2016 Annual Technical Conference, Education Program and Exhibit. Indianapolis, IN | May 9-13, 2016

SVC is a non-profit organization promoting technical excellence by providing a global forum to inform, educate, and engage the members, the technical community, and the public on all aspects of vacuum coating, surface engineering and related technologies. SVC provides year-round offerings of On-Location Tutorial Courses, instructional webinars, printed and digital publications, and on-line resources for those involved in vacuum coating and related technologies. Contact: Vivienne Mattox, Executive Director, viviennemattox@svc.org; Beth Strong, Executive Manager, bethstrong@svc.org

### Floor Graphic, Meterboard Sponsor

### Sofradir EC

#5654

373 Rte 46W, Fairfield, NJ, 07004-2442 USA +1 973 882 0211; fax +1 973 882 0997 info@sofradir-ec.com; www.sofradir-ec.com

The Sofradir EC product line includes its US-made cooled and uncooled infrared imaging cores and engines for military, commercial, and research applications. The products are available for SWIR, MWIR, LWIR and VLWIR spectral ranges in various array formats. In addition, the company offers a product line of infrared cameras and desktop software for scientific applications including high-speed radiometric cameras, as well as uncooled cameras, infrared viewers and near-infrared cameras for lab use. Contact: Chris Alicandro, Vice President, calicandro@sofradir-ec.com

### **Solaris Optics S.A.**

#4204

49 Sobieskiego Street, Józefów, 05-410 Poland +48 22 879 0560; fax +48 22 789 60 46 info@solarisoptics.com.pl; www.solarisoptics.com.pl

### solar-semi GmbH

#6029

Robert-Gerwig-Str 9, Radolfzell, 78315 Germany +49 7732 97898 0; fax +49 7732 97898 99 info@solar-semi.com; www.solar-semi.com Contact: Michaela Harder, Marketing

### **Solartron Analytical**

#2323

801 S Illinois Ave, Oak Ridge, TN, 37831-2011 USA +1 865 482 4411; fax +1 865 483 0396 solartron.info@ametek.com; www.solartronanalytical.com

### **Featured Product: Material characterization**

We provide instruments for the characterization of materials and cells using precision electrical measurement techniques, including electrochemical impedance spectroscopy. Products include the ModuLab instruments for electrochemical and other research, industry-standard frequency response analyzers, potentiostats, battery test equipment, and supporting software. Markets include analytical/fundamental research, biomaterials ceramics, corrosion/coatings dielectrics, displays, and fuel cells. Contact: Ari Tampasis, Marketing, ari.tampasis@ametek.com

# **Solid State Cooling Systems**

#3054

167 Myers Corners Rd, Wappingers Falls, NY, 12590 USA +1 845 296 1300; fax +1 845 296 1303 info1@sscooling.com; www.sscooling.com

# Featured Product: Our ThermoRack 401 chiller has been specifically designed for precise cooling of lasers and optics.

Solid State Cooling Systems develops and manufactures innovative, thermoelectric-based, precision temperature control systems for a wide variety of market applications, including: precision lasers, medical lasers, analytical instruments, laboratory, medical equipment, semiconductor processing and other industrial applications. Our products are known for their high reliability, compact size, quiet operation and energy efficiency. We provide precise temperature control down to +/-0.05°C. Contact: Mark Logan, VP Business Development, mlogan@sscooling.com; Kirk Osumi, Director Western Region Sales, kosumi@sscooling.com

### son-x Gmbh

#4629

Steinbachstr 17, Aachen, 52074 Germany +49 241 8904 122; fax +49 241 8904 6122 info@son-x.com; www.son-x.com

# Featured Product: Ultrasonic tooling system for diamond turning of steel. Optical steel inserts.

son-x is a technology leader in the field of ultra-precision manufacturing. The company developed a unique process for direct steel machining. son-x offer this technology as well as the manufacturing service. In manufacturing, our products are optical steel inserts for injection moulding, mirrors, prototypes and high precision components. Contact: Benjamin Bulla, Managing Director, benjamin.bulla@son-x.com; Karl Schottka, Project Manager, karl. schottka@son-x.com

# Sony Electronics Inc.

#5636

1730 N 1st St. MZ4SE, San Jose, CA, 95112-4508 USA +1 408 352 4045

### Spark Lasers

#1223-F

rue François Mitterrand, Institut d'optique d'Aquitaine, Talence, 33400 France +33 6 29 31 78 58

pascal.dupriez@spark-lasers.com; www.spark-lasers.com

# Featured Product: Sirius: new compact picosecond laser offering <10 ps for industrial applications

Spark Lasers develops and manufactures innovative picosecond lasers providing cost effective solutions to users with high performance, high reliability, in a compact and rugged package. This new generation of ultrafast lasers is particularly suitable for industrial and scientific applications. Contact: Pascal Dupriez, CEO, pascal.dupriez@spark-lasers.com

# Spartan Felt Co.

#4262

151 Felt Dr, Roebuck, SC, 29376 USA +1 864 576 7919; fax +1 864 574 4507 info@spartanfelt.com; www.spartanfelt.com

Spartan Felt Co. is a privately held company established in 1972. Our vision is to be a world leader in providing materials and technical assistance for glass, silicon/germanium, metal and advanced compositions. Our polishing bobs, wheels, pads and fluid transfer products are based on non-woven and other fibrous compositions. Industries served are optic, electro-optic, semiconductor, LCD, aerospace and industrial applications. Please visit our booth with your technical application needs. Contact: John Welty, Director of Sales & Business Development, jwelty@spartanfelt.com

# Special Optics, Inc.

SPIE Corporate

315 Richard Mine Rd, Wharton, NJ, 07885-1659 USA +1 973 366 7289: fax +1 973 366 7407 sales@specialoptics.com; www.specialoptics.com

### Featured Product: Custom optical solutions

Special Optics, a Navitar company, designs, develops and manufactures precision optical components from a state-of-the-art manufacturing facility in New Jersey. Since our beginning in 1965 we have developed and refined a wide range of optical fabrication and opto-mechanical assembly capabilities. As a result, we have evolved into a unique company, offering standard catalog optics along with custom designs while continuing to focus on responding to customer needs. Contact: Craig Fitzgerald, VP Business Development, Craig.Fitzgerald@navitar.com

# Specialised Imaging

#6045

#601

41690 Enterprise Cir N Ste 104, Temecula, CA, 92592 USA +1 951 296 6406

info@specialised-imaging.com; www.specialised-imaging.com

# Featured Product: Kirana ultra-high speed video camera featuring 5 million frames per second @ 924x768 resolution.

Specialised Imaging is a full line manufacturer and supplier of ultrahigh speed-gated intensified CCD cameras with framing speeds up 1 billion FPS at megapixel resolution, and Kirana ultra-high speed video cameras with video speeds up 5 million FPS at 924 x 768 pixels for 180 frames at all frame rates. Specialised Imaging also manufactures intensifiers and trajectory trackers. We are the North American distributor for TEMA and Trackeye Motion Analysis Software and Optronis Streak Cameras. Contact: Frank Kosel, President, frank@specialised-imaging.com; Al Febraro, Service Manager, al@specialised-imaging.com

# SPECIM, Spectral Imaging Oy Ltd.

#5269

SPIE Corporate

Elektroniikkatie 13, Oulu, 90590 Finland +358 10 4244 400; fax +358 10 4244 401

info@specim.fi; www.specim.fi

Specim is a world leading company for hyperspectral imaging instruments, from UV through VNIR and SWIR up to LWIR. Our hyperspectral products are used in an increasing range of demanding applications like color, process analytical technology (PAT), life sciences, chemical imaging, military and security. Contact: Mikko Kannelsuo, Sales & Marketing Director, mikko.kannelsuo@ specim.fi

### Spectra Quest Lab. Inc.

#5038

1-8-15 Inohana Chuou, Chiba, 260-0856 Japan +81 43 305 5563; fax +81 43 305 5563 info@spectraguestlab.com; spectraguestlab.com

# Featured Product: ASE-free tunable diode laser, 1µm broadband optical amplifier

Spectra Quest Lab. Inc. provides advanced tunable light source based on semiconductor technology for spectroscopy. Contact: Kiyofumi Muro, CEO, muro@spectraquestlab.cpm; Daisuke Fukuoka, Product Manager, fukuoka@spectraquestlab.com

# **Spectral Engines Oy**

#5269

Kutomotie 16, Helsinki, 00380 Finland +358 50 529 8876

sales@spectralengines.com; www.spectralengines.com

### Featured Product: Miniaturized wireless NIR spectral sensor

Spectral Engines Ov is a high-tech company set to revolutionize material sensing. Our novel infrared spectral sensors open new opportunities in the fields such as process spectroscopy, agriculture, food & beverage, and gas sensing. We provide OEM spectral sensors and data analysis algorithms for customers' applications. Contact: Janne Suhonen, CCO, janne.suhonen@ spectralengines.com; Matti Tammi, Application Engineer, matti. tammi@spectralengines.com

# Spectral Instruments, Inc.

#2623

SPIE Corporate

420 N Bonita Ave. Tucson, AZ, 85745-2747 USA +1 520 884 8821: fax +1 520 884 8803 info@specinst.com; www.specinst.com

Spectral Instruments specializes in the development and manufacture of cooled CCD cameras for demanding low-light applications. We provide the finest low noise < 3e-, high sensitivity, -110C cooling, 16-bit CCD cameras that current technology can offer. Optical inputs can include windows with custom coatings through fiber optic tapers or faceplates. Readout options are designed to be flexible and customized to the application. Custom CCD designs and OEM camera production are available. Contact: Kevin Toerne, Systems Specialist, ktoerne@specinst.com

# Spectral Systems

#4218

35 Corporate Park Drive, Hopewell Junction, NY, 12533-6558 USA +1 845 896 2200; fax +1 845 896 2203

info@spectral-systems.com; www.spectral-systems.com

# Featured Product: Precise Infrared component, Infrared Windows, Sealed Cell, ATR Optical Element, Beamsplitter,

We are a leading manufacturer of infrared optical components, coatings, system integration and services from original concept through final production. With more than 30 years of experience, we can ensure your optics are made to specifications. Our facility is equipped with state of the art polishing, coating and inspection equipment to ensure your optics are fabricated efficiently. We have the most comprehensive capabilities to provide infrared optical solutions from UV to the far IR. Contact: Jacqueline Carozza, Sales & Product Manager, icarozza@spectral-systems.com; Carlos Guajardo, VP of Marketing & Sales, cguajardo@spectral-systems.com

# Spectra-Mat, Inc.

#2734

100 Westgate Dr. Watsonville, CA, 95076-2469 USA +1 831 722 4116; fax +1 831 722 4172

smi\_sales@saes-group.com; www.spectramat.com

Contact: Sandra Petznick, Sales Manager

# Spectra-Physics/A Newport Company

3635 Peterson Way, Santa Clara, CA, 95054-2809 USA +1 800 775 5273; fax +1 408 980 5537

sales@spectra-physics.com; www.spectra-physics.com

### Featured Product: Quasar, Explorer, Talon, InSight DS+, Solstic Ace, Mai Tai, Rainbow, Element, VGEN-ISP, Qunanta-Ray

As the first laser company, Spectra-Physics is singularly focused on helping customers use precision laser technologies to advance science and propel industries forward. The company does so by offering groundbreaking technologies, deep applications expertise, disruptive cost-performance, and a commitment to worldclass customer experience. Our product portfolio spans CW to nanoseconds to femtosecond, UV to mid-infrared, and fiber to DPSS lasers. Contact: Spectra-Physics Sales, sales@spectra-physics.com

# Spectrogon US, Inc.

SPIE Corporate

115 Route 46 W Ste A2, Mountain Lakes, NJ, 07046 USA +1 973 331 1191: fax +1 973 331 1373

sales.us@spectrogon.com; www.spectrogon.com

### Featured Product: Optical filters, infrared filters, visible filters, holographic diffraction gratings

Spectrogon specializes in the design & manufacturing of optical filters, thin=film coatings and components for analytical, medical, and scientific applications. Spectrogon is the world leader in the design and manufacture of holographic diffraction gratings for laser compression/stretcher applications, tuning, and spectroscopic instruments. Spectrogon offers a huge inventory of stock filters (www.spectrogon.com) that can ship within 2 weeks. Contact: Steve Finn, Sales Managert, sales.us@spectrogon.com; Kelly Neeb, Sales Admin., sales.us@spectrogon.com

### Spectroscopy

#5559

485F US Hwy 1S Ste 210, UBM Life Sciences, Iselin, NJ, 08830-3009 USA

+1 732 596 0276; fax +1 732 647 1235

spectroscopyedit@advanstar.com; www.spectroscopyonline.com

For more than 30 years, Spectroscopy has been providing peerreviewed articles, trusted advice from columnists, and other information to facilitate the development and use of spectroscopy as a practical analytical technology across a variety of fields. Contact: Charu Jhalani, Marketing Manager, Charu.jhalani@advanstar.com

# **Spectrum Scientific, Inc.**

#2719

SPIE Corporate

16692 Hale Ave. Irvine. CA. 92606 USA +1 949 260 9900; fax +1 949 260 9902 sales@ssioptics.com; www.ssioptics.com

# **Spectrum Thin Films Corp.**

#4504

SPIE Corporate

135 Marcus Blvd, Hauppauge, NY, 11788 USA +1 631 901 1010; fax +1 631 236 4309 sales@spectrumthinfilms.com; www.spectrumthinfilms.com

Contact: Donna Mulz. Controller

### **SPI Lasers**

#1400

#833

6 Wellington Park, Tollbar Way, Hedge End, Southampton, SO30 2QU United Kingdom

+44 1489 774 515; fax +44 1489 779 698 sales@spilasers.com; www.spilasers.com

### Featured Product: SPI Lasers

A leading manufacturer of CW and pulsed fiber lasers for marking, cutting, welding, drilling, micro-machining and additive operations carried out faster and more accurately with an SPI Laser for better reliability, less waste and improved productivity. Our product portfolio covers countless application processes across a range of industries including automotive, electronics, and medical. Contact: Ken Dzurko, US General Manager, ken.dzurko@spilasers.com; Dean Davies, Marketing Executive, dean.davies@spilasers.com

# Spica Technologies, Inc.

#2031

SPIE Corporate

18 Clinton Dr #3, Hollis, NH, 03049 USA +1 603 882 8233

sales@spicatech.com; www.spicatech.com

Spica Technologies provides a broad range of optical test and measurement services for manufacturers and end users of optical components. Founded in 1989, Spica has evolved as the premier source for laser damage testing, optical density measurements, environmental exposure, telecomm testing, and general optical component metrology. Relying on numerous laser sources, a host of specialized optical instruments, and years of experience, Spica can support a broad range of optical test and measurement. Contact: Michael Thomas, President, sales@spicatech.com

# **SPIE Career Center**

#1100

1000 20th St, Bellingham, WA, 98225-6705 USA +1 360 685 5551: fax +1 360 647 1445 sales@spiecareercenter.org; www.spiecareercenter.org

### Featured Product: Online Job Board; Recruitment Advertising; Job Fairs

The SPIE Career Center is the leading recruitment resource for companies and professionals in the optics and photonics community. Whether you're looking for a new job or searching for top candidates, our resources will help you find the perfect match for your needs. Job seekers can post their resumes, search our online job board, and access additional resources for career advancement. Employers can advertise jobs online, access the SPIE searchable resume database, and exhibit in SPIE Job Fairs. Contact: Lacey Barnett, Sales, Career Center Coordinator, laceyb@spie.org

### SPIE Exhibition/Sponsorship Sales

#1100

1000 20th St, Bellingham, WA, 98225-6705 USA +1 360 676 3290; fax +1 360 647 1445 spiesales@spie.org; www.spie.org

SPIE Exhibition Consultation and Sales - Exhibit Space, Sponsorships, Print Ads, Online Ads for Photonics West, DSS, OptiFab, Advanced Lithography, Optics & Photonics and more. Contact: Al Ragan, alr@spie.org; Teresa Roles-Meier, teresar@spie. org; Melissa Farlow, melissaf@spie.org

# Montana Photonics



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SRICO Inc.

#4658

SPIE Corporate Member

2724 Sawbury Blvd, Columbus, OH, 43235-4579 USA +1 614 799 0664; fax +1 614 799 2116 sri@srico.com; www.srico.com

# Featured Product: PPLN waveguide devices for quantum frequency conversion (QFC)

SRICO makes photonic devices for high frequency signal transmission, sensing & measurement. Products are LiNbO3 modulators, PPLN devices, e-field & voltage sensor systems, fiber optic links, and THz detection devices. Core technologies include domain-engineered photonic devices & ferroelectric thin-film (TFLN) and TFLT, GaAs & MCT material for high efficiency devices. Also offered: custom devices, waveguide fabrication, crystal polishing, dicing, and fiber pigtail services. Contact: Sri Sriram, President, sri@srico.com

# **Stable Laser Systems**

#3078

2465 Central Ave, Suite 120, Boulder, CO, 80301 USA +1 303 542 0427; fax +1 303 542 0428 mark@stablelasers.com: stablelasers.com

# Featured Product: Rack mounted cavity-stabilized laser system: Hz-level linewidth, low-drift, compact, customizable

SLS provides components, systems, and electronics for stabilization and dissemination of precision laser frequency. Hz-level linewidths and low frequency drift are ideal for research laboratories, industrial settings, and field applications. Complete systems are fully characterized and warrantied. Designs available to match customer spec. Custom work is our forte, including rack-mounted systems and fiber-coupled cavities. Accelerate your research with our expert solutions and service. Contact: Mark Notcutt, mark@stablelasers.com

# Standa #1533

PO Box 377, Vilnius, Vilniaus, 03012 Lithuania +370 5 265 1474; fax +370 5 265 1483 sales@standa.LT; www.standa.LT

# Featured Product: STA-01-MOPA-4 - >5W master oscillator power amplifier laser system. Custom-MOPA solution available.

Standa is a manufacturer of motion control systems including high vacuum compatible (10-6 torr) motorized positioners, together with high quality precision mechanics and opto-mechanics which is widely used to enable leading-edge research and products. Picosecond micro lasers produced by Standa deliver peak powers of 1 MW at repetition rates up to 120 kHz. Low timing jitter and SLM are key features making Standa lasers an attractive tool to use in spectroscopy or seeding high-energy MOPA systems. Contact: Lucian Hand, President, Altos Photonics, sales@altosphotonics.com; Laurie Dewar, Customer Support, Altos Photonics, laurie@altosphotonics.com

# **SPIE INDUSTRY EVENTS**

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# **Stanford Photonics, Inc.**

#503

1032 Elwell Ct Ste 104, Palo Alto, CA, 94303 USA +1 650 969 5991; fax +1 650 969 5993 info@stanfordphotonics.com; www.stanfordphotonics.com

# Featured Product: XR/MEGA-10Z™ "Zero" dark count image intensified CCD camera - megapixel resolution & high speed.

Developer of digital intensified CCD, intensified CMOS and specialized CCD cameras & modules with megapixel resolution & high speeds up to 8000 fps. Wide range of integrated systems for ultralow-light imaging for life sciences & defense/surveillance applications. Piper Control™ software for real time acquisition with processing tools, ROI measurement, tracking & strip chart. ONYX™ Dark Box including support for internal macro and micro sequential X-Y-Z imaging. COTs & custom OEM products. Contact: David Callard, President, dcallard@stanfordphotonics.com; Jeff Stepkowski, Director of Advanced Applications, jstep@stanfordphotonics.com

# Stanford Research Systems, Inc.

#1938

1290-D Reamwood Ave, Sunnyvale, CA, 94089-2278 USA +1 408 744 9040; fax +1 408 744 9049

info@thinksrs.com; www.thinksrs.com

Stanford Research Systems manufactures a full line of scientific and engineering instruments, including lock-in amplifiers, optical choppers, digital delay/pulse generators, photon counters, preamplifiers, high voltage power supplies, boxcar, Rubidium frequency standards, distribution amplifiers, laser diode controllers, optical shutter systems, programmable temperature controllers, small instrument modules, function generators, RF signal generators, residual gas analyzer, and more. Contact: Janie Du, Sr. Sales/Marketing Engineer, info@thinkSRS.com; Dave Ames, Sales Manager, info@thinkSRS.com

### Star Tech Instruments Inc

#3038

PO Box 1822, New Fairfield, CT, 06812 USA

+1 203 312 0767

info@startechinst.com

Star Tech Instruments manufactures energy probes and beam profilers for the DUV spectral region for the microlithography and medical industry. Contact: Bill Fricke, tatzen@att.net; Mike Ganopoulos. Mike@startechinstruments.com

# Starlight Xpress Ltd.

#5135

3 Brooklands Farm Business Park, Binfield Berkshire, RG42 5QX United Kingdom

+44 118 402 6898

info@starlight-xpress.co.uk; www.sxccd.com

# Featured Product: USB2.0 cooled CCD cameras. New USB3.0 high-speed camera, spectrograph and accessories.

Starlight Xpress is a global leader in the design and manufacturing of innovative, high-performance digital cameras for industrial, scientific, and life science applications. We offer a unique range of cooled CCD cameras known for their outstanding quality and unbeatable price-performance. Founded in 1991, the company's approach to quality, pricing and customer service has attracted thousands of customers worldwide including JPL, NASA, & Harvard to name but a few. Please visit us on Stand 5135. Contact: Michael Hattey, Managing Director, michael.hattey@starlight-xpress.co.uk

# **Starrett Tru-Stone Technologies, Inc.**

1101 Prosper Dr, Waite Park, MN, 56387 USA +1 320 251 7171; fax +1 320 259 5073

sales@tru-stone.com; www.tru-stone.com

Contact: Joseph Erkens, Business Development Manager

# Steinmeyer, Inc.

#303

#5532

56 Middlesex Tpke Ste 200, Burlington, MA, 01803 USA +1 781 273 6220: fax +1 781 273 6602

gjaffe@steinmeyer.com; www.steinmeyer.com

Steinmeyer has been manufacturing precision ground ball screws since 1965 in sizes from an incredibly tiny 3mm up to 160mm in diameter. Our screws are available preloaded in either single or double nut versions, in either standard or custom configurations. Steinmeyer also designs and engineers precision linear and rotary stages boasting some of the lowest runout accuracies available. Custom designs are also available. Contact: John Skaltsas, Marketing Manager, jskaltsas@steinmeyer.com; George Jaffe, Executive Vice President, gjaffe@steinmeyer.com

# Stellar Industries Corp.

#5039

50 Howe Ave, Millbury, MA, 01527-3264 USA +1 508 865 1668; fax +1 508 865 5016 jasong@stellarind.com; www.stellarind.com

# Featured Product: Power substrates for high thermal and high current applications. Direct bonded leads over Cu vias

Stellar Industries is an approved and preferred supplier to the telecom, bio-medical, microwave, and defense industries for custom metallized ceramic components and services. We offer ultra-thin DBC with vapor deposited AuSn and the ultimate solution in power substrates with our direct bonded copper leads over pure Cu vias in aluminum oxide and beryllium oxide. Handle the current. Get the heat out. Get the weight out. Contact: Jason Greenspan, Sales Manager, jasong@stellarind.com

# StellarNet, Inc.

#2041

SPIE Corporate Member

14390 Carlson Cir, Tampa, FL, 33626-3003 USA +1 813 855 8687; fax +1 813 855 0394 contactus@stellarnet.us; www.StellarNet.us

# Featured Product: Portable Raman, NIR, and LIBS analyzers, cooled mini spectrometers, micro NIR, and handheld radiometers

StellarNet, Inc. provides low cost miniature spectrometer systems and software for product analysis, research, education, and OEM. StellarNet instrumentation is rugged for any environment: lab, process, or field. Spectrometer accessories include light sources, sampling fixtures, optical fibers, and probes. Applications include absorbance and transmission (190-2300nm), fluorimetry, optical metrology, thin film, reflectance and colorimetry, LED/Laser/Solar spectral analysis, LIBS, OES, and Raman. Contact: Jason Pierce, Director of Business Development, Jpierce@Stellarnet.us; Kimberly Quinones, Sales Team Leader, Kimberly@StellarNet.us

# Stemmerich, Inc.

#414

SPIE Corporate

4728 Gravois Ave, Saint Louis, MO, 63116 USA +1 314 832 7726; fax +1 314 832 7799 sales@stemmerich.com: www.stemmerich.com

# Featured Product: Corning\* Willow\*, Corning\* Gorilla\*, chemically strengthened, ultra-thin, and custom designed glass

Stemmerich, Inc. is a Corning authorized fabricator of Corning Gorilla and Corning Willow glass. Stemmerich, Inc. provides specialty glass components for the display and electronic industries and specializes in complex configurations, precision edge-work and finishing, ground and polished surfaces, as well as chemically tempering. Stemmerich, Inc. uses clean-room inspection and packaging and has capacity for R & D, pilot, as well as production run quantities with quick on-time deliveries. Contact: Colleen Seago, ColleenWeber@Stemmerich.com; Tim Seago, TSeago@Stemmerich.com

# Stettler Sapphire AG

#4036

Buerenstrass 24, Lyss, 3250 Switzerland +41 32 387 40 40; fax +41 32 387 40 50 info@stettlersapphire.ch; www.stettlersapphire.ch

# Featured Product: Precision sapphire components at "Swiss level of perfection" according to customers' specification.

Sapphire is second hardest after diamond, and thus it is very demanding during processing. Stettler offers contract manufacturing of sapphire components, like windows, blanks, wafers, lenses, and prisms, and has mastered the tightest tolerances and complex geometries (CNC available). Additional services can be requested, like laser-cutting, metalization, and AR-coating. On a worldwide level, Stettler serves the optics, photography, laser, illumination, metrology, medical, and industrial markets. Contact: Dino Fumasoli, Key Account Manager, d.fumasoli@stettlersapphire.ch

### STIL #1817

 $595\,\mathrm{rue}$  Pierre Berthier, Domaine de Saint Hilaire, Aix en Provence Cedex 3, 13855 France

+33 4 42 38 66 51

contact@stilsa.com; www.stilsa.com

# Featured Product: Distance and thickness chromatic confocal point sensor & Chromatic Confocal Microscope

For over 20 years, STIL has offered its expertise in high performance non-contact optical metrology systems with down to subnanometric resolutions. STIL offers a wide range of point and line sensors as well as complete turn-key systems. Typical applications include: roughness measurement, thickness measurement, profilometry and microtopography, autofocus, level control, vibrometry and online inspection for different industries (glass, packaging, electronics, semiconductors, automotive etc). Contact: Matthieu Desjacques, Sales Engineer, m.desjacques@stilsa.com; Nick Lechocinski, Sales Engineer, nick@axiomoptics.com

### STRATEC Biomedical USA

#4629

3615 Old Conejo Rd., Newbury Park, CA, 91320 USA 805-728-1113

info.newbury@stratec.com; www.stratec.com

STRATEC Biomedical USA's core capability is in the design and development of automated optical modules and instruments. The modules designed by STRATEC USA are integrated into many of the STRATEC analyzer systems built by the STRATEC Group. Standalone desk top instruments for life science, IVD and the medical metrology sectors are also developed at this location. The team at STRATEC USA is skilled in optical design, image processing, mechanical engineering, microfluidics and automation. Contact: William McGuigan, VP Engineering, w.mcguigan@stratec.com; Shane Dultz, Director of Technology, s.dultz@stratec.com

Stratium Ltd.

#5135

15th Floor, Brunel House, 2 Fitzalan Road, Cardiff, CF24 0EB United Kingdom +44 2920 329111

hello@stratium.co.uk; www.stratium.co.uk

# Featured Product: Bruar™ 100mW (Peak) Pulsed Quantum Cascade Laser Chip On Sub-Mount

Stratium® a quantum cascade laser manufacturing company and spinout company from the University of Sheffield enters the quantum cascade laser (QCL) marketplace with the launch of its first product Bruar™ a 3µm 100mW Pulsed QCL chip on sub-mount for gassensing applications Contact: Phillip Cornish, Commercial Director, phillip.cornish@stratium.co.uk; Kenneth Kennedy, Technical Director, kenneth.kennedy@stratium.co.uk

# Stream Technologies Inc.

#6053

SPIE Corporate Member

206-9650 20 Ave NW, Edmonton, AB, T6N 1G1 Canada +1 780 665 1599

info@streamtechinc.com; www.streamtechinc.com

### **Featured Product: ColorFlow lens**

Stream has developed the ColorFlow lens, a new type of hyperspectral imaging product that converts almost any camera to hyperspectral. The ColorFlow lens is unique, splitting a scene into tiled sub-images, each in a different spectral channel. The resultant datacube has enough information to visualize chemicals of interest or classify different targets. The attached camera captures all spatial and spectral data in real time. The ColorFlow lens can be custom configured for different spectra. Contact: John Murphy, CEO, jmurphy@streamtechinc.com; Craig Milne, President, cmilne@streamtechinc.com

# **Sumitomo Electric Industries, Ltd.**

#5042

1-3-13, Moto-akasaka, New Business Marketing & Promotion Div., Minato-ku Tokyo, Tokyo, 107-8468 Japan +81 3 6406 2648; fax +81 3 6406 4010 ir-opt@info.sei.co.jp; global-sei.com

# Sunex Inc.

#5628

3160 Lionshead Ave Ste B, Carlsbad, CA, 92010 USA +1 760 597 2966

sales@sunex.com; www.sunex.com

### **Featured Product: Digital imaging lenses**

Sunex is a world leader in digital imaging lens technology and offers complementary products and services. Sunex specializes in compact, board-mount lenses, especially for wide-angle, high resolution and demanding technical applications. Sunex has core expertise in low-distortion, HDR and environmentally-stable lens design and production. From conceptual design to mass-production, Sunex has you covered. Contact: Sales@sunex.com

# **Sunny Opotech North America, Inc.**

#4461

SPIE Corporate

1798 Technology Dr Ste 202, San Jose, CA, 95110-1309 USA +1 408 329 9001

info@sunnyopotech.com; www.sunnyopotech.com/

# Featured Product: Lens and camera imaging solution for handsets, machine vision, AR/VR, surveillance, automotive...

Sunny Opotech North America is a subsidiary of Sunny Optical Technology. The parent company operates in three segments: optical components, optoelectronic products, and optical instruments. Its lens products include glass spherical and aspherical lenses, plane products, handset lens sets, vehicle lens sets, and other various lens sets. Optoelectronic products include handset camera modules, smart television video modules, three-dimensional optoelectronic products, security cameras, etc. Contact: Jack Xu, Chief Marketing Officer, jackxu@sunnyopotech.com; Liran Wu, Customer Manager, liranw@sunnyopotech.com

# **Sunny Technology**

#4473

SPIE Corporate Member

No 18 Xiaotangshan Industrial Park, ChangPing District Beijing, 102211 China

+ 86 10 8293 7456; fax + 86 10 8293 0969 info@sunny-technology.com; www.sunny-technology.com

# Superlum

#523

Fota Point Enterprise Park, B3, Carrigtwohill, Co. Cork, Ireland +353 21 4533666; fax +353 21 4533026 sales@superlum.ie; www.superlumdiodes.com

# Featured Product: Fiber-coupled, polarization-maintain, broadband light sources in 770 - 1100 nm spectral range

SUPERLUM is a developer and manufacturer of superluminescent diodes and SOA. For more than 20 years, we have delivered the highest quality products for use in for OCT, fiber-optic gyros, fiber-optic sensors, optical metrology and others. Our product line includes: SLD modules at 660-1630 nm, broadband light sources with output power of up to 25 mW in bench-top and OEM versions, broadband SOA and gain modules at 780 - 1060 nm, and swept wavelength tunable lasers at 785, 840, 930 and 1060 nm. Contact: Natalie Tuchapsky, Sales Executive, sales@superlum.ie; Dmitry Mamedov, QA&Tech Support Manager, mamedov@superlumdiodes.com

# SUSS MicroOptics SA

#2711

Rouges-Terres 61, Hauterive NE, 2068 Switzerland +41 32 566 4444; fax +41 32 566 4499 info@suss.ch: www.suss-microoptics.com

# Featured Product: ROEs and DOEs for fibre coupling, illumination, collimation and optical microscopy

SUSS MicroOptics manufactures high-quality refractive and diffractive micro-optics based on extensive experience in optical design, micro-fabrication, and metrology. We use cutting edge manufacturing techniques for microlens array fabrication based on 200mm wafer technology in fused silica and silicon. Contact: Maria Klappert, Sales Office Manager, maria.klappert@suss.com; Claire Kennedy, Senior Sales Engineer, claire.kennedy@suss.com

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Featured Exhibitor

### **Sutter Instrument**

#807

SPIE Corporate Member

One Digital Dr, Novato, CA, 94949-5703 USA +1 415 883 0128; fax +1 415 883 0572 info@sutter.com: www.sutter.com

### Featured Product: The VF-1 Edge: tunable high-pass and lowpass filters with selectable center wavelength & bandwidth

Manufacturer of precision electromechanical devices for scientific research and industrial OEM for over 40 years. Introducing the Lambda VF-1 Edge that puts Semrock's VersaChrome Edge tunable high-pass and low-pass filters in series to define the bandpass and allow user selection of the center wavelength and band-width on command. Other imaging products include the Lambda HPX-L5 and TLED+ high-output LED light sources, the SOM simple microscope, optical filter-wheels, and light sources. Contact: Alexandra Cooper, Director, Sales & Marketing, alex@sutter.com; Chris Ballard, Product Manager, chris@sutter.com

# **Suzhou Bofei Optics Co., Ltd.**

#4539

388 Dongwu S Rd Wuzhong District, Rm 2001 Wuzhong Mall, Suzhou Jiangsu, Jiangsu, 215000 China +86 512 68214064; fax +86 512 65288241 sales@jt-bf.com; www.jt-bf.com/?lang=3

# Featured Product: Lens, prism, window, mirror, beam splitter plate, and beam splitter cube.

Located in the southeastern city of Suzhou, China, Bofei Optics Co., Ltd. is a professional manufacturer of precision optical components for applications, including geographic measuring, bio-medicine, lasers, measurement, and semiconductors. For more than 30 years, Bofei has been composed of experienced technicians and skilled workers using advanced equipment and quality assurance systems. We provide reliable and consistent quality, on time delivery, and competitively priced products. Contact: Caron Zhang, Sales Manager, sales@jt-bf.com

# **Swamp Optics, LLC**

#3056

SPIE Corporate Member

6300 Powers Ferry Rd Ste 600-345, Atlanta, GA, 30339 USA +1 404 547 9267; fax +1 866 855 4518

info@swampoptics.com; www.swampoptics.com

Swamp Optics offers inexpensive FROG devices measuring ultrashort laser pulses and custom devices from a few femtoseconds to a few nanoseconds, and they also detect common spatiotemporal distortions. Awards include R&D100, Circle of Excellence, and SPIE Prism. Contact: Linda Trebino, Co-Owner & Member, Linda.Trebino@SwampOptics.com

### Swarovski Optik KG

#5065

Daniel Swarovski Str 70, SWAROTEC, Absam, 6067 Austria +43 5223 511 6454; fax +43 5223 511 6550

customerservice@swarotec.com; www.swarotec.com

# Featured Product: High resolution imaging systems, laser measuring modules, display projection modules, optoelectronic

SWAROTEC, a division of SWAROVSKI OPTIK, specializes in the development and manufacturing of custom engineered system solutions. With over 100 engineers working on R&D projects and large in-house manufacturing facilities we are able to design, build and test optical systems that are particularly suitable for harsh operating conditions or light-weight applications. Our specialties include magnesium housings with stray-light optimized coatings or prisms with NIR dielectric thin film coatings. Contact: Julia Petzer, SWAROTEC Sales, jpetzer@swarotec.com; Ulrich Hausmann, SWAROTEC, uhausmann@swarotec.com

# Swift Glass, Inc.

#631

131 W 22nd St, Elmira Heights, NY, 14903 USA +1 607 733 7166; fax +1 607 732 5829 quality@swiftglass.com; www.swiftglass.com

# Featured Product: Chemical strengthening of up to 30" $\times$ 40" in size.

Premier flat glass fabricator specializing in glass blanks and finished plano/plano glass components. Materials include Borofloat, Soda-Lime, quartz and fused silica, B-270, BK-7, Schott and Kopp color filters, Heraeus TSC-3, and Eagle XG. Capabilities include double sided lapping and polishing of wafers, CNC milling, heat tempering, edge grinding and polishing, and chemical strengthening up to 30" x 40". Contact: Charles Burke, Vice President, cburke@swiftglass.com

### Swiss Jewel Co.

#1143

325 Chestnut St Ste 509, Philadelphia, PA, 19106 USA +1 215 925 2867; fax +1 215 922 3055

sales@swissjewel.com; www.swissjewel.com

### Featured Product: AR coated ball lenses, full surface coating

A supplier of sapphire, glass and fused silica components since 1920, we offer: sapphire windows from dia. 0.95mm up to 75mm, ball lenses and hemisphere lenses from 0.20mm for fiber coupling, spacing, and drilled for CMM application, rods and tubes, microhole orifice jewels for fiber alignment, and jewel bearings for mounts and instrumentation. We have more than 400 stock items available for immediate delivery and welcome specialty requests. Contact: Adam Steel, President

# **SwissOptic AG**

#1035

Heinrich-Wild-Strasse, Heerbrugg, 9435 Switzerland +41 71 727 3074; fax +41 71 727 4686 swissoptic@swissoptic.com; www.swissoptic.com

# Featured Product: OEM optical solutions - from concept to volume production

SwissOptic AG, a BERLINER GLAS GROUP company, is one of the world's leading providers of optical key components, assemblies and systems as well as high-quality refined technical. SwissOptic develops, produces and integrates optics, mechanics and electronics into innovative system solutions for its customers. As OEM partners from concept to volume production, SwissOptic serves innovative customers in various market segments: semiconductor industry, medical technology, metrology and defense. Contact: Kevin Liddane, Director of Sales - North America, kliddane@berlinerglasus.com

### Digital Signage, Entry Graphic Sponsor

### **Sydor Optics, Inc.**

#612

SPIE Corporate Member

31 Jetview Dr, Rochester, NY, 14624 USA +1 585-271-7300; fax +1 585-271-7309 sales@sydor.com; www.sydor.com

# Featured Product: Precision flat optics: wafers, windows, filters, mirrors, optical flats, wedges beamsplitters

Sydor Optics is a custom manufacturer of precision flat-surfaced, parallel and wedged optics specializing in double-sided polishing, continuous pad and pitch polishing, CNC machining, and laser machining. Custom optical components manufactured with a variety of glass, crystal, and ceramic substrates include wafers, windows, filters, mirrors, optical flats, wedge prisms, light pipes, plate beamsplitters, and coating witness samples. Contact: Michael Naselaris, General Manager, sales@sydor.com; Zachary Hussion, Sales & Marketing Manager, zachary@sydor.com

### Synergy Optosystems Co., Ltd.

#483

4598-9 Murakushi-cho Nishi-ku, Hamamatsu city, 431-1207 Japan +81 53 4880200; fax +81 53 4880202

info@synos.jp; www.synos.jp/

# Featured Product: We will exhibit and demonstrate Optical Measurement and Inspection System.

We are contributing to progress in science, technology, and the future of humanity with the creation of new optics and optical system. SYNOS is developing various optical measurement and inspection system solutions for various optical measurement applications, allowing you the best combination of our unique optics, optical sensor, mechanical system and software technology. Contact: Manabu Yasukawa, President & CEO, yasukawa@synos.jp; Katsunori Tarui, Sales Director, tarui@synos.jp

# Synopsys, Inc.

#1711

SPIE Corporate Member

690 E Middlefield Rd, Mountain View, CA, 95037 USA +1 626 795 9101; fax +1 626 795 9102 optics@synopsys.com; optics.synopsys.com

# Featured Product: CODE V optical engineering and design software.

Synopsys' Optical Solutions Group (OSG) is one of the world's leading developers of optical design and analysis tools, with CODE V<sup>®</sup> imaging design software, LightTools® illumination design software, LucidShape® products for automotive lighting, and RSoft™ products for photonic component and optical communications design. OSG is also an independent supplier of optical systems design services, with more than 4,800 completed projects in imaging, illumination, and optical systems engineering. Contact: Stuart David, Senior Manager, World Wide Sales, ora\_sales@synopsys.com

Synrad #1913

4600 Campus PI, Mukilteo, WA, 98275-5305 USA +1 425 349 3500; fax +1 425 349 3667 sales@synrad.com; www.synrad.com

### **Syntec Optics**

#623

SPIE Corporate Member

7100 Junction Rd, Pavilion, NY, 14525-9749 USA +1 585 768 2513; fax +1 585 768 0699 info@syntecoptics.com; www.syntecoptics.com

# Featured Product: Diamond turned & injection molded polymer optics, precision machined metal components & assemblies

Syntec Optics is North America's largest private manufacturer of custom plastic optics serving the medical, defense and biometric industries by producing "precision plastic optics for tomorrow's technologies" from our location near Rochester, NY. We specialize in design for manufacturability, precision plastic optics, diamond turning, electro-optical assembly, opto-mechanical assembly, and metrology. Contact: Sara Hart, Business Development Manager, shart@syntecoptics.com; Steven Polvinen, VP Sales & General Manager, spolvinen@wordingham.com

# **TAG Optics, Inc.**

#5363

SPIE Corporate Member

200 N Harrison St., Princeton, NJ, 08540 USA +1 609 356 2142

info@tagoptics.com; www.tag-optics.com

# Featured Product: The TAG Lens: award winning ultra highspeed varifocal lens with high depth-of-field capabilities

TAG Optics develops and commercializes ultra-high speed optical lenses based on its patented mechanism of action that uses sound to shape and focus light with sub-microsecond temporal resolution. Our award winning TAG lens has the unique ability to focus, defocus, beam shape, and extend the depths-of-field, all in one low-costs electronically controlled device making it ideal for applications in industrial/biomedical imaging, laser micro-processing, metrology and machine vision. Contact: Christian Theriault, CEO, info@tagoptics.com

# Taihan Fiberoptics Co., Ltd.

#4309

126 Beolmal-ro Dongan-gu, O-Biz Twr 3108ho 126, Anyang, Kyonggi, Republic of Korea +82 314503729; fax +82 314509388 tfo@taihan.com; www.tfo.co.kr

# Featured Product: Specialty fiber, PMF, YDF, EDF, few mode fiber, customized fiber, fiber laser component

Everything you need about fiber optics and optical cables: Taihan Fiberoptics Co,LTD. has the solution. Formerly known as Optomagic Co. Ltd., a past affiliate of Taihan Electric Wire Group (TEC Group) we parted in July 2000, and in March 2012, we changed our name to Taihan Fiberoptics Co. Ltd. (TFO) as we took over the optical cable business of TEWG's communication department. We started a specialty fiber optics business about fiber laser components in March 2014. Contact: June-Yeon Youk, manager, jyyouk@taihan.com; Chung-ho Park, manager, jhpak33@taihan.com

### Banner Sponsor

# Taiwan External Trade Development Council, TAITRA #4361-N

No. 333, Keelung Rd Sec 1, Taipei, 11012 Taiwan +886 2 2725 5200; fax +886 2 2757 6443 taitra@taitra.org.tw; www.taitra.org.tw

# Featured Product: International marketing, international trade shows, online trade meetings, & service trade promotion

Founded in 1970 to help promote foreign trade, the Taiwan External Trade Development Council (TAITRA) is the foremost non-profit trade promotion organization in Taiwan. Jointly sponsored by the government, industry associations, and several commercial organizations, TAITRA assists Taiwan businesses and manufacturers with reinforcing their international competitiveness and in coping with the challenges they face in foreign markets. Contact: Stephanie Hsieh, Project Manager, stephanie@taitra.org.tw

# Taiwan Optics/Optronics Manufacturers' Association (TOOMA) #4361-J

No 6 Jhongke Rd Daya District, Rm 903, Taichung City, Taipei, 42881 Taiwan

+886 4 25658010; fax +886 4 25650850 optical@optical.org.tw; www.optical.org.tw

# **Featured Product: Optics and optronics products**

Taiwan Optics/Optronics Manufacturers' Association's mission is to establish basic information of its membership, act as a bridge between the government and the industry, promote trade opportunities for the membership, and provide information for public and private sectors regarding optics/optronics industry. Contact: Marian Lin, Secretary-general, optictw@gmail.com

# Taiwan Optoelectronic Semiconductor Industry Association

195, Section 4, Ching Hsing Rd, Chutung, Rm 388 Bldg 11, Hsinchu, 31040 Taiwan

+886 3 5917466; fax +886 3 5833986 tosia@itri.org.tw; www.tosia.org.tw

# Featured Product: LED epitaxy, chip process, package, module, backlight, lighting application (smart lighting, etc.)

TOSIA is an association within the LED industry, composed of the relevant entities from the government, academia and industries. Members cover 75% of Taiwan's LED industry revenue. TOSIA aims to assist them in working with international companies. TOSIA also endeavors to build up a constructive relationship between the local industry and corresponding organizations, such as Industrial Technology Research Institute, to help enhance the competitiveness of the Taiwan LED industry as a whole. Contact: Chairol Chiao, secretary, chairol\_chiao@gmail.com

# Tamura Corp. Semiconductor Promotion Department #4947

1-19-43 Higashi-Oizumi Nerima-ku, Semiconductor Promotion Dept, Tokyo Aichi, Tokyo, 178-8511 Japan +81 3 3978 2111; fax +81 3 3923 0230 sales.gao@tamura-ss.co.jp; www.tamura-ss.co.jp/en

# Featured Product: Single crystal YAG:Ce and LuAG:Ce phosphor

Single crystal YAG:Ce and LuAG:Ce phosphor have been codeveloped with KOHA Co., Ltd. and National Institute for Materials Science (NIMS) in Japan. Features include: high internal quantum efficiency at 300 degrees Celsius > 0.9 and low thermal resistance. Applications are: for laser projector, laser head light, and super high brightness point source.

# **Taylor Hobson**

#2323

#4361-K

SPIE Corporate Member

1725 Western Dr, Chicago, IL, 60185 USA +1 630 621 3099; fax +1 630 231 1739 sales@taylor-hobson.com; www.taylor-hobson.com

### **Featured Product: Surface profilers**

Products are grouped into three generic families based on the type of measurement. Surface, form and texture products consist of contact and noncontact instruments for the 2D and 3D measurement of surface finish, form and contour of components. Roundness instruments are used for measuring circular geometries such as roundness, concentricity, runout, cylindricity, coaxiality and other parameters. Alignment instruments are electro-optical instruments for alignment, flatness, angle, squareness. Contact: Mike Kealy, sales, michael.kealy@ametek.com

# TDK-Lambda Americas High Power Div. #410

405 Essex Rd, Neptune, NJ, 07753 USA

+1 732 922 9300; fax +1 732 922 1441

sales@us.tdk-lambda.com; www.us.tdk-lambda.com/hp

Genesys<sup>™</sup> AC/DC power supplies provide high power density, low ripple and complete user-friendly interfaces. New highest density of 2400W in 1U. Outputs to 600V and 1,000A provide excellent performance and flexibility. Genesys<sup>™</sup> high density power supplies are the only complete family with identical features and interfaces from 750W to 15kW.

### **TEC Microsystems GmbH**

#5360

Schwarzschildstr 8, Berlin, 12489 Germany +49 30 6789 3314; fax +49 30 6789 3315

info@tec-microsystems.com; www.tec-microsystems.com

### Featured Product: Miniature thermo-electric coolers

TEC Microsystems provides a wide range of miniature thermoelectric coolers. More than 2000 different Peltier types are available. Fast development and customization cycles. Our focus is on thermoelectric cooling solutions for temperature stabilization of telecom lasers, cooled TOSA, TE cooling for IR and X-Ray detectors, CCD matrices and FPA. The products are RoHS compliant and Telcordia GR-468 qualified. New applications: green energy harvesting with microTEGs and TE heatflux sensors. Contact: Tim Gromov, Managing Director, info@tec-microsystems.com; Alexander Hoferichter, Managing Director, info@tec-microsystems.com

# tec5USA, Inc.

#331

SPIE Corporate Member

80 Skyline Dr, Plainview, NY, 11803-2518 USA +1 516 635 2000; fax +1 516 939 0555 info@tec5usa.com; www.tec5usa.com

### Featured Product: tecSaaS: spectrometer as a sensor

tec5USA offers high quality products for optical spectroscopy from complete systems to the individual components. All products are designed for reproducibility, low maintenance, and fast acquisition. Fiber-optic accessories include light guides and probes for a multitude of measurements. Software support ranges from programming tools to applications (incl. chemometrics). Customizations possible. Contact: Gert Noll, General Manager

# Technica Optical Components, LLC #4042

3657 Peachtree Rd NE, Suite 10A, Atlanta, GA, 30319-1293 USA 1-404-326-3469; fax +1 775 784 7123

info@technicasa.com; www.technicasa.com

# Featured Product: Fiber Bragg grating (FBG) and FBG based filters/sensors and FBG cabling products

Fiber Bragg grating (FBG) and FBG based filters/sensors and FBG cabling products Contact: Tommy Jin, General Manager, tommy@technicasa.com; Alice Yang, Sales manager, alice@technicasa.com

# **Technobis Fibre Technologies BV**

#5128

Pyrietstraat 2, Alkmaar, 1812 SC Netherlands +31 251 248432; fax +31 251 242835 nfo@technobis.com; www.technobis.com

### Technohands Co., Ltd.

#4843

6-29-34-103 Okurayama Kohoku-ku, Yokohama-shi Kanagawaken, 222-0037 Japan +81 45 547 6971; fax +81 45 547 6976 www.technohands.co.jp

### Tech-X Corp.

#2304

5621 Arapahoe Ave, Boulder, CO, 80303-1379 USA +1 303 448 0727; fax +1 303 448 7756 sales@txcorp.com; www.txcorp.com Contact: Becky Cotter, Admin Assistant

# TAIWAN PAVILION

NORTH HALL 4361A - 4361H





Organized by Bureau of Foreign Trade, MOEA



Implemented by
Taiwan External Trade Development Council (TAITRA)

Ad By BOFT

Tecnisco Ltd.

2-2-15 Minami Shinagawa, Shinagawa-ku Tokyo, 140-0004 Japan +81 3 3458 4561; fax +81 3 3458 2780

o-sales@tecnisco.co.jp; www.tecnisco.co.jp/en

# Featured Product: Customized heatsink processing service for laser diode. Sub-mount, c-mount, microchannel cooler

Tecnisco is process service provider of precision components. Since established, we have expanded the technical process field and generated "cross-edge" micro-processing, which means cross over the 5 (kiru, kezuru, migaku, metalize, and assembling) cutting-edge technologies for supporting in the field of opto-telecommunication, industrial lasers. Contact: Haruka Aizawa, Overseas Marketing Department, h-aizawa@tecnisco.co.jp; Naohiro Asada, Overseas Marketing Department, n-asada@tecnisco.co.jp

### Tecnottica Consonni Srl

#2213

Via Indipendenza 9, Calco, LC, 23885 Italy +39 039508446; fax +39 039507392 info@tecnottica.com; www.tecnottica.com

# Featured Product: Lenses, achromats, prisms, optical flats, mirrors, light guides, optical assemblies

Tecnottica Consonni is an optical manufacturing companyon the market since 1957 with headquarters in Calco, the northern area of Milan. We specialize in the manufacturing of optical components in glass and in plastic materials (lenses, achromats, prisms, flats, filters, mirrors, light guides) as well as in manufacturing and assembling complete optical systems for imaging and illumination devices. Tecnottica Consonni is the leading company of the Italian optical market. Contact: Angelo Fasoli, Technical Manager, angelo. fasoli@tecnottica.com; Ester Consonni, General Manager, ester. consonni@tecnottica.com

# **TecOptics, Inc.**

#511

SPIE Corporate

1760 Grand Ave, Merrick, NY, 11566-3300 USA +1 516 379 1203; fax +1 516 546 7031 info@tecoptics.com; www.tecoptics.com

Fabry-Perot etalons: air-spaced and solid. Ultra high damage threshold laser optics. Interferometric optics. Custom-designed optics. Specially engineered opto-mechanical instruments. Contact: Scott Gutheil, Operations Manager, sgutheil@tecoptics.com; Warren Gutheil, President, wgutheil@tecoptics.com

# **Tecport Optics, Inc.**

#2203

SPIE Corporate Member

6457 Hazeltine National Dr Ste 140, Orlando, FL, 32822-5162 USA +1 407 855 1212; fax +1 407 855 1213

sales@tecportoptics.com; www.tecportoptics.com

# Featured Product: Wavelength shift-free plasma assist deposition

Manufacturer of vacuum coating systems for precision optics, ophthalmic, flat panel display, imaging, and telecommunication applications. An industry leader in innovation, quality, reliability, software and service, sophisticated yet user-friendly systems employ leading edge technology such as plasma assisted deposition. Systems are custom built and pre-configured for your process and your volume. Process is pre-configured, and installed systems are production-ready within one week. Contact: Tam Le, President, tamle@tecportoptics.com; Joseph Kim, Vice President, jkim@tecportoptics.com

# **Teem Photonics**

#723

61 Chemin du Vieux Chêne, Meylan Cedex, 38240 France +33 4 76 04 05 06; fax +33 4 76 04 03 02

sales-eo@teemphotonics.com; www.teemphotonics.com

### Featured Product: Passively q-switched 266 nm laser.

Teem Photonics™ is a privately-held company based near Grenoble, France. The company is a spin-off from Schneider Electric. Founded in 1998, Teem Photonics™ is the leader in passively Q-switched micro-lasers as well as photonics integrated circuits based on ion exchange technology. Contact: Philip Crowley, Sales, phil@markettechinc.net

### TekhnoScan - Lab

#433

Inzhenernaya 26, Novosibirsk Novosibirskayal Obl., Adygea Resp., 630090 Russian Federation

+7 383 363 69 14; fax +7 383 363 69 13 service@tekhnoscan.com; www.tekhnoscan.com

### **TelAztec LLC**

#4313

15 A St, Burlington, MA, 01803-3404 USA +1 781 229 9905

www.telaztec.com/contact.html

TelAztec anti-reflection microstructures ("ARMs") are subwavelength surface relief textures etched directly into the bulk optical material providing unsurpassed optical performance. ARMs textures provide extreme bandwidth coverage from UV-IR, reflection losses as low as 0.01%, and with mechanical, laser damage, and chemical durability similar or greater than the bulk material. Contact: James Nole, Manager, Business Development, jpnole@telaztec.com

# **Teledyne DALSA Semiconductor**

#2600

18 boul de l'Aéroport, Bromont, QC, J2L 1S7 Canada +1 450 534 2321; fax +1 450 534 3201 sales@dalsasemi.com; www.dalsa.com

# **Teledyne Judson Technologies**

#2600

SPIE Corporate Member

221 Commerce Dr, Montgomeryville, PA, 18936-9641 USA +1 215 368 6900; fax +1 215 362 6107

information@teledynejudson.com; www.teledynejudson.com

Teledyne Judson Technologies is the recognized leader of infrared photodetectors and accessories for spectroscopy, instrumentation, medical and space applications. Specializing in Ge, InGaAs, X-InGaAs, InAs, PbS, PbSe, InSb, and HgCdTe (PC and PV), our products encompass single and multi-element designs with integrated detector/dewar/cooler (IDCA) assemblies. TJT also provides InGaAs, InSb, and MCT two-dimensional focal plane arrays integrated to dewars and coolers. Contact: Mark Sediva, Sales Engineer, mark.sediva@teledyne.com; Joseph Kimchi, VP, Business Development, joe.kimchi@teledyne.com

# **TEM Messtechnik GmbH**

#4629

Grosser Hillen 38, Hannover, 30559 Germany +49 511 510896 30; fax +49 511 510896 38 info@tem-messtechnik.de; www.tem-messtechnik.de

# Featured Product: 633nm stabilized and tunable diode laser for interferometry, spectroscopy, e.g. (He-Ne substitute)

We stabilize your laser. Our products measure and actively stabilize laser properties such as beam pointing, wavelength, power, rep. rate and others. Whenever you seek help to control your laser, you will benefit from our flexibility. Should none of our standard products meet your needs, our team will create a tailored solution for you. Contact: Dr. Thomas Mueller-Wirts, CEO, Thomas.Mueller-Wirts@TEM-Messtechnik.de; Dr. Thomas Kinder, Thomas.Kinder@TEM-Messtechnik.de

# **Tempo Clean Room Foam**

#4627

SPIE Corporate

1227 N Miller Park Crt, Visalia, CA, 93291 USA +1 800 350 7711; fax +1 559 651 0123

tempogloss3000@yahoo.com; www.tempogloss.com

# Featured Product: New single packs and ten packs

Tempo Clean Room Foam offers static dissipative protective packaging in many stock sizes, low cost customization, and clean room compatible. Contact: Doug Rogers, President, tempogloss3000@yahoo.com

# **Tempotec Optics Co., Ltd.**

#4544

SPIE Corporate Member

Bldg. 32 West, Fuzhou, Fujian, 350002 China +86 591 2837 9336; fax +86 591 2837 9339 sales@tempotec.com; www.tempotec.com

# Featured Product: Optical windows, filters, Mirrors, waveplates, laser mirrors/windows, beam splitters, prisms, lenses

Tempotec optics is a professional manufacturer of high quality precision optical components. Our products include waveplates, laser mirrors, laser windows, optical windows, filters, mirrors, beam splitters, prisms, lens, etc. Tempotec has a complete optics production line that includes; raw material cutting, precision grinding & polishing, ultrasonic cleaning, and optical coating. The product quality is controlled by ISO9001-2000 quality control system certification. Contact: Alice Ding, Sales Manager, alice.ding@tempotec.com; Chloe Lin, Sales Engineer, chloe.lin@tempotec.com

# TeraDiode Inc.

#5367

SPIE Corporate Member

30 Upton Dr, Wilmington, MA, 01887 USA +1 978 988 1040; fax +1 978 952 2507 info@teradiode.com; www.teradiode.com

# Featured Product: High-power direct diode laser systems at 970nm, 1.5µm and a range of mid-IR wavelengths

Teradiode high-power direct diode laser systems use a proprietary wavelength beam combining technology to scale the output power from multiple diodes without deteriorating beam quality. Examples of industrial products are 500-8kW direct diode lasers for high speed cutting and remote welding, based on 970nm diode bars. At alternative wavelengths from UV/Vis through to eye-safe 1.5µm and Mid-IR wavelengths the power levels are 10-100W typically for scientific, medical and research. Contact: Bryce Samson, Dir. Bus. Development, brycesamson@teradiode.com

### TeraXion Inc.

#2706

2716 Einstein St, Quebec, QC, G1P 4S8 Canada +1 418 658 9500; fax +1 418 658 9595 info@teraxion.com; www.teraxion.com

# Featured Product: High accuracy pulse stretcher for high-end ultrafast lasers and dispersion management reflector

TeraXion designs, manufactures and markets best in class photonic products to selected emerging markets including high-speed fiber-optic transmission networks as well as fiber lasers and optical sensing applications. Over the years, TeraXion's abilities to transform complex technologies into manufacture-able FBG based high-technology products have been applied to components for high power and ultrafast fiber lasers.

### **Termotek AG**

#4666

Im Rollfeld 6, Baden-Baden, 76532 Germany + 49 7221 9711 0; fax + 49 7221 9711 111

info@termotek-ag.com; www.termotek-ag.com/en

Termotek is a market innovator and established name in the high technology sector of precise thermal control. Our core competencies include custom cooling solutions for the laser, medical and material processing industries as well as other technically demanding applications. Termotek can provide process cooling and temperature control for a myriad of applications spanning 150 Watts - 500 kW. Contact: Justin Riebock, Technical Sales Engineer, jriebock@technotrans.com; Thomas Carbery, Vice President - Sales, tcarbery@technotrans.com

# **Texas Instruments DLP**

#823

SPIE Corporate

12500 TI Blvd MS 8680, Dallas, TX, 75243-0592 USA www.dlp.com

### Featured Product: Digital Micromirror Device (DMD)

TI DLP® technology offers powerful, flexible, programmable optical chipsets designed to enable fast and accurate light steering solutions for optical sensing applications, including 3D printing, 3D scanning, lithography, and spectroscopy. All of today's DLP technology is based on award-winning, proven DLP Cinema® technology. The Digital Micromirror Device, or DLP chip, is a high speed, efficient MEMS device compatible with light sources in ultraviolet, visible, and infrared wavelengths.

# TFD, INC

#4342

1180 N Tustin Ave, Anaheim, CA, 92807-1732 USA +1 714 630 7127; fax +1 714 630 7119 sales@tfdinc.com; www.tfdinc.com

# Featured Product: TFD mfgs superior Thin Film Coatings for Flat Panel Displays, Touch Panels & Photonics.

Such as OLED, TFT, LCoS, MEMs, OPV & Photopic Sensors. Including ITO, IZO, AZO, IMITO<sup>TM</sup> (Index Matched ITO), LTITO<sup>TM</sup> (Low Temp ITO), Anti Reflection, Black Chrome (Niobium) & Patterning TCO's, Metals & Dielectrics. Metalization: (Cr, Ti, Ni, Pd, Au, Pt, Al, Mo, etc.) for Hot/Cold Mirrors, Filters, EMI Shields, Transparent Heaters, Anti Reflection & Touch Screens. The smoothest ITO in the world w/ surface roughness = 7Å rms at 1450Å & the highest work function = -4.8eV -> -5.0eV. Contact: Saleem Shaikh, Sales & Marketing, sales@tfdinc.com; Chris Stroh, Sales & Marketing, marketing@tfdinc.com

# **TH Mittelhessen**

#4629

Wilhelm-Leuschner-Str. 13, Friedberg, 61169 Germany +49 06031 604 4717; fax + 49 6031 604 185 praesident@thm.de: www.thm.de

# Featured Product: student education; support in R&D definition; support in project funding (national and EU)

The University of Applied Sciences of Hesse (THM) concentrates its expertise in optical technology in the Competence Center for Optical Technologies and Systems (OTS). OTS has considerable capabilities in the field of optical technology and provides application orientated support in definition and carry out of R&D projects for industrial partners. By this, an effective know-how transfer from innovation into industrial application can be given. Contact: Daniel Thölken, physics engineer, info@ots.thm.de

Thales #2812

2 ave Gay-Lussac, Elancourt, 78995 France +33 1 30 96 70 00; fax +33 1 30 96 89 59 thales-laser@fr.thalesgroup.com; www.thales-laser.com

limits of output energy reached at high repetition rate

# Featured Product: GAIA-I: new generation laser pushes back the

Thales Lasers: unique expertise in both flash-lamp & diode pumped lasers for industrial applications. For more than 30 years, Thales has been a world leader in design, development and manufacturing of high energy pump lasers- up to 100J. With several tens of lasers installed worldwide, Thales has demonstrated a unique expertise in delivering easy-to-use, robust and reliable systems at the latest state of the art requirements. Thales Lasers are designed for 24/7 use for industrial applications.

# The China and South Optical Crystal Co. #5239

No 18 Da Ye Miao Xingqi Cun Dantu District, Zhenjiang, Jiangsu, 212142 China

+86 511 88908288; fax +86 511 88908788 sapphires@126.com; www.sapphires.com.cn

# Featured Product: Sapphire products: optical windows, lenses, prisms for IR and UV optical applications.

For 10 years the China and South Optical Crystal Co. has been a manufacturer of precision sapphire optical components for usage in a wide variety of infrared and ultraviolet applications including defense, optical devices, medical, laser and industrial markets. We produce products such as: sapphire optical windows, lenses, prisms, aspheric lenses, and so on. For more information about The China and South Optical Crystal Co. please visit our website: http://www.sapphires.com.cn Contact: Martin Ding, Vice President, sapphires@126.com

# The Optical Society #4362

2010 Massachusetts Ave NW, Washington, DC, 20036-1012 USA +1 202 416 1907; fax +1 202 223 1096 custsery@osa.org; www.osa.org

With 100 years of history, The Optical Society is the leading global professional association in optics and photonics. OSA publishes quality research, enables inspiring interactions at meetings and networking events, and provides dedicated resources to help optics and photonics professionals amplify their careers. Visit OSA booth #4362 to learn more. OSA.org/100 Contact: Beth Harrington

# The Optronics Co., Ltd.

#5044

5-5 Shin Ogawamachi, Shinjuku-ku, Tokyo, 162-0814 Japan +81 3 3269 3550; fax +81 3 5229 7253 intl@optronics.co.jp; www.optronicsjp.com

# Featured Product: OPIE (OPTICS & PHOTONICS International Exhibition)

The OPTICS & PHOTONICS International Exhibition is held annually in Japan with the OPTICS & PHOTONICS International Congress and focuses on optics and laser technologies involving both science and industry. Co-locating the congress and the exhibition bring together innovators from around the world to find future applications for the most advanced optics and lasers. Join us at this premier event. Visit our booth #5044 for more information. Contact: Sakae Shibasaki, s\_shiba@optronics.co.jp

# The Prince & Izant Companies

#4562

12999 Plaza Drive, Cleveland, OH, 44130 USA +1 216 362 7000; fax +1 216 362 7456 request@princeizant.com; princeizant.com

# Featured Product: Brazing alloys, soldering alloys and precious metals supplier

Prince & Izant offers brazing alloys, soldering alloys and precious metals in many different compositions, forms and sizes designed to make electrical, mechanical and thermal connections in various electronic applications. From microelectronic packaging and semiconductor applications to electro medical components, Prince & Izant has the right material solutions (wire/bonding wire, strip, custom preforms, solder spheres, and paste) for customer specific applications. Contact us for a quote. Contact: Nancy Faulhaber, Marketing Communications and Research Manager, nfaulhaber@princeizant.com; Brent Grandey, End Market Leader - Electronics, bgrandey@princeizant.com

# The Roditi International Corporation Ltd.

#404

156-158 Buckingham Palace Rd, London England, SW1W 9TR United Kingdom

+44 20 7819 8080; fax +44 20 7730 4131 sales@roditi.com; www.roditi.com

Roditi International is based in Europe, ships worldwide, and is a specialized distributor for laser, optical, and electronics industries. They supply a wide range of laser crystals: including: Nd:YAG, CTH:YAG, YD:YAG,rRuby, Ti:sapphire, alexandrite, and vanadate. This range also includes optical components for visible & IR, quartz wafers & bars, and lithium niobate & lithium tantalate substrates & boules. They offer a range of NLO crystals, sapphire boules, ingots, wafers, and machined parts. Contact: Aidan Black, Optical & Laser Materials, sales@roditi.com

### Thermacore, Inc.

#4125

780 Eden Rd, Lancaster, PA, 17601-4275 USA +1 717 569 6551; fax +1 717 569 8424 info@thermacore.com; www.thermacore.com

# Featured Product: Heat pipes, vapor chambers, k-Core (APG), liquid microchannel plates & many other thermal solutions

Thermacore, Inc. is a global developer of advanced thermal management technologies that improve the accuracy, speed, repeatability, reliability, and service life of its customer products. Thermacore analyses, designs, and produces thermal solutions and materials across many industries. Founded in 1970, Thermacore continues to expand with design and manufacturing locations in the US, UK, and China. ISO 9001, ISO 14001, AS 9100 Rev. C, RoHS II & REACH certificates are available. Contact: Michael Bucci, Market Development Manager, m.s.bucci@thermacore.com; Sue Shaw, Administrative Assistant, s.j.shaw@thermacore.com

### **Thermo Scientific - CIDTEC**

#2339

SPIE Corporate

101 Commerce Blvd, Part of Thermo Fisher Scientific, Liverpool, NY. 13088-4507 USA

+1 315 451 9410: fax +1 315 451 9421

sales.cidtec@thermo.com; www.thermoscientific.com/cidtec

# Featured Product: 2K x 2K Random access camera with eXtreme Dynamic Range (XDR). Radiation hard digital color cameras.

Thermo Scientific - CIDTEC manufactures high performance UV-NIR sensitive cameras for demanding scientific imaging applications, radiation environments, and unique machine vision inspection applications. Cameras include eXremely wide Dynamic Range (XDR) for the SpectraCAM line of scientific cameras with unparalleled linear dynamic range, as well as KiloRAD PTZ, MegaRAD and ColorRAD cameras for operation in radiation environments. Deep UV and X-Ray coating deposition services are also available. Contact: Tony Chapman, Director/Sales & Marketing, tony.chapman@thermofisher.com; Suraj Bhaskaran, Engineering Director, suraj.bhaskaran@thermofisher.com

# ThermoTek, Inc.

#3050

1200 Lakeside Pkwy Ste 200, Bldg 2, Flower Mound, TX, 75028 USA +1 972 874 4949; fax +1 972 874 4945

dgrey@thermotekusa.com; www.thermotekusa.com

# Featured Product: Our new T257P 240watt chiller is 20% smaller & lighter than our renowned T255P with more performance

Come see our brand new T257P thermoelectric chiller! ThermoTek manufactures the highest in performance and reliability thermoelectric chillers in the smallest packages. With our new T257P, NanoTherm, and RC series Rack-Mount chillers we offer cooling from 150 to 950 watts and are used throughout the semiconductor, laser, industrial and medical industries. Our chillers provide 0.1°C temp stability & are quiet and vibration free. The RC rack chillers are only 3U tall (5.25") & fully customizable. Contact: David Grey, Director of Sales, dgrey@thermotekusa.com; Tony Quisenberry, Founder, tq@thermotekusa.com

### ThetaMetrisis LLC

#6035

620 Price Ave, Redwood City, CA, 94063 USA +1 6504506235

info@thetametrisis.com; www.thetametrisis.com

# Featured Product: FR-Scanner: Automated, Ultra-fast & Accurate mapping of thickness and optical properties of coatings

ThetaMetrisis designs and manufactures a wide range of turn-key tools and holistic solutions for the non-destructive characterization of films and coatings (thickness, refractive index, colour, etc.) in a wide spectrum of diverse applications, such as: semiconductors, MEMS, MOEMS, PV industry, membranes, liquid crystal displays, optical coatings, polymers, hardcoat, and anodization. Contact: Theo Kotseroglou, Sales Manager, theo@thetametrisis.com; loannis Raptis, COO, raptis@thetametrisis.com

### Thorlabs Inc.

#901; 1701

SPIE Corporate Member

56 Sparta Ave, Newton, NJ, 07860-2402 USA +1 973 300 3000; fax +1 973 300 3600 sales@thorlabs.com; www.thorlabs.com

# Featured Product: Tiberius: a tunable, high-power, femtosecond laser for nonlinear imaging applications

As a vertically integrated photonics manufacturer Thorlabs continues to extend its competencies in an effort to play an increasing role serving the photonics industry; as well as the industrial, life science, and defense segments. The company's diverse manufacturing assets include semiconductor fabrication of Fabry-Perot, DFB, and VCSEL lasers, in-house drawing of glass optical fibers, MBE/MOCVD epitaxial wafer growth reactors, metal fabrication, advanced thin film deposition, and optomechanics. Contact: Jamie LaCouture, Trade Show Supervisor, JLaCouture@thorlabs.com

# Timbercon, Inc.

#4341

20245 SW 95th Ave, Tualatin, OR, 97062 USA +1 503 827 8141; fax +1 503 228 6747 info@timbercon.com; www.timbercon.com

# Featured Product: Fiber optic cable assemblies

Timbercon has been a leader in the industrial, datacom, military, medical, and aerospace industries for more than 18 years. Our fiber optic products are fully assembled at the Timbercon manufacturing facility in Tualatin, Oregon, USA. The on-site sourcing, research and development, and production teams enable Timbercon to maintain stringent controls across the build process from sourcing to finished product. Our manufacturing processes and products are RoHS compliant and AS9100C certified. Contact: Kevin Garaventa, Marketing Associate, keving@timbercon.com; Kip Nix, VP Sales and Marketing, kipn@timbercon.com

# TJS, Inc.

#5163

SPIE Corporate

4355 Saint Johns Pkwy, Sanford, FL, 32771 USA +1 407 328 0777; fax +1 407 321 2206 sales@tjslasers.com; www.tjslasers.com

# Featured Product: Fiber Laser Systems, Laser Flashlamps, Components, Service & Repair. Medical & IPL Flashlamps, Optic

TJS, Inc. is a laser manufacturing company supporting the industrial, semiconductor, scientific, medical and IPL/aesthetic laser markets worldwide since 1980. TJS provides comprehensive solutions including laser systems, technical support, components, service and repairs. We stock replacement components for most lasers and offer laser repair services and solutions for flash lamp pumped, diode, fiber and CO<sub>2</sub> laser. Contact: Randy Lusignan, General Manager, sales@tjslasers.com; Mike Dancsecs, Vice President, sales@tislasers.com

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88-90 for complete times, schedules, and locations.

# **TLC International World Headquarters**

SPIE Corporate

9849 N 21st Ave, Phoenix, AZ, 85021-1825 USA +1 602 866 8208; fax +1 602 866 8280 clinden@tlcinternational.com; www.tlcinternational.com

# Featured Product: TLC Phoenix-600 Gen-3 High-Precision Glass Cutting Machine

TLC manufactures high-precision glass-cutting equipment in Phoenix, AZ, USA such as Gen-3 (24"x 24"/600mm x 600mm stage), Gen-5 (46" x 58"/1160mm x 1460mm stage), X-Y, circular, free-form singulation of flat, thin (0.008"-0.2"/0.2mm-5.0mm) single sheet/laminated substrates. We employ a R&D technical glass cutting lab., fast prototype turnaround, process development, small-run contract cutting, 24/7 technical support, ServiTrain program, carbide/diamond wheels, axles, and spare parts. Contact: Like (Coco) Linden, Global Sales & Marketing, clinden@tlcinternational.com; Larry S. Linden, VP Engineering, llinden@tlcinternational.com

TMC #2323

SPIE Corporate Member

15 Centennial Drive, Ametek, Peabody, MA, 01960-7993 USA +1 978 532 6330; fax +1 978 531 8682 sales@techmfg.com; www.techmfg.com

### Featured Product: Vibration Isolation Systems.

TMC manufactures a complete line of Optical Tops and Precision Vibration Isolation Systems. New products include the patented Everstill™ Bench-top Active Vibration Cancellation Platform and CleanBench™ Vibration Isolation Tables with Gimbal Piston™ Isolators. Other products include CleanTop® II Spill-proof Optical Tops, Non-Magnetic Tops, Vacuum compatible Tops, Lightweight Breadboards, and STACIS ® III piezoelectric active vibration cancellation systems. Contact: John Allegrezza, Sr. Applications Engineer, john.allegrezza@ametek.com; Sheryl Aleckna, Marketing Administrator, sheryl.aleckna@ametek.com

TNO #5035

Stieltjesweg 1, Delft, 2628 CK Netherlands +31 88 866 2497 Organisatie-lenT-SecretariaatHPE@tno.nl; www.tno.nl

Tomocube #3086

KAIST TBIC F-721, 193 Munjiro, Yousung-gu, Daejeon, Taejon, 305-701, Republic of Korea +82 428630107; fax +82 428630108 sales@tomocube.com; www.tomocube.com

### Featured Product: 3D holographic microtomography

Tomocube manufactures and sells 3D holographic microtomography for biological cells and tissues imaging. This product reveals real time based nanoscale pictures of the "happenings of individual living cells" without the need for sample preparation. Contact: Kihyun Hong, CEO, khhong@tomocube.com; YK Park, CTO, ykpark@tomocube.com

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### **TOPTICA Photonics Inc.**

#932; 1023

SPIE Corporate Member

#5349

1286 Blossom Dr, Victor, NY, 14564-1402 USA +1 585 657 6663; fax +1 877 277 9897 office@toptica-usa.com; www.toptica.com

TOPTICA is the world leader in diode laser and ultrafast technology for industrial and scientific markets. We offer the widest range of single mode tunable light in the 190 to 2900nm and 0.1-2.7THz spectral region with various accessories to measure, characterize, stabilize and analyze light. With our passion for precision, TOPTICA delivers. Contact: office@toptica-usa.com; sales@toptica-usa.com

# **TOSOH Quartz Co., Ltd.**

#5441

No 92 Da-Soong 7th Rd, Tainan Science Based Industrial Park, Hsin-She Shing Tainan, 74145 Taiwan +886 6 5050860

adam.hsiao@tqgt.com.tw; www.tqgj.co.jp

## Featured Product: Synthetic silica glass materials

Established in 2001, Tosoh Quartz Taiwan serves Asia's expanding semiconductor market. Tosoh Quartz Group carries a wide variety of synthetic silica glass materials for standard optical and high-power laser application. Recent achievements include the development of large size one ton ES grade silica glass ingots. We offer precision products made by combining cutting-edge polishing, mechanical/laser machining, thermal fusion, and lithography technologies. Contact: Adam Hsiao, Sales Manager, adam.hsiao@tqgt.com.tw

### **TOSOH Quartz Corporation**

#5439

3-1435 Tachiyagawa, Yamagata-shi Yamagata, Yamagata, 990-2251 Japan

+81 23 686 2751; fax +81 23 685 3072 masa.takahashi@tqgi.co.jp; www.tqgj.co.jp

### Featured Product: Synthetic silica glass materials

Tosoh Quartz Japan has been fabricating silica glass products for 80 years (since 1936). Tosoh Quartz Group carries a wide variety of synthetic silica glass materials for standard optical and high-power laser applications. Recent achievements include the development of large size one ton ES grade silica glass ingots. We offer precision products made by combining cutting edge polishing, mechanical/laser machining, thermal fusion and lithography technologies. Contact: Tetsuya Morimoto, Marketing Group, t.morimoto@tqgj.co.jp; Masa Takahashi, Marketing Group, masa.takahashi@tqgj.co.jp

# **Tower Optical Corp.**

#2212

SPIE Corporate Member

3600 S Congress Unit J, Boynton Beach, FL, 33426-8488 USA +1 561 740 2525; fax +1 561 740 2518 sales@toweroptical.com; www.toweroptical.com

### Toyo Seikan Group Holdings, Ltd. #4944

12-2 Ogimachi, Kawasaki-ku, Business Innovation Office, Kawasaki shi, Kanagawa, 210-0867 Japan +81 44 329 1582

silicagrin@tskg-hd.com; www.tskg-hd.com/en

# Featured Product: Beam expanded collimator and lateral emitting collimator

Toyo Seikan Group is a leading package related company in Japan. We have developed "SILICAGRIN" micro grin lens for various applications such as optical communications, sensors and biomedicals. We are going to display beam expanded collimator and LEC (lateral emitting collimator) as a feature of our product line. Contact: Overseas Sales, silicagrin@tskg-hd.com

TransMIT GmbH

#4629

Kerkrader Str 3, Giessen, 35394 Germany +49 641 943640; fax +49 641 9436499 info@transmit.de; www.transmit.de

# Featured Product: Certified UV-fibers, Measurement techniques for specialty fibers, fiber-optic UV applications

TransMIT GmbH exploits and commercializes at the interface of economy and science. At present, more than 150 TransMIT Centres market innovative technologies and services in the areas like biotechnology/chemistry/pharmacy, medicine and medical technology. The TransMIT-Center of Fiber-Optics and Industrial Laser Applications is involved in R&D and project activities in the field of specialty fibers and laser applications. Contact: Karl F. Klein, Director, karl.Klein@transmit.de; Christiane Jakob, Product Manager, jakob@transmit.de

### Featured Exhibitor, Floor Plan Logo Sponsor

**TRIOPTICS** 

#1133

SPIE Corporate Member

Hafenstr 35-39, Wedel, 22880 Germany +49 4103 18006 0

sales@trioptics.com; www.trioptics.com

We have the largest spectrum of optical measurement technology and supply test systems for R&D and Production for every manufacturing step in optics: From a system for refractive index measurement, via various lens test systems with an autocollimator as measurement head, up to MTF test systems and camera module testers, we can supply the appropriate optical measurement system for every process step. Contact: Byron Seabolt, byron.seabolt@trioptics-usa.com; Harvey Miller, harvey.miller@trioptics-usa.com

### Stairway Strips Sponsor

# **TRUMPF Inc.**

#1600

SPIE Corporate

111 Hyde Rd, Farmington, CT, 06032-2834 USA +1 860 255 6000; fax +1 860 255 6424 info@us.trumpf.com; www.us.trumpf.com

TRUMPF is a market leader in industrial laser technology. Our product portfolio includes CO<sub>2</sub>, fiber, disk, pico- and femto-second, pulsed lasers and more. TRUMPF lasers are used in a variety of industries and applications such as cutting, welding, drilling, ablating, marking and micro-processing. In booth 1600 TRUMPF will feature its line of TruMicro ultra-fast micro-processing lasers and its latest laser developments.

# Tucsen Photonics Co., Ltd.

#5534

6/F No 1 Bldg Cai mao Clothing Zone, #756 Qi'an, Fuzhou, Fujian, 35008 China

+86 591 881 94580 806; fax +86 591 88194580 814 jessicawu@tucsen.com; www.tucsen.com

# Featured Product: sCMOS camera, cooled CCD camera, HDMI camera

Since 2006, Tucsen has been developing and manufacturing progressively more sophisticated cameras for application in life science imaging. In mid-2015, Tucsen launched a range of sCMOS cameras including a version featuring 90% quantum efficiency, establishing itself as a technology leader in the life science imaging market. Contact: Jessica Wu, sales manager, jessicawu@tucsen.com; Mike Blake, business development, mikeblake@tucsen.com

# TwinStar Optics & Coatings, Inc

6741 Commerce Ave, Port Richey, FL, 34668-6815 USA +1 727 847 2300; fax +1 727 847 2304 sales@twinstaroptics.com; www.twinstaroptics.com

### **Tyntek Corporation**

#4361-K

#2031

16 Industry E.Rd.IV, Science-Based Industrial Park, Hsinchu, 300 Taiwan

+886 3 5781616; fax +886 3 5780545 service@serv.tyntek.com.tw; www.tyntek.com.tw

# **UAB Altechna**

#5262

SPIE Corporate Member

Mokslininku str 6A, Vilnius, Vilniaus, 08412 Lithuania +370 5 2725738; fax +370 5 272 3704 info@altechna.com; www.altechna.com

# Featured Product: Ultrafast polarization and high-energy optics, laser and nonlinear crystals, and laser accessories

Altechna is a supplier of laser related products and solutions, specializing in laser components, custom optics, manufacturing and metrology. Our top products- ultrafast optics (low GDD ultrafast and GTI mirrors, Ti:Sapphire, Yb:KGW, Yb:KYW); polarizing optics (ZO air spaced and Mid-IR wave plates, high contrast thin film polarizers, s-waveplates); high energy optics (polarizing cubes, waveplates, Glan laser polarizers, low loss HR mirrors); and accessories (motorized attenuators, beam expanders). Contact: Laimonas Jacunskas, Senior sales engineer, sales@altechna.com

# **UC Components Inc**

#4656

18700 Adams Ct, Morgan Hill, CA, 95037-2804 USA +1 408 782 1929; fax +1 408 782 7995

sales@uccomponents.com; www.uccomponents.com

UC Components Inc. offers fasteners and seals for extreme environments. Specializing in the manufacture of vented, coated, plated, cleaned, baked, & custom fasteners and individually cleaned and/or vacuum baked O-ring seals, UC Components is the home of the RediVac brand. Offering exceptional performance under vacuum conditions, UC RediVac fasteners and seals can improve your clean-critical or extreme environment process system or tool. Full CAD downloads available at www.uccomponents.com. Contact: Rick Anderson, President, rick@uccomp.com; Chris Malocsay, Outside Sales Manager, chris@uccomp.com

# U-Flex (H.K.) Co., Limited

#42/1

19 Sheung Yuet Rd Units 901-5, 9/F Fook Hong Ind Bldg, Kowloon Bay, Hong Kong, China +852 2148 9952; fax +852 2148 9952 www.kokusan-rasenkan.co.jp

# **UK Pavilion (SCS Exhibitions)**

#5135; 5145

275 London Rd North End, Portsmouth Hants, P02 9HE United Kingdom +44 23 9266 5133; fax +44 23 9262 9149 info@scsexhibitions.co.uk; www.scsexhibitions.co.uk

# **ULO Optics Ltd.**

#5145

Unit 2, Caxton Place, Caxton Way, Stevenage Herts, SG1 2UG United Kingdom

+44 1438 767 500; fax +44 1438 767 555 sales@ulooptics.com; www.ulooptics.com

ULO Optics has been a leading company in the design and manufacture of  $CO_2$  laser optics and mid-IR optics for thermal imaging and sensing since 1982, serving end users with custom requirements to large laser manufacturers and OEMs. ULO manufactures a wide range of laser components including  $CO_2$  lenses, mirrors, cavity optics, f-Theta scanner optics, plus a range of  $CO_2$  beam delivery systems for industrial applications, and fibre laser optics and beam expanders. Contact: Paul MacLennan, Sales Director, paul.maclennan@ulooptics.com; Richard Lawson, Director, richard.lawson@ulooptics.com

# **ULTRA TEC Mfg., Inc.**

#4329

1025 E Chestnut Ave, Santa Ana, CA, 92701-6425 USA +1 714 542 0608; fax +1 714 542 0627 info@ultratecusa.com; www.ultratecusa.com

# Featured Product: NANOPOL bare-fiber polisher for flat and "side-fire" (bevel) applications.

ULTRA TEC Mfg., Inc. manufactures and sells cutting & polishing machines for all optical component and bare-fiber applications. The NANOPOL & ULTRAPOL "module" system are perfect for any bare-fiber polishing application. Polishing consumables (abrasive films, slurries, pads, saw blades, powders, etc.) are immediately available. ULTRA TEC also makes a line of equipment for in-the-field connector polishing. The FTTx portable polisher is the industry leader for outside plant installations. Contact: Robert Rubin, V.P., rob@ultratecusa.com; Steve Collins, Sales Manager, stevec@ultratecusa.com

### **UltraFast Innovations GmbH**

#4629

Am Coulombwall 1, Garching, 85748 Germany +49 89 289 14097; fax +49 89 289 14141 info@ultrafast-innovations.com; www.ultrafast-innovations.com

info@ultrarast-innovations.com; www.ultrarast-innovations.com

# Featured Product: Our 3rd autocorrelator serves as a diagnostic tool for laser pulse contrast measurements.

UltraFast Innovations provides customized premium ultrafast optics and devices. Our optics can be found in the laser sources of most major femtosecond OEM manufacturers. Our optics portfolio features: ultra-broadband mirrors for pulse compression down to sub-4 femtoseconds, highly dispersive and high-reflectance mirrors. We also provide specialized diagnostic and instrumentation for ultrafast applications. Contact: Hans Koop, info@ultrafast-innovations.com

## **Umicore Coating Services**

#1923

Dunsinane Ind. Estate Kinnouli Street, Dundee, DD2 3ED United Kingdom

+44 1382 833022; fax +44 1382 833824 coatingservices@umicore.com; www.coatingservices.umicore.com

### Conference App, Floor Plan Logo Sponsor

# **Umicore Optical Materials USA, Inc.**

#2633

SPIE Corporate Member

2976 S 614 Rd, Quapaw, OK, 74363 USA +1 918 673 1650; fax +1 918 673 2121

opticalmaterials@am.umicore.com; www.optics.umicore.com

### Featured Product: Germanium and GASIR®

Umicore offers infrared materials, optical coatings, components and assemblies for thermal imaging applications using either Ge or GASIR®. GASIR® chalcogenide glass can be molded or finished conventionally with DPT with complex geometry. Umicore has developed coatings, including iDLC hard coating for GASIR®. Umicore's optical-mechanical design competencies enable the manufacture of lens assemblies. Umicore also offers Ge recycling capabilities. Umicore Optical Materials USA Inc. is ITAR compliant. Contact: Priyesh Narsale, Senior Sales Manager, priyesh.narsale@am.umicore.com; Jeff Koch, Sales Manager, jeff.koch@am.umicore.com

### **Umicore Thin Film Products**

#2633

50 Sims Ave, Providence, RI, 02909-1023 USA +1401 456 0800; fax +1 401 421 2419 sales.materials.na@umicore.com; www.thinfilmproducts.umicore.com

### Featured Product: Evaporation materials and sputter targets

Umicore Thin Film Products is the recognized leader in developing, manufacturing and recycling PVD materials used in thin film coatings. We are committed to customer satisfaction by providing high quality products such as sputter targets, evaporation materials and accessories that meet unique customer specifications. Our materials are suitable for coatings in the UV, visible and IR wavelength regions and come in a variety of forms and sizes. ISO 9001 and 14001. Contact: Eileen Armstrong, North American Sales Manager, eileen. armstrong@am.umicore.com; Merry Ann Libonate, Eastern Territory Sales Manager, merryann.libonate@am.umicore.com

### Unice E-O Services Inc.

#5045

No 5 Andong Rd, Chungli City Taoyuan County, 32063 Taiwan +886 3 462 6569; fax +886 3 462 5586 unicehg@unice.com.tw; www.unice.com.tw

# Featured Product: Optical/mechanical component, translation stage, collinear laser scanner, system integrating, etc.

Unice E-O Services Inc. is a technology-based company founded in 1986 by a group of experienced and professional engineers who have been working in mechanical, automation control, light measurement, and system integration for a significant time. We aim to develop top quality and advanced systems to our clients through passionate and skilled people. Creating value to customers is our mission, using Unice's core technology to solve customers' problems. We are always ready to serve you. Contact: Johnny Chang, CEO & President, johnnyc@unice.com.tw; Jimmy Chang, Project Supervisor, jimmy.chang@unice.com.tw

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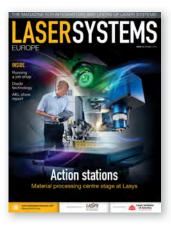
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# **Uniforce Sales & Engineering**

#5472

42501 Albrae St Ste 210, Fremont, CA, 94538-3142 USA +1 510 657 4000; fax +1 510 657 4010

info@uniforcesales.com; www.uniforcesales.com

# Featured Product: KAYA Instruments Komodo CoaXPress frame grabber: receives video streams from up to 8 CoaXPress links

Uniforce Sales and Engineering is your single source for imaging solutions. We are an authorized distributor of imaging components and systems from top manufacturers & specialize in image acquisition, image processing, video recording hardware and software. For over 28 years, Uniforce has provided cost effective, highly reliable imaging systems and solutions to military, semiconductor, medical, biotech, aerospace, manufacturing, scientific, UAV, and broadcasting industries. Uniforce is a SDVOSB. Contact: Ben Castricone, President & CEO, bcast@uniforcesales.com; David Darg, Sales Engineer, david@uniforcesales.com

Uniklasers Ltd. #1923

46A Bavelaw Rd, Unit 5/Bavelaw Business Ctr, Edinburgh, EH14 7AE United Kingdom

+44 131 281 2778; fax +44 74037 22 220 sales@uniklasers.com; www.uniklasers.com

**Union Optic** 

#4028

No 108 Guanggu Ave JiuYang Industrial Park, 3rd Fl, Wuhan, Anhui, 430223 China

+86 27 875 31505; fax +86 27 875 31525 sales@u-optic.com; www.u-optic.com

# Featured Product: Waveplate, polarizer, window, mirror, prism, lens, filter, crystal, optical coating

Union Optic Inc. is a professional manufacturer of optical components. Registered as a high-tech company, ISO9001:2008 certified. Located in Optics Valley of China, Wuhan, Hubei. Contact: Casper Zhang, Sales Director, casper@u-optic.com; Rita Shi, Sales Manager, rita@u-optic.com

# **Unioriental Optics Co., Ltd.**

#318

No 598 Fanhua Ave, Feixi District, Hefei Anhui, Anhui, 230031 China

+ 86 551 63751189; fax + 86 551 63751233 sales@unioriental.com; www.unioriental.com

# Featured Product: Crystals, nonlinear crystal, and high precision optics

Unioriental specializes in manufacturing and developing laser and optical materials, including crystals (YLF, YAG, YVO4, LiSAF, LiCAF, etc.), nonlinear crystals (LBO, KTP, BBO, KDP, etc.), and high precision optics (lens, mirrors, prisms, windows, beam-splitters, etc.). Unioriental was founded in Beijing in 2003 and has 200 staff members at present. We have comprehensive production & inspection system, including Leybold coating machine and ISO9001 certificate authorized by SGS. Contact: Ricky Zhang, Sales Manager, sales@unioriental.com; Susan Yin, Account Manager, sales01@unioriental.com

### Digital Signage Sponsor

# United Lens Co., Inc.

#2037

SPIE Corporate Member

259 Worcester St, Southbridge, MA, 01550-1376 USA +1 508 765 5421; fax +1 508 765 0500 info@unitedlens.com: www.unitedlens.com

ULC is ITAR registered & ISO 9001:2008 certified, Optical component manufacturer in USA serving the defense/aerospace & commercial photonics Industry since1916. Providing complete fabrication of precision flats & curved substrates, various shapes & sizes from 4mm to 600 mm range. In house thin film coatings for challenging spectral performance in UV-mid IR, high-power laser mirrors & windows, debris shields, filters, beam splitters, and lenses. Contact: Tara King, Sales Manager, tking@unitedlens.com; William Hill, Sales Representative, bhill@unitedlens.com

### **Univ. of Rochester**

#3016

SPIE Corporate Member

University of Rochester, The Institute of Optics, 480 Intercampus Drive, Rochester, NY, 14627-0186 USA +1 585 275 4722; fax +1 585 273 1072 www.optics.rochester.edu

# Universal Optical Co., Limited

#5470

SPIE Corporate

No 7 Jinzhou N Rd, Bldg 3 Jinshan Industrial Zone, Cangshan District Fuzhou, Fujian, 350002 China +86 591 86395085; fax +86 591 86395831 sales@uni-optics.com; www.uni-optical.com

# Featured Product: Custom-made optical lenses, prisms, windows, mirrors and filters, optical assembly systems, etc.

UNI Optics specializes in optical components and optical assemblies in China for many years. Now we have more than 100 skilled employees, which include 15 dedicated engineers and over 2000 square meter of manufacturing facilities. We have strong capabilities to produce various custom-made optical components and assembly, like lenses, prisms, windows, filters, etc. Moreover, various coating designs are available to us. Call us today and experience our competitive prices and exceptional services. Contact: Vincent Wen, Marketing Manager, vincent@uni-optics.com

### Universal Photonics Inc.

#1931

SPIE Corporate

85 Jetson Lane, Central Islip, NY, 11722 USA +1 516 935 4000; fax +1 516 935 4144

info@universalphotonics.com; www.universalphotonics.com

# Featured Product: Somos TPM: Internally-cooled, temperature controlled, double-sided polishing & lapping machine.

High-powered TPM machine delivers advanced processing solutions with an entirely new range of capabilities. Internally-cooled, temperature-controlled plates, with precise, dynamic load control; high-power drive motors, and a keyence non-contact system. Includes a touch-screen PC control panel and a built in slurry tank. While there are many advantages to the TPM series, one of its extraordinary features is the ability to offer custom solutions for specific application requirements. Contact: Angelika Criscione, Director/Corporate Marketing, angelika@universalphotonics.com; Jen Laico, Senior Director of Sales, jenl@universalphotonics.com

# University of Arizona, College of Optical Sciences

#704

SPIE Corporate

1630 E University Blvd, Tucson, AZ, 85721-0095 USA +1 520 621 6997

info@optics.arizona.edu; www.optics.arizona.edu

### Featured Product: Educational and research institution

The University of Arizona, College of Optical Sciences educates students in all aspects of the study and application of light, performing internationally recognized research in optical engineering, quantum optics, applied optics and photonics, and image science. The College of Optical Sciences is the world's premier optical institute, with award-winning faculty members, a diverse student body, challenging courses, pioneering research programs and close relationships with the optics industry. Contact: Melissa Sarmiento Ayala, Academic Advisor, mayala@optics.arizona.edu

# **UpTek Solutions Corp.**

#4347

SPIE Corporate Member

130 Knickerbocker Ave Ste A, Bohemia, NY, 11716-3171 USA +1 631 256 5565

sales@upteksolutions.com; www.upteksolutions.com

# Featured Product: Ultrafast Ti:sapphire oscillator, amplifier, Er doped fs fiber laser, Yb doped ultrafast system

UpTek Solutions Corp. is a New York based laser manufacturer specialized in producing pico-second and femto-second ultrafast oscillators and amplifiers, Q-switched DPSS Nd:YAG, Nd:YLF and Nd:YVO4 lasers, and femtosecond laser micromachining systems which are designed for scientific and industrial applications. Our laser and engineering R&D teams are working closely with our customers to provide the best solutions for system integration and laser applications. Contact: Lin Xu, sales@upteksolutions.com; Jeffrey Tian, jtian@upteksolutions.com

# **US Fiberoptec Technology, Inc.**

#710

SPIE Corporate Member

175 Bernal Road, Suite # 15, San Jose, CA, 95119 USA +1 408 834 7420; fax +1 408 834 7430 kb@usfiberoptec.com: www.usfiberoptec.com

# Featured Product: Leader in silica and glass optical fibers, assemblies, bundles and hybrid photonics solutions

100% vertically integrated world leader in silica and glass optical fibers, assemblies, bundles and hybrid photonics solutions. Producing silica (quartz), silica/silica and hard polymer clad/silica (HPCS), glass and MIR (Mid Infrared) optical fibers and value added assemblies for a wide variety of industries and applications. We offer fibers from 40 microns to 2,000 microns in core sizes with N.A. range of 0.12 to 0.53 and wavelengths range from 193nm to 16 microns. sales@usfiberoptec.com Contact: Kevin Bakhshpour, V.P. of Sales & Marketing, kb@usfiberoptec.com

# **UTC Aerospace Systems**

#1004

SPIE Corporate Member

330 Carter Rd Ste 100, Princeton, NJ, 08540-7419 USA +1 609 333 8200; fax +1 609 333 8103 sui info@utas.utc.com; www.sensorsinc.com

Featured Product: Sensors Unlimited 320CSX MicroSWIR Camera: affordable, non-ITAR, small SWaP for industrial markets.

Sensors Unlimited, Inc., a UTC Aerospace Systems company, develops innovative shortwave infrared (SWIR) sensing/imaging solutions based on indium gallium arsenide imaging technology. Products include: InGaAs-SWIR cameras and systems, 1- and 2D focal plane arrays, and extended wavelength response InGaAs image sensors. Imaging applications include: near-infrared spectroscopy, security/surveillance, line-scan inspection, process control, laser beam profiling, microscopy, OCT, art inspection, and astronomy. Contact: Shannon Larbig, Sales Manager, sui\_info@utas.utc.com

# V&D New Materials (Jiangsu) Co., Ltd. #4237

No 15 Qufeng Road, Haizhou Economic Development Zone, Lianyungang City, Jiangsu, 222062 China +86 518 80805572; fax +86 518 80805558 mandylin@vdmetal.com; www.vdmetal.com

# Featured Product: Tantalum, niobium & silicon products

V&D New Materials (Jiangsu) Co., Ltd. was established in September, 2006 with a total investment of 29.8 million U.S. dollars and registered capital of 13.2 million U.S. dollars. Our main products are tantalum, niobium products and their alloys, as well as silicon products which are widely applied in fields like optical coating, semiconductor, and chemical corrosion. With advanced manufacturing technology and equipment, our factory is ISO9001, ISO14001 and OHSAS18001 certified. Contact: Mandy Lin, mandylin@vdmetal.com

### **Vacuum Engineering & Materials**

#5131

390 Reed St, Santa Clara, CA, 95050 USA +1 408 871 9900; fax +1 408 562 9128 info@vem-co.com; www.vem-co.com

# Featured Product: High-quality PVD sputtering targets, evaporation materials, mat'l reclaim & shield cleaning services

VEM is a leading manufacturer of high-quality, thin film deposition materials used in compound semiconductors, opto-electronics, precision optics, lasers, AR coatings, MEMS, emerging display technologies & many other applications. Specialty items include: Au and Pt sputtering and evaporation materials, ultra pure Au (nonspitting) evaporation pellets, Ta, Nb, Si, ITO and a variety of powder metallurgy products. Headquartered in Silicon Valley with 28 years' experience, VEM serves 250+ customers. Contact: Jon Myers, Vice President, Sales & Marketing, jmyers@vem-co.com; Melvin Hirata, Director of Business Development, mhirata@vem-co.com

# PLAN TO ATTEND FREE EXHIBITOR PRODUCT DEMONSTRATIONS

Refer to page 88–90 for complete times, schedules, and locations.

# Valley Design Corp.

#2143

2 Shaker Rd, Bldg. E-001, Shirley, MA, 01464 USA +1 978 425 3030; fax +1 978 425 3031 info@valleydesign.com; www.valleydesign.com

# Featured Product: Ultra-thin glass, fused silica, quartz, ceramics, sapphire, polished to 10-20µm thick

Valley Design Corp. is a certified manufacturer of substrates. windows, wafers, precision shims/spacers, flat optics, and complex machined components. For more than 40 years we have provided precision lapping, polishing, dicing, CNC machining, grinding, ultrasonic hole drilling and other machining services. Materials processed include: glass, fused silica, quartz, aluminum nitride, 96%-99.6% alumina, sapphire, SiC, macor, silicon, metals, many from stock. Contact: Mandi Indars, VP Sales & Marketing, mandi@ valleydesign.com; Christina Hantzis, Customer Service, info@ valleydesign.com

# **Valtech Corporation**

#5629

SPIE Corporate

2113 Sanatoga Station Rd, Pottstown, PA, 19464 USA +1 610 705 5900; fax +1 610 705 0300 info@valtechcorp.com; www.valtechcorp.com

# Featured Product: VALTRON® formulated detergents, epoxy adhesives, polymer materials, polishing materials

Manufactured under the trade name VALTRON®, Valtech Corporation's line of products include specialty epoxy adhesive systems for ingot and wafer processing, aqueous-based cleaning detergents for a variety of precision cleaning applications and custom molded polymers. VALTRON® products offer unique and enhanced performance characteristics that improve manufacturing yields. Our custom formulations are made with the highest quality control standards ensuring consistency and optimum performance. Contact: Thaddeus Pekula, Director of Marketing, thaddeusrpekula@ gmail.com

# **Varioptic-A BU of Parrot SA**

#5446

SPIE Corporate Member

24B rue Jean Baldassini, Lvon, 69007 France +33 4 37 65 35 31; fax +33 4 37 65 35 30 sales.varioptic@parrot.com; www.varioptic.com

# Featured Product: Variable focus, autofocus, astigmatism liquid lenses and objectives

Varioptic develops and manufactures liquid lens based on its patented electro-wetting technology. Those lenses allow focus and astigmatism control for optical systems currently used in diversified market such as industrial, medical, defense and consumer. The main features are low power, high shock & vibration resistance, unlimited cycles, compact size, and no noise. Varioptic has been acquired by Parrot to back its growth on these markets. Contact: Anais Curpanen, sales & marketing assistant, anais.curpanen@parrot. com; Benjamin Lafaverges, Field application engineer, benjamin. lafaverges@parrot.com

### Vectronix Inc.

#4320

2665 Park Center Dr. Suite A, Simi Valley, CA, 93065 USA +1 805 373 9340

info@vectronix.us; www.vectronix.us

Vectronix is a technology leader in the design, development, and production of precision optical and optomechanical systems for commercial and defense applications. We leverage our multidisciplined engineering expertise in systems, optics, mechanics, electronics, and software to design and deliver state-of-the-art electro-optical integrated systems. Our highly responsive, highly skilled team provides our customers with the best solutions for their needs. Contact: Robert Gappinger, Senior Optical Engineer, robert.gappinger@vectronix.com; Steven Veilleux, Director, Quality Assurance, steven.veilleux@vectronix.com

### Veeco Instruments Inc.

#2101

#543

1 Terminal Dr. Plainview, NY, 11803 USA +1 516 677 0200; fax +1 516 714 1200 info@veeco.com; www.veeco.com

# Vermont Photonics Technologies Corp.

SPIE Corporate

22 Browne Ct Unit 110, Brattleboro, VT, 05301 USA +1 802 275 5210; fax +1 802 275 5215 mail@vermontphotonics.com; www.vermontphotonics.com

Featured Product: GONIOMAT M: a semiautomatic goniometer

# perfect for measuring the geometry of prisms, polygons, etc.

Vermont Photonics is the exclusive U.S. distributor of high quality optical test equipment and components by German manufacturer Möller-Wedel Optical GmbH. With over 25 years of experience supplying truly top-of-the-line equipment and service to the machine tool, aerospace, semiconductor manufacturing, and optical industries, as well as science, education, and standards laboratories, Vermont Photonics is in a unique position to solve measurement problems efficiently. Contact: Misha Mross, Engineering Physics, mbmross@vermontphotonics.com

### **Vertilas GmbH**

#4629

Daimlerstr 11d, Garching, 85748 Germany +49 89 37156018-0: fax +49 89 37156018 19 info@vertilas.com; www.vertilas.com

# Featured Product: VCSELs for sensing, NIR gas analysis, TDLS VCSELs for data communications

VERTILAS GmbH provides innovative laser diodes for communications and NIR Gas Detection. These long wavelength VCSELs are available from 1270nm to 2360nm with a wide range of packaging options, incl. LC-TOSAs and pigtails. Our VCSELs for NIR gas analysis enable customers to develop equipment for detecting a wide variety of gases, such as HF, H<sub>2</sub>O, HCl, CH4, NH3, CO, CO<sub>2</sub> and more. VERTILAS single mode lasers for communications feature 10.3 Gbps and up to 25.8 Gbps performance. Contact: Christian Neumeyr, CEO, neumeyr@vertilas.com; Jay de la Barre, Sales Director NA. delabarre@vertilas.com

#### **Vescent Photonics Inc.**

#4159

SPIE Corporate

14998 W 6th Ave Ste 700, Golden, CO, 80401 USA +1 303 296 6766: fax +1 303 296 6783 sales@vescent.com: www.vescentphotonics.com

#### Featured Product: SEEOR Non-Mechanical Beam Steering. LADAR, and free-space optical communications

Vescent Photonics was founded in 2002 to develop and manufacture technologies in waveguide, electro-optics, tunable lasers, and electronics for precision laser control. Our patented evanescently coupled liquid crystal waveguides have the industry's largest tunable optical phase delay enabling wide angle, high-resolution 2-D beam steering. We also offer high-speed, low-noise electronics, electrooptics, and laser to the AMO physics community. Contact: Michael Radunsky, Director of Sales & Marketing, mradunsky@vescent.com; Scott Davis, VP of Technology, davis@vescent.com

#### VI Systems

#4147

Hardenbergstr 7, Berlin, 10623 Germany +49 30 3083143 30; fax +49 30 3083143 59 sales@v-i-systems.de; www.v-i-systems.com

#### Featured Product: V50-850M: fiber coupled 850nm VCSEL module for data transmission of up to 50 Gbit/s

VI Systems GmbH (VIS), founded in 2006, is a fabless developer and producer of optical engines for data transmission at ultrahigh bit rates and the related electro-optic components for applications in data communications and access networks. Contact: George Schaefer, Director of Sales, george.schaefer@v-i-systems.com; Emil Abelaf, Business Development Manager North America, emil. abelaf@v-i-systemsusa.com

#### Floor Graphic Sponsor

#### Viavi Solutions Inc.

#2401

SPIE Corporate

430 N McCarthy Blvd, Milpitas, CA, 95035 USA +1 408 404 9000; fax +1 408 404 4500

ospcustomerservice@viavisolutions.com; www.viavisolutions.com

#### **Featured Product: Custom optical coatings**

Viavi Optical Security and Performance Products group (formerly JDSU) develops and delivers high value optical components and solutions that enhance the security, safety, and other performance attributes of government and commercial customers' products. Our solutions support the consumer electronics, government, healthcare, industrial, automotive and anti-counterfeiting markets. Learn more at osp.viavisolutions.com. Contact: Connie Heinse, Marketing and Communications, connie.heinse@viavisolutions.com; Maria Light, Director NA Sales, maria.light@viavisolutions.com

#### **Videology Imaging Solutions**

#5630

37M Lark Industrial Pkwv. Greenville, RI, 02828 USA +1 401 949 5332

sales@videologyinc.com; www.videologyinc.com

#### Featured Product: Superspeed USB 3.0, UVC Compliant, high data rate cameras capable of streaming full HD images.

VIDEOLOGY IMAGING SOLUTIONS is a high volume custom camera designer and US manufacturer approaching 25 years of serving industrial, machine vision, biometric, medical and security OEMs worldwide. Videology was formed in 1991 as a union of several Philips Electronics groups with longtime engagement in image acquisition. We average a 5-7 year product lifecycle so customers have time to plan for the next generation of products and we specialize in miniaturization and customization of cameras. Contact: Carol Ethier, CEO/President, sales@videologyinc.com; Jerry SantaMaria, Project Business Developer, jsantamaria@videologyinc.com

#### VIGO System S.A.

**#714: 4204** 

129/133 Poznanska St., 05-850 Ozarow Mazowiecki, Poland +48 22 733 54 10; fax +48 22 733 54 26 info@vigo.com.pl; www.vigo.com.pl

#### Featured Product: Detection modules operating in the spectral range of 2-16um and frequency range above 1GHz

VIGO System S.A. is a world leader in the production of uncooled. infrared photon MCT detectors and accompanying electronics. VIGO delivers solutions for gas detection, environmental protection, transport, defence and space industry with world-class detectors, electronics and consistent measurement science. Our employees serve customers in more than 100 countries all over the world. Our innovation and flexibility is our customers' key to success. Contact: VIGO System S.A., info@vigo.com.pl; Przemyslaw Kalinowski, Sales Manager, pkalinowski@vigo.com.pl

#### Vincent Associates

#606

803 Linden Ave. Rochester, NY, 14625-2709 USA +1 585 385 5930: fax +1 585 385 6004 vincentassociates@uniblitz.com; www.uniblitz.com

Since 1969, Vincent Associates has been designing and manufacturing Uniblitz shutter devices. Uniblitz shutters are known for their reliability and length of operation. We have some of the most reliable large aperture (65-90mm) shutters being manufactured today. You can find our shutters in a number of industries including astronomy, microscopy, laser switching, X-ray, vacuum and machine vision applications. Contact: Dominick Polizzi, Sales & Marketing Manager, dpolizzi@uniblitz.com; Adam Lamb, CTO, alamb@uniblitz.com

#### Virtual Industries, Inc.

#2305

2130 Victor Pl, Colorado Springs, CO, 80918 USA +1 719 572 5566; fax +1 719 572 5504 info@virtual-ii.com; www.virtual-ii.com

Virtual Industries is a manufacturer of vacuum tweezers and accessories. Products include the PEN-VAC® family of selfcontained vacuum tweezers, the TWEEZER-VAC® line of benchtop AC powered systems that can handle parts as small as .005" (.127mm) to well over 12" (305mm). All products are manufactured in the USA. Contact: Daren Palmer, info@virtual-ii.com; Thomas Mealey, info@virtual-ii.com

#### VisiMax Technologies, Inc.

#739

SPIE Corporate

9177 Dutton Dr. Twinsburg, OH, 44087-1981 USA +1 330 405 8330: fax +1 330 405 8332 www.visimaxtechnologies.com

#### Vision Components GmbH

#2802

SPIE Corporate

Ottostr. 2, Ettlingen, 76275 Germany +49 72 432 1670; fax +49 724 321 6711

sales@vision-components.com; www.vision-components.com

#### Featured Product: VC Z series smart cameras with Xilinx Zyng dual core ARM Cortex-A9 with 866 MHz & programmable FPGA

Vision Components GmbH develops and distributes intelligent real-time and network compatible cameras, that can be used as embedded solutions for quality assurance or production monitoring, etc. The product portfolio includes smart cameras with or without protective housing, board cameras, vision sensors and customtailored machine vision solutions. Users can choose between models with ARM processors and VC Linux firmware or DSP-based models with the proprietary VCRT operating system. Contact: Endre Tóth. Director of Business Development, etoth@vision-components. com; Jan-Erik Schmitt, Vice President of Sales, schmitt@visioncomponents.com

#### **Vision Research**

#2323

SPIE Corporate

**Vital Materials Co., Limited** 

+ 86 20 83511906 204: fax + 86 20 83511907

sales@vitalchem.com; www.vitalchem.com

Guangzhou, 510030 China

#4139

SPIE Corporate Member

100 Dey Rd, Wayne, NJ, 07470-4633 USA +1 973 696 4500; fax +1 973 696 0560

phantom@visionresearch.com; www.visionresearch.com

Featured Product: Phantom<sup>®</sup> v2512 ultrahigh-speed camera delivers increased memory and superb light sensitivity.

Vision Research designs and manufactures high-speed digital imaging systems with unsurpassed light-sensitivity, image resolution, acquisition speed and image quality. Vision Research's broad line of digital high-speed cameras, marketed under the Phantom<sup>®</sup> brand adds a new dimension to the sense of sight. Phantom<sup>®</sup> cameras are used as innovative engineering tools, enabling users to visualize and analyze physical phenomena when it's too fast to see, and too important not to™. Contact: Mark Doerfler, West Coast Sales Manager, Mark.Doerfler@ametek.com; Chris Kerr, National Sales Director, Chris.Kerr@ametek.com

#### Featured Product: Rare Metals and High Purity Materials (Se Te Bi Cd In Ga In Ge, etc.) and related Advanced Materials

No 268 DongFengZhong Rd, Unit 2901-2904 Exchange Sq,

Vital Materials is a global materials technology group. It is a leading vertically integrated producer, processor and developer focusing on rare metals, specialty and advanced materials and recycling. As the market leader in the global rare metals industry, Vital is the largest producer of selenium and tellurium materials, as well as the key producer of gallium, indium, germanium, bismuth, and cadmium products. Our products are widely used in clean energy, LED, communication, infared detection. Contact: Frank Boghe, Business Manager, frank, boghe@vitalchem.com

#### Vista Optronics, Inc.

#5644

SPIE Corporate Member

Ste. L201 Bldg, JianYe No 96, Xiangxing Rd, Xiang'An/Xiamen Fujian. 361101 China

+86 0592 7687117

sales@vistaoptronics.com; www.vistaoptronics.com

## Featured Product: 8/13/21 Meg mobile camera lens, disposable endoscopes, plastic and aspheric optics

Vista Optronics is a fast-growing company that designs, manufactures and markets premium-quality, aspheric optical products for the consumer market. These products include miniaturized cell phone/tablet camera optics, automotive vision systems, and biomedical vision systems. Vista Optronics' core competency is built around HYATM algorithm, which the company has distilled from years of experience in developing lens design algorithms for mass production. Contact: Fengqing Sun, CEO, fengqing.sun@vistaoptronics.com; Jeffrey Shan, Sales Director, jeffrey.shan@vistaoptronics.com

#### Vitron GmbH

#2209

#429

Am Nasstal 5, Jena-Maua Thüringen, 07751 Germany +49 3641 288130; fax +49 3641 288155 sales@nakedoptics.com; www.vitron.de

## Featured Product: Infrared glass - the original chalcogenide materials IG2, IG3, IG4, IG5 & IG6

Vitron manufactures specialized glass and crystal materials for IR imaging and medical applications. We develop and produce a variety of IR-transmitting glass types including the popular & original IG2, IG4, IG5 & IG6 chalcogenide materials for precision lens molding. CVD zinc sulfide (ZnS) is grown and processed within our facility into shaped blanks and domes. Vitron collaborates with customer and research institutions to develop custom glass and ceramic solutions. Contact: Klaus Woehner, Manging Director, woehner@vitron.de; Buzz Nesti, buzz@nakedoptics.com

#### Vistec Electron Beam GmbH

#4629

Ilmstr 4, Jena, 07743 Germany +49 3641 799 80; fax +49 3641 7998 222 electron-beam@vistec-semi.com; www.vistec-semi.com

#### Featured Product: Vistec SB254 and Vistec SB3055

Vistec Electron Beam GmbH provides leading technology solutions for advanced electron-beam lithography. Based on the variable shaped beam (VSB) principle, the electron-beam lithography systems are mainly utilized for semiconductor applications and advanced research as silicon direct write, compound semiconductor, mask making as well as integrated optics and several new emerging markets. The company is located in Jena, Germany. It maintains service & support centers in Europe, Taiwan & in the US. Contact: Ines Stolberg, Manager Product Management & Marketing, electron-beam@vistec-semi.com; Kevin Grens, Business Development Manager, electron-beam@vistec-semi.com

#### Vixar Inc.

SPIE Corporate Member

2950 Xenium Ln Ste 104, Plymouth, MN, 55441 USA +1 763 746 8045 x 300; fax +1 763 746 8048 info@vixarinc.com; vixarinc.com

## Featured Product: VCSELs in wavelengths between 660nm to 1000nm in single and multiple aperture designs

Vixar is a high volume supplier of vertical cavity surface emitting laser (VCSEL) devices and subassemblies in wavelengths from 660nm to 1000nm. VCSEL designs range from single to multiple aperture arrays. Applications include industrial proximity sensors, gesture recognition sensors, IR illumination for security systems, medical scanning, medical low light therapy and time of flight. Vixar has a portfolio of standard chips and packages as well as the ability to customize solutions. Contact: Todd Schieffert, Executive VP Business Development, tschieffert@vixarinc.com

#### VLC Photonics

Ed. 9B, D5, UPV, Camino de Vera s/n, Valencia, 46022 Spain +34 96 133 78 84

info@vlcphotonics.com; www.vlcphotonics.com

## Featured Product: Photonic integration services: design, fabrication, characterization and packaging

VLC Photonics is a company devoted to the design, fab-less fabrication, packaging and characterization/test of custom photonic integrated circuits (PICs). We can assist you on any photonic integration needs in several material platforms: silicon photonics, InP/GaAs, Si3N4 or PLC (silica). Our expertise covers several application fields: telecom/datacom, sensing, spectroscopy, OCT, quantum optics, metrology, etc. Contact: Iñigo Artundo, CEO, inigo. artundo@vlcphotonics.com; David Domenech, CTO, david.domenech@vlcphotonics.com

#### **VM-TIM GmbH**

#4629

SPIE Corporate Member

Hans-Knöll-Str. 6, Jena, 07745 Germany +49 3641 384859; fax +49 3641 384860 info@vm-tim.de; www.vm-tim.de

## Featured Product: Phase retardation plates; beam splitting cubes; laser mirrors; spherical, cylindrical, axicon lenses

VM-TIM develops, produces and distributes optical and mechanical components as well as He-Ne-, He-Cd-, CO<sub>2</sub> -, Nd:YAG- diode lasers and spectrophotometers for industry, research and education. We have polishing and coating equipment as well as a clean room and a chemical laboratory. Our capacities enable us to maintain a substantial supply of most standard optical components in the wavelength range from 190nm up to 3µm. We are also highly involved in OEM development. Contact: Vladislav Matusevich, Director, info@vm-tim.de

#### **Voltage Multipliers, Inc.**

#4324

8711 W Roosevelt Ave, Visalia, CA, 93291 USA +1 559 651 1402; fax +1 559 651 0740

kspano@voltagemultipliers.com; www.voltagemultipliers.com

## Featured Product: VMI's ViPS-40 digitally controlled, high voltage XRF power supply, optocouplers, and HV diodes.

Voltage Multipliers, Inc. was founded in November 1980. VMI specializes in high voltage products including: multipliers, discrete diodes, power supplies, rectifier assemblies, optodiodes, and optocouplers. Applications include mass spectrometers, XRF (hand held), Electrostatic paint spraying, military, medical, and industrial. VMI is DSCC QPL and ISO9001:2008 certified. Our sister company, CalRamic, located in Reno, Nevada, manufactures high voltage ceramic capacitors. Visit us at booth 4324. Contact: Karen Spano, Sales Admin Manager, kspano@voltagemultipliers.com; Margaret Fulleylove, Sales/Show Logistics, mfulley@voltagemultipliers.com

#### **Vortex Optical Coatings Ltd.**

#603/

Wheatfield Way, Unit 10 Greenfields Business Park, Hinckley Leicestershire, LE10 1BB United Kingdom

+ 44 1455617023

enquiries@vortex optical coatings.co.uk;

www.vortexopticalcoatings.co.uk

Vortex design and manufacture IR filters for optical instruments and gas analysis in a range from 700-7000nm. In addition, we have a 'fast prototype filter shop' where we often design, make and achieve the impossible. We also manufacture IR linear variable filters (LVFs). The LVFs come in 3 ranges, 1.2-2.5  $\mu m$ , 2.5-5.0  $\mu m$  and, new for this show, 900nm-1700nm. Come and talk to Ian Reilly (Technology Director) and Steve Joniec (Operations Director) at booth 6037 in the North Hall about your needs. Contact: Ian Reilly, Technology Director, ian@vortexopticalcoatings.co.uk; Steve Joniec, Operations Director, steve@vortexopticalcoatings.co.uk



#### **VORTRAN Laser Technology, Inc.**

#428

SPIE Corporate Member

21 Goldenland Ct Ste 200, Sacramento, CA, 95834-2426 USA +1 916 648 8460; fax +1 916 648 9751

sales@vortranlaser.com: www.vortranlaser.com

## Featured Product: Single Interface VersaLase™ Multi-color Laser Light Engine and NEW Stradus™ wavelengths!

Vortran Laser Technology, Inc. specializes in high performance Stradus™ and VersaLase™ multi-color laser diode systems at wavelengths 375nm, 405nm, 445nm, 473nm, 488nm, 505nm, 514nm, 532nm, 561nm, 635nm, 637nm, 642nm, 690nm, 705nm, 730nm and 780nm. GUI software is provided to control Vortran Laser systems, allowing power adjustment, enabling digital or analog modulation, and to monitor operations. Perfect for demanding medical, biomedical and industrial applications where performance matters. Contact: Steve Throne, VP, Sales & Marketing

#### **VPIphotonics GmbH**

#4629

Carnotstr 6, Berlin, 10587 Germany +49 303980580; fax +49 3039805858

info\_pw@vpiphotonics.com; www.vpiphotonics.com

## Featured Product: VPIcomponentMaker fiber optics – design tool for doped & undoped fiber-based optical devices

VPIphotonics sets the standard for end-to-end photonic design automation comprising design, analysis and optimization of components, systems and networks. We provide professional simulation software and consulting services supporting requirements of waveguide and fiber design, integrated photonics and fiber optics applications, optical transmission system and network applications. Our solutions are used extensively at hundreds of commercial corporations and educational institutions worldwide. Contact: Judith Meester, Director Sales North America, judith.meester@VPIphotonics.com; Beate Nikolov, Sales Administrative, beate.nikolov@VPIphotonics.com

## VTT Technical Research Ctr. of Finland Ltd.

#5269

PO Box 1000, Espoo, 02044 Finland +358 8 551 2111; fax +358 8 551 2320 www.vtt.fi

#### Wacom Corp.

#3028

SPIE Corporate Member

146 Red Schoolhouse Rd, Spring Valley, NY, 10977 USA +1 845 735 1303; fax +1 845 735 3940 N/A

## Featured Product: Surfclear-100: coating material with the world's highest level of water, oil and abrasion resistance

Wacom Corp., is a U.S. supplier of Canon Optron coating material. Providing high quality thin film deposition materials used in products such as cameras, telescopes, broadcast equipment, cellular phones and liquid crystal displays. Featured materials: Surfclear-100, a hydrophobic and oleophobic material with water, oil and scratch resistance properties; Lumilead TNO, an anti-static material preventing the adhesion of dust and dirt; and OH-14, Al<sub>2</sub>O<sub>3</sub> containing La<sub>2</sub>Ti<sub>2</sub>O<sub>7</sub> for high refractive index. Contact: Nancy Mazis, VP, Mazisn@ aol.com; Konrad Soong, Sales Manager, KWacom@aol.com

#### **Wasatch Photonics, Inc.**

#400

SPIE Corporate Member

1305 N 1000 W Ste 120, Logan, UT, 84321-6802 USA +1 435 752 4301; fax +1 435 752 4306 info@wasatchphotonics.com: wasatchphotonics.com

## Featured Product: Volume phase gratings, world's fastest spectrometers

Wasatch Photonics, established in 2002, is the leading manufacturer of volume phase gratings with corporate offices located in Logan, Utah. WP also designs and manufactures spectroscopic and optical coherence tomography devices at our facility in Durham, North Carolina. Contact: Gerald Heidt, CEO, gheidt@wasatchphotonics.com; Cindy Gong-Harris, Director of Business Development, cgong@wasatchphotonics.com

#### Wavelength Electronics, Inc.

#4625

SPIE Corporate Member

51 Evergreen Dr, Bozeman, MT, 59715-2421 USA +1 406 587 4910; fax +1 406 587 4911 sales@teamwavelength.com; www.teamwavelength.com

#### Featured Product: TC LAB 10A, 15V PID autotune touchscreen thermoelectric controller - maximum safety & remote control

Wavelength Electronics leads the laser control industry by simplifying advanced quantum cascade laser, laser diode and thermal controls for demanding electro-optical OEMs and researchers. For over 20 years we have delivered ultra-stable, high precision controllers for a wide range of applications. Products include maximum safety features, detailed datasheets, design tools, and free, knowledgeable technical support. Contact: Lisa Mueller, Marketing Assistant

#### Banner, Exhibition Map Sponsor

## Wavelength Opto-Electronic (S) Pte. Ltd.

#332

SPIE Corporate

Blk 2 Bukit Batok St 24 #06-01/03/09, Singapore, 659480 Singapore

+65 6564 9624; fax +65 6564 3862 info@wavelength-oe.com; www.wavelength-oe.com

#### **Featured Product: Infrared optics**

Wavelength Opto-Electronic (S) Pte. Ltd. was established in 2002. Our main business is design and manufacturing laser optics and industrial laser machine process heads for global markets. We conduct research & development, scale assembly and test. We also distribute wide range of laser photonics and related products from leading manufacturers. Contact: Robert Huang, Chief Executive Officer, bob@wavelength-oe.com; Jessie Yao, Marketing Executive, jessie@wavelength-oe.com

#### Wavelength References, Inc.

#4406

1800 SW 3rd St, #140, Corvallis, OR, 97333 USA +1 541 738 0528; fax +1 541 738 0998 sales@wavelengthreferences.com; www.wavelengthreferences.com

#### Featured Product: 10 micron ammonia gas cells

Wavelength References designs and manufactures products that use precise molecular energy levels to enable performance unavailable by any other means. A key product family is sealed gas cells; used for wavelength calibrations in optical spectrum analyzers and other optical instruments, as local references in sensing systems, and in many research and metrology applications. Another product line is lasers that use gas cells to provide unparalleled wavelength stability and linewidth reduction. Contact: Steve Blazo, President, steve.blazo@wavelengthreferences.com; Jeremy Colson, Engineer/ Technical Support, jeremy.colson@wavelengthreferences.com

#### Well Head Technology Co., Ltd.

**#4361-**

2 Ln 178 Ping Tung Rd Sec 1, Pingdong Rd., Pingzhen Dist., Taoyuan City, 32470 Taiwan +886 3 4394182; fax +886 3 4392041 wh.head@msa.hinet.net

#### **Westboro Photonics**

#4344

1505 Carling Ave Ste 301, Ottawa, ON, K1Z 7L9 Canada +1 613 729 0614

info@wphotonics.com; www.wphotonics.com

#### Featured Product: WP214 Imaging Spectral Colorimeter

Westboro Photonics designs, engineers and manufacturers innovative instrumentation products to measure and characterize light emission, reflection and transmission. Our high performance imaging colorimeters and imaging photometers, combined with our feature-rich, measurement and analysis software, Photometrica®, help you meet your production and manufacturing goals. Contact: Michael McLeod, Inside Sales Engineer, michael.mcleod@wphotonics.com; Tim Moggridge, President, Tim.moggridge@wphotonics.com

#### White Bear Photonics, LLC

#4046

2157 Randy Ave, White Bear Lake, MN, 55110-4333 USA +1 651 407 9582

equipment@whitebearphotonics.com; www.whitebearphotonics.com

## Featured Product: High power UV LED curing systems and FTIR film characterization

White Bear Photonics specializes in UV-VIS-IR spectroscopy. Provider of accessories and custom configurations for UV-VIS-NIR, Raman, FTIR and  $O_2$  sensing applications. Distributor for Ocean Optics, Starna, Innovative Photonics Solutions, InPhotonics, Pike Technologies and Drop Technologies. Parts and support for refurbished used equipment including Thermo-Nicolet FTIRs. Areas range from biotech, pharma, R&D, product development, to manufacturing. Contact: Ted Bahns, Optical Engineer, tedbahns@ whitebearphotonics.com

#### Wild Group

#5037

Wildstreet 4, Völkermarkt, 9100 Austria +43 4232 2527 0; fax +43 4232 2527 218

sales@wild.at; www.wild.at

## Featured Product: Contract development and manufacturing of optomechatronic and medical devices

Wild is the "most trusted" partner for development-manufacturing-service of opto-mechatronic systems and devices: We develop and manufacture your products to the highest quality and exclusively for you. By shortening your time to market Wild will put you the one important step ahead of your competitors. From idea to market-ready product: maximum precision in manufacturing, high proficiency in complex processes and enormous passion. This is where we are unbeatable and have been for over 40 years. Contact: Roman Dengg, Manager Business Development, roman.dengg@wild.at

#### Willsym, Inc.

#3012

1250 Oakmead Pkwy Ste 210, Sunnyvale, CA, 94085 USA +1 855 683 8888

sales@willsym.com; www.willsym.com

#### WiseTek Inc.

#4167

2350 Mission College Blvd Ste 495, Santa Clara, CA, 95054 USA +1 510 427 7220; fax +1 510 441 9753 ustcaa@yahoo.com

## Featured Product: New product: Disposable endoscopy camera and components

WiseTek Inc., a Silicon Valley based company, was founded by a group of veteran entrepreneurs and professionals. We concentrate on innovation & development of state-of-the-art miniaturized camera and components for micro-invasive surgery & industrial applications. We have provided a wide range of customized products including high-performance image sensors, lens systems, and image processing print circuit boards. We also offer endoscopy solutions to assist our customers from concept to reality. Contact: Sara Wei, Marketing, ws30687@yahoo.com; Geping Liu, CEO, gary.sv@gg.com

#### WL Photonics Inc.

#6041

58 Maricona Way, Ottawa, ON, K2T 1H2 Canada +1 613 801 1825

sales@wlphotonics.com; www.wlphotonics.com/contact-us.html

## Featured Product: Tunable optical filters, bandwidth-adjustable tunable optical filters, and tunable fiber lasers

As a global leading provider of fiber optic wavelength tuning and conditioning solution WL Photonics Inc. designs, develops, and manufactures tunable optical filters, bandwidth-adjustable tunable optical filters, dispersion compensators, tunable fiber lasers, wavelength-swept fiber lasers, portable optical spectrum analyzers and high power optical isolators. Contact: Frank Zhao, sales@wlphotonics.com; Wei Zhao, CEO, wzhao@wlphotonics.com; Lisa Lu, CFO, llu@wlphotonics.com

#### **Workshop of Photonics**

#5262

Mokslininku st 6A, Vilnius, Vilniaus, 08412 Lithuania +1 370 5 272 5738; fax +1 370 5 272 3704 info@wophotonics.com; www.wophotonics.com

## Featured Product: Femtosecond laser system FemtoLAB, custom spatially variable waveplates, glass cutting technology

Our products and services are targeted to both industrial and academic customers and include instruments and solutions for laser micromachining tasks from feasibility studies to laser micromachining workstations and state of the art technological solutions. Key competencies are: feasibility studies on femtosecond laser micromachining, development of custom femtosecond laser micromachining workstations and optical modules, and small scale production (job shop) in the area of laser micromachining. Contact: Arunas Dauksa, Head of Sales, arunas.dauksa@wophotonics.com

#### World Star Tech

#4954

SPIE Corporate Member

321 Lesmill Rd, Toronto, ON, M3B 2V1 Canada +1 416 363 3332; fax +1 416 363 3112 info@worldstartech.com; www.worldstartech.com

## Featured Product: RGB, 488nm, 514nm lasers, touch screen & USB lasers, portable laser marker, and laser glow fiber.

World Star Tech specializes in manufacturing ultra compact energy efficient lasers that deliver high stability and low noise. Our goal is to introduce highly compact and efficient lasers which will enable new measurement and sensor applications previously considered unachievable. Our new products include: RGB, 488nm, 514nm lasers, touch screen & USB lasers, portable laser marker, and laser glow fiber. Contact: David Stephen, Sales Manager, dstephen@worldstartech.com; Emily Hodgkinson, Customer Support, emily@worldstartech.com

#### **WTS Photonics Co., Ltd.**

#4431

No 620 Jinshan Blvd, A3-1002 Xinyuan Bldg, Fuzhou, Fujian, 350002 China

+1 86 591 83626970; fax +1 86 591 83623921

sales@wts-photonics.com; www.wts-photonics.com

## Featured Product: Optics lenses, windows, prisms, mirrors, beamsplitters, waveplate, filters and laser crystal

WTS Photonics Co., Ltd. provides customers with the superior quality optics products and precision laser optics products, and serves global markets including laser, electronics, telecommunication, thermal imaging, and infrared sensors for industrial, medical and scientific research applications. Contact: Mark Zhu, Sales Manager, sale@wts-photonics.com

#### Wuhan Guide Infrared Co., Ltd.

#4655-1

No 6 Huanglongshan S Rd, East Lake Development Zone, Wuhan, Hubei, 430205 China

+86 27 8129 8338; fax +86 27 8129 8345

nelson@guide-infrared.com; www.guideinfrared.com

## Featured Product: Cooled MCT & T2SL detectors, uncooled VOx & a-Si detectors, Stirling coolers, thermal camera core.

Wuhan Guide Infrared Co., Ltd, a China public listed company in Shenzhen stock market, is specialized in R&D and fabrication of thermal imaging detectors, optics, modules, cameras & systems. Over the years, Guide Infrared established a complete industrial chain from infrared detector to comprehensive EO systems. With its profound technologies, professional specialists, varied products range & OEM solutions, efficient distribution networks, Guide Infrared serves customers throughout the world. Contact: Nelson Wang, Sales Manager, nelson@guide-infrared.com

#### **WZW-Optic AG**

#731

SPIE Corporate Member

Wegenstr 18, Balgach, 9436 Switzerland +41 71 523 2300; fax +41 71 722 1240 optics@wzw.ch; www.wzw.ch

## Featured Product: Sub Angstrom polished substrates with a surface roughness of <= 0.5 Å RMS, low scatter.

For over 50 years, WZW-Optic AG has designed and manufactured high-end quality optics solutions for a global customer base. They produce Sub Aangstrom polished, low scatter substrates ideal for use as low-loss laser mirrors. An ISO-9001:2008 certified company, WZW-Optic AG aims for zero defects in manufacturing. They specialize in build-to-print manufacturing, and they are an experienced micro-optics manufacturer with opto-mechanical engineering and system prototyping services. Contact: David Varrie, Director Sales & Marketing; Willi Weder, Director Business Development, willi.weder@wzw.ch

#### **Xactra Technologies**

#636

9 Marway Cir, Rochester, NY, 14624-2320 USA +1 585 426 2030; fax +1 585 426 2709 sales@xactra.com; www.xactra.com

Contact: Michael Grady, President/CEO

#### Xenics

#4441

SPIE Corporate Member

Ambachtenlaan 44, Leuven, BE-3001 Belgium +32 16 38 99 00; fax +32 16 38 99 01 sales@xenics.com; www.xenics.com

## Featured Product: Low-cost Bobcat-320 and high-frequency Cheetah-640 800Hz

Xenics is a pioneer of path-breaking infrared technology with a proven track record of fifteen years. Xenics designs and markets infrared imagers, cores and cameras of best-in-class image quality to support innovative R&D, industrial automation, machine vision, process control and high-end security applications. The company offers a complete portfolio of line-scan and 2-D area-scan products for the Vis-NIR, SWIR, MWIR and LWIR ranges. Contact: Hervé Copin, CEO Xenics USA, Inc., sales@xenics-usa.com; Francky Demeester, CSMO, sales@xenics.com

#### Xiamen Leading Optics Co., Ltd.

No 26 Xinmei Rd Xinyang Industrial Zone, Haicang Xiamen Fujian, 361022 China

+86 592 313 6276; fax +86 592 313 7588 www.leadingoptics.com

#### Digital Sign Sponsor

#### **XIMEA**

#4138

#4334

SPIE Corporate Member

2102 Beech Ct, Golden, CO, 80401 USA +1 303 389 9838; fax +1 303 202 6350 info@ximea.com; www.ximea.com

## Featured Product: Smallest hyperspectral camera, PCIe camera, Thunderbolt cameras

XIMEA is the premier manufacturer of high quality digital cameras for industrial and scientific applications. We were one of the first companies to pave the way for USB3 cameras, and our xiQ series of cameras sets the standards for these cameras. Newer developments include very small hyper-spectral cameras for UAV applications and other, super-fast PCIe cameras, and soon cameras based on Thunderbolt technology. Please stop by at our booth and take a look at what we have to offer. Contact: Michael Bode, CEO Corp., mike.bode@ximea.com; Vasant Desai, CEO GmbH, vasant.desai@ximea.com

#### **XiO Photonics**

#5033

PO Box 1254, Enschede, 7500 BG Netherlands + 31 53 483 6688; fax + 31 53 433 7415 info@xiophotonics.com; www.xiophotonics.com

## Featured Product: Photonic integrated circuits for visible light and NIR; Control the light where you need it

XiO Photonics sees the marvelous potential of laser light to improve life and environment. Our optical modules based on photonic integrated circuits for visible light materialize this potential by making laser photonics more simple, robust, compact and cost effective. XiO Photonics designs and manufactures customized modules for photonic OEMs and system integrators. The modules can manipulate laser light by splitting and combining beams, controlling intensity, phase, polarization and mode size. Contact: Joost van Kerkhof, CEO, info@xiophotonics.com; Douwe Geuzebroek, VP Marketing & Sales, info@xiophotonics.com

#### **Xiton Photonics GmbH**

Kohlenhofstr 10, Kaiserslautern, 67663 Germany +49 631 414 9944 0; fax +49 631 414 9944 9 sales@xiton-photonics.com; www.xiton-photonics.com

#### Featured Product: IXION 193nm DPSS laser

Xiton Photonics GmbH produces laser systems for applications in industry and science. The systems are diode pumped solid state lasers featuring high pulse energies and frequency conversion to unique wavelengths. Contact: Philip Crowley, Sales, phil@markettechinc.net

#### **Xonox Technology GmbH**

#5640

**#723** 

SPIE Corporate Member

Kirchstr 9, Hüttenberg, 35625 Germany +49 6441 963640; fax +49 6441 9636410 info@xonox-tec.com; www.xonox-tec.com

#### Featured Product: Fizeau Transmission Sphere XONOX 4+.

XONOX Technology GmbH develops and manufactures a wide range of metrology and tools for optics manufacturing and testing. Starting with different interferometric workstations, various software versions for different applications plus a revolutionary set of Fizeau Transmission Spheres – the XONOX 4+ System – increasing the measuring range of 4" interferometers by up to 60% due to innovative opto-mechanical design. In addition several other innovative metrology systems and tools are provided.

#### **XSoptix LLC**

#932

800 Village Walk Ste 316, Guilford, CT, 06437 USA +1 203 401 8093; fax +1 800 878 7282 sales@xsoptix.com; www.xsoptix.com

## Featured Product: Eagleyard lasers: 633nm - 1100nm, Sercalo MEM's mirrors, switches, filters, Monocrom lasers

XSoptix is focused on providing leading-edge optical components to our U.S. customer base. We are a National Distribution partner for Eagleyard, Monocrom and Sercalo. Eagleyard offers high power lasers from 633-1100nm. Their portfolio includes: BAL, DFB, TPA and RWL lasers in standard and custom packages. Sercalo is a state of the art MEMs supplier offering switches, attenuators, filters and MEMs mirrors. Whether your need is telecom, defense, space, medical or sensing, XSoptix is your partner. Contact: Michael Carr, President, mc@xsoptix.com

#### XUV Lasers #3076

PO Box 273251, Fort Collins, CO, 80527-3251 USA +1 970 430 5165

contact@xuvlasers.com; www.xuvlasers.com

## Featured Product: Compact EUV 46.9 nm laser for applications in nanoscience and nanotechnology

XUV Lasers specializes in the development of compact extreme ultraviolet, soft x-ray lasers and optical systems that are the drivers to these lasers. Our desktop-size lasers at 46.9 nm wavelength bring to your laboratory a powerful beam of pulsed, coherent extreme ultraviolet light (also known as XUV or EUV). Its short wavelength combined with a high energy per pulse (50 µJ) makes it a unique tool for numerous applications as in nano-patterning, nano-imaging, and nano-spectroscopy. Contact: Carmen Menoni, csmenoni@xuvlasers.com; Brendan Reagan, breagan@xuvlasers.com

#### Yamaju Ceramics Co., Ltd.

#404

971 Anada-cho, Seto-city Aichi, 489-0003 Japan +81 561 48 3151; fax +81 56148 1710 sales@roditi.com; www.yamajuceramics.co.jp

#### Yangtze Optical Fibre and Cable (YOFC) #2817

No 9 Optical Valley Ave, Wuhan Hubei, Anhui, 430073 China +86 27 6878 9035; fax +86 27 8780 1760 sales@yofc.com; www.yofc.com

## Featured Product: Specialty fibers: PMF, DCF, BI-SMF, BI-OM3/OM4, RC-SMF, high temperature fiber, PCF, EDF/YDF, etc.

Yangtze Optical Fibre and Cable Joint Stock Limited Company (YOFC) was established in May 1988. YOFC is the largest R&D, fibre, cable and equipment manufacturers in the optical communications industry worldwide. We primarily manufacture and sell optical fibre preforms, optical fibres and optical fibre cables with various standard specifications. We also design and produce specialty optical fibres and cables, including specialty integration systems, that are customized to customer specifications. Contact: Yifei He, Sale manager, heyifei@yofc.com; Wei Qiu, Sales manager, qiuwei@yofc.com

#### Yelo Ltd. #5135

75 Belfast Rd, Carrickfergus Co Antrim, BT38 8BX United Kingdom +44 28 9335 7300

sales@yelo.co.uk; www.yelo.co.uk

Yelo Limited was founded in 1983 and manufacture automated laser testing equipment and have been performing laser diode reliability testing and printed circuit board testing in the photonics and electronics industry for over 30 years. Yelo's main test systems are Life Test and Burn-In. Life Test predicts laser diode life expectancy. Burn-In identifies and removes any defective laser diode at an early stage which prevents infant mortality at the post production stage. Contact: David Simms, Director of Sales and Marketing, david. simms@yelo.co.uk; Ashleigh Ucar, Sales and Marketing Assistant, ashleigh.ucar@yelo.co.uk

#### Yenista Optics Inc.

#6017

SPIE Corporate Member

2393 Teller Road, Unit 102, Newbury Park, CA, 91320-6089 USA +1 805 367 4075; fax +1 609 423 0891 sales-am@yenista.com; www.yenista.com

## Featured Product: OSA20: fastest and highest resolution grating based optical spectrum analyzer on the market today.

Yenista Optics Inc. is a manufacturer of laboratory type fiber optic test instrumentation for the telecom market. Product portfolio includes optical spectrum analyzers, tunable laser sources, optical component test systems, optical tunable filters, multi function test platform, switches, attenuators and more. Contact: Lawrence van der Vegt, Manager North America, lawrence.vandervegt@yenista.com

#### Yokogawa Corp. of America

#4671

2 Dart Rd, Newnan, GA, 30265 USA +1 770 253 7000; fax +1 770 254 0928 info@us.yokogawa.com; www.tmi.yokogawa.com

+1 360 676 3290 · help@spie.org · #PhotonicsWest

#### **YSL Photonics**

#723

SPIE Corporate

C3116 Wuhan Overseas Scholar Business Park, Wuhan, 430073 China

+86 27 87 204039; fax +86 27 87 179217 sales@yslphotonics.com; www.yslphotonics.com

## Yunnan Olightek Opto-Electronic Technology Co., Ltd.

#4536

No 31 E Jiaochang Rd, Kunming, Yunnan, 650223 China +86 871 65105538; fax +86 871 65105027 sales@oleid.com; www.olightek.com

## Featured Product: Amoled microdisplay, including 0.5',0.6',0.97',with resolution of 800\*600~1920\*1200.

With headquarter and manufacturing in Kunming, Yunnan OLiGHTEK Opto-Electronic Technology Co.,Ltd. is the first company in China to design and manufacture the cutting-edge full digital AMOLED microdisplays, and entered the market in 2009. So far, more than 10 key OLED patents have been officially granted for OLiGHTEK's speciality and innovation. Contact: Dora Ma, Sales Maneger, sales@olightek.com; Allen Wang, Sales Maneger, allen@oleid.com

#### Yunnan KIRO-CH Photonics Co., Ltd. #4541

No 5 Hongwai Rd, Kunming Economic & Technological Development Zone, Kunming Yunnan Province, 650217 China +86 871 7238079; fax +86 871 7238079 kirok@126.com; www.kiro.cn

## Featured Product: GeCl4 for fiber optics, high purity GeO2 (6N), zone-refined germanium, germanium single crystal

Yunnan KIRO-CH photonics Co., Ltd. was established in 2011 and is engaged in the research, development, manufacture, and sales of optical products. Our products take advantage of germanium material, optical manufacture and system integration, and are based on three core technologies: germanium material; infrared optics; as well as low light level and visible light optics. We have developed photonic material, instruments and opto-electronics.

#### YY Labs., Inc.

#4039

PO Box 597, Fremont, CA, 94537 USA +1 510 739 6049; fax +1 510 405 9030 info@yylabs.com; www.yylabs.com

## Featured Product: VISI-NIR spectrometer, optical profile analyzer, laser TEC/current driver, & MZ modulator controller

This is a high-tech. company that develops opto-electronics, electrical & optical signal measurements & control circuits, and instruments for telecommunication, sensing, and other related fields. Main products include: NIR spectrometers, optical profile monitors, MZ modulator bias controllers, and analog/digital applications, like DQPSK/QAM/arbitrary applications, laser TEC & current controller, and FemtoSecond synchronization system (LBL technologies) for multi-channel laser synchronization. Contact: Yan Yin, President, YANYIN@yylabs.com

#### **Z & Z Optoelectronics Tech. Co., Ltd.**

SPIE Corporate Member

No 3 Keyuan South Rd, Chengdu, Sichuan, 610041 China +86 28 8513 9768; fax +86 28 8525 5889 sales@zzoptic.com; www.zzoptic.com

## Featured Product: Super polishing, IR optics, laser optics, UV optics, spherical lens, plano optics, mirror, window

Z&Z is the first brand of super polishing from China. Over the past 15 years, Z&Z has supported many reputed U.S. and EU companies as a professional manufacturer of high precision IR and laser optics. Our super polishing optics meet roughness of 0.1um and S/D 10-5. Custom optics with IR and UV materials are available (Ge, Si, fused silica, BK7, ZnSe, ZnS, sapphire, CaF<sub>2</sub>, MgF<sub>2</sub>, GaAs, BaF<sub>2</sub>, etc.). S/D up to 5-1 and flatness up to 1/20. Products include mirrors, substrates, wedge & spherical lens. Contact: Cynthia Qi, Supervisor, sales@zzoptic.com

#### Zaber Technologies Inc.

#2827

#2629

#2-605 W Kent Ave N, Vancouver, BC, V6P 6T7 Canada +1 604 569 3780; fax +1 604 648 8033

contact@zaber.com; www.zaber.com

At Zaber we design and manufacture precision positioning devices, such as linear actuators, linear stages, and multi-axis systems, which are affordable, integrated, and easy to use. Our devices are used in many different applications and markets such as optics and photonics, life sciences, and industrial automation. Since introducing our first series, our product offerings have grown to include over 100 motion control products which are distributed worldwide. Contact: Kimi Foster, Marketing Coordinator, kimi@zaber.com

#### General Sponsor

#### Zarbeco, LLC

#6055

1240 Sussex Tpke Ste 5, Randolph, NJ, 07869-2944 USA +1 973 933 2043; fax +1 973 933 2336 sales@zarbeco.com: www.zarbeco.com

## Featured Product: Zarbeco introduces a new calibration target to quickly calibrate and measure your imaging system.

Zarbeco, LLC manufactures portable digital microscopes, digital cameras and software for a wide range of applications and markets. Contact: Meryl Zweig, Vice President, mzweig@zarbeco.com; David Zweig, President, dzweig@zarbeco.com

#### Zemax, LLC

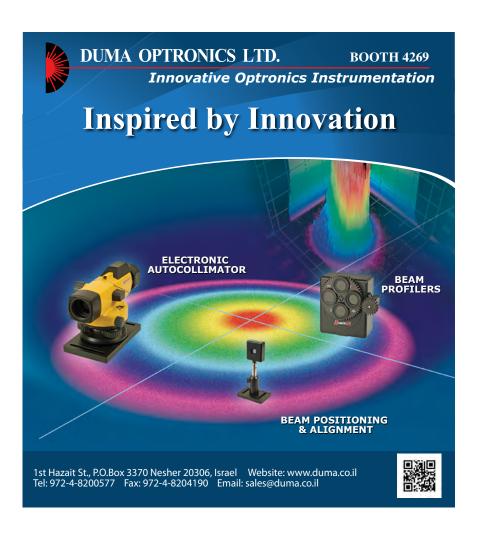
#2423

SPIE Corporate Member

10230 NE Points Dr Ste 540, Kirkland, WA, 98033 USA +1 425 305 2800; fax +1 425 844 0153 info@zemax.com; www.zemax.com

## Featured Product: OpticStudio 15.5 - optical and illumination design software

Zemax, LLC is a software and services company that has been developing and supporting optical and illumination design software for nearly 25 years. We help scientists, engineers, researchers and students turn their optical and illumination systems ideas into reality. For more information about OpticStudio or our other products and services, please visit www.Zemax.com. Contact: Michelle Fleming, Marketing Communications Manager, Michelle.Fleming@zemax.com; Zemax Sales, sales@zemax.com



#### **Zeon Chemicals L.P.**

4111 Bells Ln, Louisville, KY, 40211 USA +1 502 775 2000; fax +1 502 775 2055 zeonex@zeonchemicals.com; www.zeonex.com

## Featured Product: ZEONEX Cyclo Olefin Polymer (COP) engineered optical resin.

ZEONEX® Cyclo Olefin Polymer (COP) is an engineered optical resin that provides excellent optical properties including high transparency, low birefringence, low water absorption, and good heat resistance. ZEONEX® is ideally suited for optical components including F(theta) lenses, digital & cell phone camera lenses/prisms, military and diagnostic imaging optics. Contact: Toshiro Katayama, Sr. Product Manager, COP, zeonex@zeonchemicals.com; Mark Nevitt, Market Development Specialist, zeonex@zeonchemicals.com

#### #1942 Zeta Instruments

SPIE Corporate Member

2528 Qume Dr Ste 12, San Jose, CA, 95131 USA +1 408 573 7638; fax +1 408 573 7627 marketing@zeta-inst.com: www.zeta-inst.com

#### Featured Product: Zeta-300 optical profiler

Zeta Instruments manufactures precision metrology systems (optical profilers) that analyze high-roughness, low-reflectance surfaces for biotechnology, solar cell, LED, MEMS and other micron-scale measurement applications. Our wide-field optical profilers can measure high-aspect-ratio features from the millimeter to submicron range, and film thicknesses down to 30nm. The bundled Zeta 3D imaging software produces true-color 3D feature maps in a fraction of the time of other surface profilers. Contact: Jaynne Gates, Sales Operations Specialist, jaynne.gates@zeta-inst.com

#### **Meterboard Sponsor**

ZEUS

#5538

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3737 Industrial Blvd, Orangeburg, SC, 29118 USA +1 803 268 9500; fax +1 803 533 5694 jfant@zeusinc.com; www.zeusinc.com Contact: Billy Williams, Trade Show Coordinator

#### **Zhejiang Lante Optics Co., Ltd.**

#4512

No 1108 Hongfu Rd, Honghe Town Jiaxing Zhejiang, Zhejiang, 314023 China

+1 86 573 83347400; fax + 86 573 83349898 allyen.yao@lante.com.cn; www.lante.com.cn

## Featured Product: Manufacturing varieties of prisms, lens, glass aspheric lens, filters, plain film, car mirrors, blind zone

Established in 1995, Zhejiang Lante Optics Co. Ltd. is located in Jiaxing, between in Shanghai and Hangzhou (a 1 hour drive). The plant covers more than 40,000 square meters. Presently 600 employees and 50 technical engineers are engaged in manufacturing varieties of prisms, lens, glass aspheric lens, filters, plain film, car mirrors, blind zone mirrors and coating. Contact: Liang Yao, Vice Presidengt, alleyn.yao@lante.com.cn

#### **Z-LASER-America Inc.**

#5461

SPIE Corporate Member

15-101 Boul Don Quichotte Ste 355, Ile Perrot, QC, J7V 7X4 Canada +1 800 958 1572

info@z-laser-america.com; www.z-laser-america.com

## Featured Product: High-power laser sources ZQ and laser module series ZM18 (M18 thread housing).

Established in 1985, Z-LASER is a recognized developer and manufacturer of laser systems for industrial, medical and laboratory applications. Staffed by a team of creative engineers, Z-LASER finds innovative solutions and applications for optoelectronics and laser technology. With our 75 employees in R&D, Production and Administration we are looking forward to challenging projects in the field of optoelectronics and electro optical micro assemblies. Contact: Ralph Tesson, ralph@z-laser-america.com; Isabelle Duchesneau, isabelled@z-laser-america.com

#### **Zolix Instruments Co., Ltd.**

**#5167** 

16 Huanke Middle Rd, NO. 68B,LDUV Tongzhou District Beijing China, Beijing, 101102 China

+86 10 5637 0168; fax +86 10 5637 0118 sally-liu@zolix.com.cn; www.zolix.com.cn

#### Featured Product: Photoluminescence microspectrometer, Raman system, monochromator, light source, opto-mechanics

Established in 1999, Zolix is a leading global supplier of optomechanics and spectroscopy in China. We have strong R&D, production, sales, and after service teams with many years' experience of industry knowledge and expertise across a broad range of technologies. Our products have been exported to Europe, the USA, India, and more than 50 countries worldwide. Our products include: spectroscopy, monochromators and accessories, solar cell system, Raman system, & opto-mechanics. Contact: Sally Liu, Sales, sally-liu@zolix.com.cn

#### **Zuend Precision Optics Ltd.**

#513

Prismastr 5, Diepoldsau, 9444 Switzerland +41 71 737 74 00; fax +41 71 737 74 10

info@zuendoptics.com; www.zuendoptics.com

## Featured Product: Micro-planar optical single components and planar optical kitting systems

Production and distribution of uncoated or coated planar optical single components and planar optical assemblies in dimensions of 0.2mm up to 50.0mm. Our supporting role begins with the design, development of prototypes and extends to the execution of production from 50 to 20,000 units and more. Contact: Patrick Fritsche, Marketing and Sales, p.fritsche@zuendoptics.com; Dario Fusinato, Member of the Management, d.fusinato@zuendoptics.com

#### **Zurich Instruments AG**

#732

SPIE Corporate Member

Technoparkstrasse 1, Zurich, 8005 Switzerland +41 44 515 0410; fax +41 44 515 0419 info@zhinst.com: www.zhinst.com

## Featured Product: UHFLI 600 MHz lock-in amplifier, HF2LI 50 MHz lock-in amplifier, MFLI 500 kHz lock-in amplifier

Zurich Instruments makes lock-in amplifiers and phase-locked loops that have revolutionized instrumentation in the high-frequency and ultra-high-frequency ranges by combining frequency-domain tools and time-domain tools within each product. This reduces the complexity of laboratory setups, thus removing sources of potential problems and so allows researchers to focus on their experiments. The new MFLI instrument for low-frequencies makes these advantages available to a wider range of users. Contact: Jan Benhelm, Head of Marketing, jan.benhelm@zhinst.com; Andrew Turner, Technical Sales Manager, andrew.turner@zhinst.com

#### **Zygo Corporation**

#1433

SPIE Corporate

Laurel Brook Rd, Middlefield, CT, 06455-1291 USA +1 860 347 8506; fax +1 860 347 8372 inquire@zygo.com; www.zygo.com

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Prior Scientific Inc. Prizmatix Ltd.

Radiantis

Raptor Photonics Ltd.

Semiconsoft. Inc.

SENSOFAR METROLOGY

Si-Ware Systems

Solid State Cooling Systems SPECIM, Spectral Imaging Oy Ltd.

Spectra Quest Lab. Inc. Spectral Engines Ov

Spectra-Physics/A Newport Company

Starlight Xpress Ltd. StellarNet Inc

STRATEC Biomedical USA

Sydor Optics, Inc. **Teem Photonics** 

Teledyne Judson Technologies

Tempotec Optics Co., Ltd. Thermo Scientific - CIDTEC

ThetaMetrisis LLC

Tomocube

Uniforce Sales & Engineering

Valtech Corporation Vision Components GmbH Voltage Multipliers, Inc. Vortex Optical Coatings Ltd.

Wavelength References, Inc. **XIMEA** 

Xiton Photonics GmbH

XSoptix LLC YY Labs., Inc.

Zolix Instruments Co., Ltd.

#### **COMMUNICATIONS & NETWORKING**

AC Photonics, Inc. Accumold Adamant Co., Ltd.

Advanced Cooling Technologies, Inc.

Alnair Labs Corp. Ascentta, Inc.

Auxora (Shenzhen), Inc. Axsun Technologies **BKtel photonics** 

**CAILabs** 

CEDRAT TECHNOLOGIES

China International Optoelectronic

Exposition

Coining, Inc.

CorActive High-Tech Inc. Cornell Technical Services, LLC Crystalline Mirror Solutions GmbH East Tender Optoelectronics Corp.

Element Six Technologies U.S. Corp

Fiber Optic Center, Inc. Fibotec Fiberoptics GmbH FOCtek Photonics, Inc.

Fraunhofer-Institut für Photonische

Mikrosysteme

Freedom Photonics, LLC General Photonics Corp.

Gitterwerk GmbH **Gould Fiber Optics** 

Haphit Inc

**HOLOEYE Photonics AG** 

**ID** Quantique II-VI Incorporated InPhenix. Inc.

International OptoIndex

IRD Glass

Iridian Spectral Technologies Ltd.

J. Hauser GmbH & Co. KG

Keopsys Inc. Kogakugiken Corp.

Kylia

Kyosemi Opto America Corp.

Ligentec

LightComm Technology Co., Ltd.

LightPath Technologies Masimo Semiconductor

Moduliaht, Inc.

MPB Communications Inc.

Muguans

MWTechnologies, Lda Nitto Optical Co., Ltd. OSI Laser Diode, Inc. Photonsense Technologies Plasma Process Group

PowerPhotonic Ltd. QPC Lasers-Laser Operations LLC

**R&D Interconnect Solutions** RAM Photonics, LLC Santec U.S.A. Corp.

SemiNex Corp. SRICO Inc.

Synopsys, Inc. **TEC Microsystems GmbH** 

Tecnisco Ltd. Valley Design Corp. Vertilas GmbH VI Systems

**VLC Photonics** VPIphotonics GmbH

Wavelength References, Inc. XSoptix LLC Yelo Ltd.

Yenista Optics Inc.

#### COMPUTING SYSTEMS. **DATA PROCESSING**

Adamant Co., Ltd.

Advanced Cooling Technologies, Inc.

ARGES GmbH

Art Electronics Co., Ltd.

attocube systems Inc.

AUREA Technology

Basler

Critical Link, LLC

Dowa Electronics Materials Co., Ltd.

Duma Optronics Ltd.

East Tender Optoelectronics Corp.

Elite Engineering Corp.

EPIX, Inc.

Fiber Optic Center, Inc.

Fraunhofer Institute for Silicate

Research ISC

Freedom Photonics, LLC

**ID** Quantique

Keopsys Inc.

LightTrans

Lumerical Solutions, Inc.

Multiphoton Optics GmbH

New Imaging Technologies

Optiwave Systems Inc.

PerkinElmer, Inc.

Photon Design

Photron USA, Inc.

Polaris Motion

RedWave Labs Ltd.

Synergy Optosystems Co., Ltd.

Vertilas GmbH

VI Systems

Vision Components GmbH

**VLC Photonics** 

**VPIphotonics GmbH** 

#### **COMPUTING, DATA PROCESSING HARDWARE**

Advanced Scientific Concepts

**Axsun Technologies** 

Bertin Technologies

Critical Link, LLC Elite Engineering Corp.

FPIX Inc.

FRAMOS Technologies Inc.

Multisorb Technologies

Necsel North American Coating

Laboratories

Photron USA, Inc.

**PixeLINK** 

RedWave Labs Ltd.

#### **CONSULTING SERVICES**

Advanced Cooling Technologies, Inc. Advanced Scientific Concepts

**Agilent Technologies** 

AGM Container Controls, Inc.

**ALPhANOV** 

Apollo Optical Systems, Inc.

Archer OpTx, Inc.

Art Electronics Co., Ltd.

**ASE Optics** asphericon, Inc.

**ATIK Cameras** 

Avo Photonics, Inc.

Breault Research Organization, Inc.

ChemTrace

Critical Link, LLC

Crosslight Software

Diverse Optics Inc.

Dr. Bohrer Lasertec GmbH

Diode Laser Concepts, Inc

DTF Technology GmbH

Elite Engineering Corp.

Fibercore Ltd.

Fraunhofer II T

Fraunhofer-Institut for Produktion Technology IPT

Fraunhofer-Institut für Photonische

Mikrosysteme Gitterwerk GmbH

Greenlight Optics, LLC

G-S Plastic Optics

Hong-Ming Technology Co., Ltd.

INSION GmbH

International OptoIndex

JCMwave GmbH

JOANNEUM RESEARCH Forschungs

**GmbH** 

Kopp Glass, Inc.

Lambda Research Corporation

Laservision USA

LightTrans

Lincoln Laser Co.

LumenFlow Corp.

MEMS & Nanotechnology Exchange

Moduliaht, Inc.

Multiphoton Optics GmbH

Navitar Inc.

**NeTHIS** 

Optical Support, Inc.

Optics for Hire

**Optikos Corporation** 

Opto-Alignment Technology, Inc.

OptoTech Optical Machinery Inc.

Particle Measuring Systems

**PERFOS** 

Photon Engineering LLC

Photonics Austria

PIKE Technologies

Plasma Process Group

PowerPhotonic Ltd.

Precitech

PRIMES GmbH

Prior Scientific Inc.

Quantum Composers, Inc.

Quartus Engineering Inc.

**RESOLUTION Spectra Systems** 

Seattle Photonics Associates LLC

Sigmadyne, Inc.

Spectral Systems

SRICO Inc.

STRATEC Biomedical USA

Synopsys, Inc.

Tecnottica Consonni Srl TEM Messtechnik GmbH

Tempotec Optics Co., Ltd.

TLC International World Headquarters

Vision Components GmbH

**VLC Photonics** 

VORTRAN Laser Technology, Inc. **VPIphotonics GmbH** 

Yelo Ltd.

#### **CONSUMER ELECTRONICS**

Accumold

Advanced Cooling Technologies, Inc.

Advanced Optowave Corp.

**ATIK Cameras** 

Ayase America Inc.

Breault Research Organization, Inc.

Eldim

**ESPROS Photonics AG** 

GD Optical Competence GmbH GMT GLOBAL INC. (CHANGHUA

BRANCH)

Hamamatsu Corp.

Heimann Sensor GmbH

**Huanic Corporation** 

JENOPTIK I Optical Systems Lite-On Technology Corporation

Lumentum Operations LLC

Materion

Materion Advanced Material Group

Next Scan Technology

**Optics Balzers** 

Precitech Princeton Optronics, Inc.

S.E.Technologies Ltd.

SCANLAB America, Inc.

SENSOFAR METROLOGY

Sensofar USA

Shasta Crystals

Spectral Engines Oy

Stemmerich, Inc.

Sunex Inc.

Taiwan Optics/Optronics Manufacturers' Association

(TOOMA) TLC International World

Headquarters

Vacuum Engineering & Materials

Viavi Solutions Inc. Wuhan Guide Infrared Co., Ltd.

## **DEFENSE, SECURITY,**

LAW ENFORCEMENT Abrisa Technologies

AC Photonics, Inc.

AdTech Optics, Inc.

Advanced Scientific Concepts

AGM Container Controls, Inc.

Allied Scientific Pro Alpes Lasers SA

Analog Modules, Inc.

Andon Electronics Corp. Antervon BV

Applied Optics Ctr., a Div. of Optex

Systems, Inc. Archer OpTx, Inc.

Ascentta, Inc.

Aspen Systems, Inc. asphericon, Inc.

**AUREA Technology** 

**Axiom Optics** 

Ayase America Inc.

Beijing TRANS Manufacture and Trade Co., Ltd.

Bertin Technologies

**BKtel** photonics

Brimrose Corp. of America

**Brolis Semiconductors LIAB** 

Brookman Technology, Inc.

BWT Beijing Ltd.

Canon U.S.A., Inc.

Carl Zeiss Jena GmbH

**CEDRAT TECHNOLOGIES** 

CMOS Sensor Inc. Coastal Connections

Contour Metrological &

Manufacturing, Inc. (CMM)

CorActive High-Tech Inc.

Cristal Laser S.A

Critical Link, LLC Daco Instrument Co.

Daheng New Epoch Technology, Inc.

Daheng Optical Thin Film Center

DataRay Inc.

DiCon Fiberoptics

DILAS Diode Laser, Inc.

Diode Laser Concepts, Inc Diverse Optics Inc.

Docter Optics, Inc.

E.R. Precision Optical Corp.

eaglevard Photonics GmbH Electro-Optics Technology, Inc.

Element Six Technologies U.S. Corp

EMF Corp.

**EPIGAP Optronic GmbH** 

EPIX, Inc. Evaporated Coatings, Inc.

Exalos AG

Fibercore Ltd.

FIBERCRYST S.A.S.

Fibotec Fiberoptics GmbH

ficonTEC Corporation First Light Imaging

FOCtek Photonics, Inc. FRAMOS Technologies Inc.

Freedom Photonics, LLC

Gasera Ltd. Gavish. Inc.

Gentec Electro-Optics Inc. Gooch & Housego (Orlando) **Gould Fiber Optics** 

Hindsight Imaging Holographix LLC **HORIBA Scientific** 

ICAMR - International Consortium for Advanced Manufacturing

Research **ID** Quantique

Infrared Materials, Inc.

Innovative Photonic Solutions InPhenix, Inc.

**Inrad Optics** 

IPG Photonics Corp. IRCameras, LLC

IRD Glass **IRflex Corporation** ISP Optics Corp. Isuzu Glass, Inc.

JML Optical Industries, LLC

Kentek Corp. Keopsys Inc. KETEK GmbH Kopp Glass, Inc. Kurt J. Lesker Co.

Kyosemi Opto America Corp. Laser Components Canada

Lasence Inc.

Laser Components DG, Inc. Laser Components USA, Inc. Laser Quantum USA LASERTEC INC Lattice Materials LLC

LightPath Technologies

LightTrans Lincoln Laser Co.

Lite-On Technology Corporation

Lumenera Corp. LumenFlow Corp. Marubeni America Corp. Masimo Semiconductor

Materion

MegaWatt Lasers, Inc.

Melles Griot

MEOPTA- OPTIKA, S.R.O. MH GoPower Co., Ltd. Micro Laser Systems, Inc. Micro-Hybrid Electronic GmbH Midwest Optical Systems

Millog Oy

Mirrorcle Technologies, Inc.

mirSense Modulight, Inc.

Moore Nanotechnology Systems,

II C **Multisorb Technologies** 

MWTechnologies, Lda Nanjing Creator Optics Co., Ltd.

nanoplus GmbH

Nantong Ruisen Optical Element Technology Co., Ltd.

Necsel

New England Photoconductor Corp.

New Imaging Technologies New Scale Technologies, Inc. Nitto Optical Co., Ltd. NoIR LaserShields North American Coating

Laboratories NOVAE

Noxant

NP Photonics, Inc.

nPoint, Inc. Nufern OEwaves, Inc.

Omega Optical, Inc. **Optics Balzers Optikos Corporation** Optimax Systems, Inc.

**OPTITEC Cluster** Optiwave Systems Inc. Opto-Alignment Technology, Inc.

OSI Laser Diode, Inc.

PA&E

Paradigm Research Optics

PCO-TECH Inc. PD-LD, Inc. **PERFOS** 

Perkins Precision Developments, LLC

Photonfocus AG

Photonic Optische Geraete GmbH

Photonic Science Ltd.

Photonics Spectra, a Photonics

Media Publication

**PHOTONIS** 

Photonsense Technologies

Photron Ltd. Photron USA, Inc. **PixeLINK** Plant for Optics Pleora Technologies Point Grey

Precitech

Princeton Optronics, Inc.

**Pure Photonics Pyxalis QED Optics** Q-Peak, Inc. Quantel Laser

Quartus Engineering Inc. **R&D Interconnect Solutions** Raicol Crystals Ltd.

Rainbow Photonics AG Rainbow Research Optics, Inc. Research Electro-Optics, Inc.

Reynard Corp. RIEGL Research

Forschungsgesellschaft GmbH

Rikola Ltd. RIO-OptaSense

Rochester Precision Optics, LLC **Ross Optical Industries** S.E.Technologies Ltd. Satisloh North America Inc. Schneider Optics, Inc.

Seattle Photonics Associates LLC

SemiNex Corp. SensL Servometer

Shanghai HXF LaiYi Precision Optics

Co., Ltd. Shasta Crystals Showmark, LLC Sierra Precision Optics

Sierra-Olympic Technologies, Inc. Sinclair Manufacturing Co. Sinocera Photonics. Inc.

SIOS Meßtechnik GmbH

Sofradir EC

SPECIM, Spectral Imaging Oy Ltd.

SRICO Inc.

Stanford Photonics, Inc. Starlight Xpress Ltd. Stellar Industries Corp. Stemmerich, Inc.

Sumitomo Electric Industries. Ltd.

Sunex Inc.

SwissOptic AG Sydor Optics, Inc.

Technica Optical Components, LLC

TelAztec LLC ThermoTek, Inc. Thorlabs Inc. **TRIOPTICS** UAB Altechna

Umicore Optical Materials USA, Inc. Uniforce Sales & Engineering

United Lens Co., Inc. Vectronix Inc. Vertilas GmbH Viavi Solutions Inc. Vision Components GmbH Voltage Multipliers, Inc. VPIphotonics GmbH

Wild Group

Wuhan Guide Infrared Co., Ltd.

WZW-Optic AG

Xenics **XIMEA** XSoptix LLC

Z & Z Optoelectronics Tech. Co., Ltd.

Zarbeco, LLC

#### **DETECTORS, SENSORS**

AdTech Optics, Inc.

Advance Reproductions Corp. Advanced Scientific Concepts

AdvR. Inc.

AGM Container Controls, Inc. Allied Vision Technologies Inc.

Alpes Lasers SA Amtron GmbH Analog Modules, Inc. Ascentta, Inc. Asphera, Inc. ATIK Cameras AUREA Technology Axetris AG **Axiom Optics** 

Ayase America Inc. Beijing QM Technology Co., Ltd. Boston Electronics Corp.

**CEDRAT TECHNOLOGIES** CMOS Sensor Inc. **CMOSIS** International

Critical Link, LLC

Daheng Optical Thin Film Center

DataRay Inc. **Daylight Solutions** DiCon Fiberoptics DRS Technologies, Inc. Duma Optronics Ltd.

ELAS. Ltd.

Electro Optical Industries, Inc. Electro-Optics Technology, Inc. Element Six Technologies U.S. Corp Enable Inc.

Energetia Technology, Inc. **EPIGAP Optronic GmbH** 

EPIX, Inc.

**ESPROS Photonics AG** 

**FBGS** Fibercore Ltd. Fiberoptic Systems, Inc. Fibertech Optica Inc. Firebird Sensors, Inc. FRAMOS Technologies Inc. Fraunhofer Heinrich Hertz Institute Freedom Photonics, LLC

Gasera Ltd.

Gentec Electro-Optics Inc.

Gooch & Housego PLC greenTEG AG Gulf Photonics, Inc. Hamamatsu Corp. HEIDENHAIN Corp. Heimann Sensor GmbH Helioworks Inc Hinds Instruments. Inc. Hindsight Imaging

**HORIBA Scientific** ICAMR - International Consortium for Advanced Manufacturing

Research **ID** Quantique **IMFC** 

InfraRed Associates, Inc. Infrared Materials, Inc.

Infrared Systems Development Corp.

Infratec Infrared LLC **Inrad Optics INSION GmbH** 

International Light Technologies, Inc.

IRCameras, LLC **IRflex Corporation** 

ISS, Inc.

J & M Analytik AG Kentek Corp. KETEK GmbH

Kyosemi Opto America Corp. Laser Components DG, Inc. Laser Components USA, Inc. Lein Applied Diagnostics Ltd. LEONI Fiber Optics, Inc. Lextar Electronics Corp.

LightComm Technology Co., Ltd.

Lumics GmbH Masimo Semiconductor

Menlo Systems GmbH MH GoPower Co., Ltd. Micro Photon Devices

Micro-Hybrid Electronic GmbH

Micronor Inc. Mightex Systems Mikro-Tasarim

Molex - Polymicro Technologies™

Multisorb Technologies

Necsel **NeTHIS** 

New England Photoconductor Corp.

New Imaging Technologies

Noxant nPoint, Inc. Nufern **Optics Balzers OPTITEC Cluster** Opto Diode Corp. **OSI Optoelectronics** 

Pantron Automation, Inc. Paradigm Research Optics Particle Measuring Systems PCO-TECH Inc. **PERFOS** PerkinElmer, Inc. PHASICS Photonfocus AG

Photonic Cleaning Technologies Photonic Science Ltd.

Photonics Spectra, a Photonics Media Publication

**PHOTONIS** 

Photonsense Technologies Photron USA, Inc.

Polaris Motion

Precipart

Precitec USA

Quantum Opus

Queensgate, a brand of Elektron Technology UK Ltd

Raptor Photonics Ltd.

RIEGL Research

Forschungsgesellschaft GmbH Rikola Ltd.

Schäfter + Kirchhoff GmbH

SemiNex Corp.

SensL

Sensor Electronic Technology, Inc. Sierra Precision Optics

Sierra-Olympic Technologies, Inc.

Sinclair Manufacturing Co.

Sofradir EC

SPECIM, Spectral Imaging Oy Ltd. SRICO Inc.

Stanford Photonics, Inc.

Starlight Xpress Ltd.

Sumitomo Electric Industries, Ltd. Technica Optical Components, LLC

Teledyne Judson Technologies Vescent Photonics Inc.

VI Systems

Viavi Solutions Inc.

Vortex Optical Coatings Ltd.

Wavelength References, Inc.

Wuhan Guide Infrared Co., Ltd.

**Xenics** 

#### **DISPLAYS**

Advance Reproductions Corp. Ajile Light Industries

Bright LED Electronics Group

Cree. Inc.

Fraunhofer Institute for Silicate Research ISC

Fraunhofer-Institut für Photonische Mikrosysteme

Greenlight Optics, LLC

HC Photonics Corp.

**HOLOEYE Photonics AG** 

Holographix LLC

Jiangsu Wavelet Science Technology Development Co.,Ltd.

Lasence Inc.

LightTrans

Lite-On Technology Corporation

Luvantix SSCP

MDI Advanced Processing GmbH

Mirrorcle Technologies, Inc.

MY Polymers Ltd.

North American Coating

Laboratories

Omega Optical, Inc.

Paradigm Research Optics

Photonics Industry & Technology

**Development Association** 

Powertip Technology Inc.

Rubicon Technology Inc.

ScannerMAX

Seattle Photonics Associates LLC

Shasta Crystals

Stemmerich, Inc.

Synopsys, Inc.

TFD. INC

TLC International World Headquarters

Umicore Thin Film Products

Westboro Photonics

Yunnan Olightek Opto-Electronic Technology Co., Ltd.

#### **DISPLAYS: CONSUMER,** INFORMATION. **ENTERTAINMENT**

Abrisa Technologies Ajile Light Industries Apollo Optical Systems, Inc. Brighterwave, Inc. Daco Instrument Co. Diverse Optics Inc. Eldim

EMF Corp.

Exciton, Inc.

Fraunhofer Institute for Silicate

Research ISC Gamma Scientific

Greenlight Optics, LLC

HC Photonics Corp.

**HOLOEYE Photonics AG** 

Holographix LLC

Iridian Spectral Technologies Ltd.

Lasence Inc.

Lighthouse Photonics, Inc.

Lumentum Operations LLC

Luvantix SSCP

Mirrorcle Technologies, Inc.

MSG Lithoglas GmbH

MY Polymers Ltd.

Next Scan Technology

Optics Balzers Optimax Systems, Inc.

**ORAFOL Fresnel Optics GmbH** 

Quartus Engineering Inc.

Rainbow Research Optics, Inc.

Reynard Corp.

**Ross Optical Industries** 

Rubicon Technology Inc.

Seattle Photonics Associates LLC

Stemmerich, Inc.

Tecnisco Ltd.

TelAztec LLC

TLC International World Headquarters XiO Photonics

Zemax, LLC

#### DISTRIBUTOR. RESELLER, INTEGRATOR

Altos Photonics, Inc.

**Axiom Optics** 

Avase America Inc.

Boston Electronics Corp.

Cybel LLC

Cymtec Ltd.

Diode Laser Concepts, Inc

Fiber Optic Center, Inc.

FRAMOS Technologies Inc.

Frankfurt Laser Company

GTI Technologies, Inc.

Hong-Ming Technology Co., Ltd. IKO International, Inc.

Imagine Optic Inc.

Innovative Photonic Solutions

Market Tech, Inc.

NOVΔF

OpTek Systems Inc.

Pantec Engineering AG

Pixel INK

Rochester Precision Optics, LLC

S.E.Technologies Ltd.

Seattle Photonics Associates LLC Stanford Photonics, Inc.

The Roditi International Corporation

Ltd. Unice E-O Services Inc.

Uniforce Sales & Engineering

XSoptix LLC

#### **EARTH SCIENCES, ENVIRONMENTAL MONITORING, CLIMATE**

Advanced Scientific Concepts

AdvR. Inc.

Agilent Technologies Andon Electronics Corp.

Axetris AG

Beijing TRANS Manufacture and

Trade Co., Ltd.

Berliner Glas KGaA Herbert Kubatz GmbH & Co.

**Brolis Semiconductors UAB** 

Cornell Technical Services, LLC

Crystal IS, Inc.

**Daylight Solutions** 

Delta Optical Thin Film A/S

eaglevard Photonics GmbH Electro-Optics Technology, Inc.

Fibercore Ltd.

Freedom Photonics, LLC Gasera Ltd.

Hindsight Imaging

Infrared Materials, Inc.

inno-spec GmbH

**INSION GmbH** Instrument Technology Research Ctr.

International Light Technologies, Inc. Laser-Export Co. Ltd.

LEUKOS

Micro Laser Systems, Inc.

Micro-Hybrid Electronic GmbH

Muquans

nanoplus GmbH

New England Photoconductor Corp.

Norcada Inc.

Ocean Optics, Inc.

**OPTITEC Cluster** 

OSI Laser Diode, Inc.

PerkinElmer, Inc.

**Photometrics** 

Photonfocus AG

Pure Photonics **Radiantis** 

Raptor Photonics Ltd.

RedWave Labs Ltd.

Research Electro-Optics, Inc.

**RESOLUTION Spectra Systems** RIEGL Research

Forschungsgesellschaft GmbH

Rikola Ltd.

RIO-OptaSense

S.E.Technologies Ltd.

Schäfter + Kirchhoff GmbH

SPECIM, Spectral Imaging Oy Ltd.

Spectrogon US, Inc.

Stratium Ltd.

Sumitomo Electric Industries, Ltd.

Uniforce Sales & Engineering Vortex Optical Coatings Ltd.

Wavelength References, Inc. Xenics

#### **EDUCATION AND TRAINING**

Berlin Adlershof - WISTA-MANAGEMENT GMBH

Clemson University

Daheng New Epoch Technology, Inc.

Fiber Optic Center, Inc.

Florida Photonics Cluster

Haphit Inc Infrared Systems Development Corp. Instrument Technology Research Ctr.

Irvine Valley College (IVC) Photonics

Technology Program

Kentek Corp. Laser Focus World

Laservision USA Lumerical Solutions, Inc.

MIRTHE Center

Navitar Inc.

Optiwave Systems Inc. **OWIS GmbH** 

Quantum Design Society of Vacuum Coaters

VPIphotonics GmbH

StellarNet. Inc.

#### **ELECTRICAL/SIGNAL ANALYSIS EQUIPMENT**

Amtron GmbH Art Electronics Co., Ltd. Elite Engineering Corp. RedWave Labs Ltd.

Yunnan Olightek Opto-Electronic Technology Co., Ltd.

YY Labs., Inc.

#### **ELECTRONIC COMPONENTS**

Advanced Cooling Technologies, Inc.

**AKA Optics SAS** 

Alnair Labs Corp.

**ALPhANOV** 

AMETEK Electronic Packaging &

Components

Amtron GmbH Analog Modules, Inc.

Andon Electronics Corp.

Applied Thin-Film Products

April Electro-Optics Co., Ltd.

Art Electronics Co., Ltd.

Ayase America Inc.

BWT Beijing Ltd.

**CEDRAT TECHNOLOGIES** 

Coining, Inc.

Han's TianCheng Semiconductor

Co., Ltd.

Hinds Instruments, Inc.

Hitachi High Technologies America

ICAMR - International Consortium

for Advanced Manufacturing Research

InPhenix, Inc.

**Isomet Corporation** 

Laser Components Canada

Laser Components GmbH

LASORB - A division of Pangolin

Laser Systems, Inc.

Lumics GmbH

Mad City Labs., Inc.

**MESSTEC Power Converter GmbH** 

MH GoPower Co., Ltd.

microPFP

NEC TOKIN America, Inc.

NRD - Advanced Static Control

**Nutfield Technology** 

PA&E

PD-LD. Inc.

PFC Flexible Circuits Limited

PicoLAS GmbH

Precipart

**Pyxalis** 

Quantum Composers, Inc.

RedWave Labs Ltd.

S.E.Technologies Ltd.

Servometer

Sinclair Manufacturing Co.

Siskiyou Corporation

Solid State Cooling Systems

Stellar Industries Corp.

ThermoTek, Inc.

Unice E-O Services Inc.

Voltage Multipliers, Inc.

XSoptix LLC

#### **ELECTRONIC, DIGITAL IMAGING**

AGM Container Controls, Inc.

Ajile Light Industries

Art Electronics Co., Ltd.

Axsun Technologies

Basler

**Bertin Technologies** 

**CMOSIS International** 

Critical Link. LLC

Cymtec Ltd.

Elite Engineering Corp.

Enable Inc.

EPIX, Inc.

**ESPROS Photonics AG** 

FRAMOS Technologies Inc.

**KEYENCE** Corporation

Minus K Technology Inc.

NRD - Advanced Static Control

Opto Diode Corp.

Paradigm Research Optics

PCO-TECH Inc.

**Photometrics** 

Photonfocus AG

Photonic Science Ltd.

**PHOTONIS** 

Photron USA, Inc.

**PixeLINK** 

Pleora Technologies

Princeton Optronics, Inc.

**Pyxalis** 

Seattle Photonics Associates LLC

Shanghai HXF LaiYi Precision Optics

Co., Ltd.

Siskiyou Corporation

Sofradir EC

Stanford Photonics, Inc.

Starlight Xpress Ltd.

TAG Optics, Inc.

Tomocube

Uniforce Sales & Engineering

Vision Components GmbH

Wuhan Guide Infrared Co., Ltd.

Yunnan Olightek Opto-Electronic Technology Co., Ltd.

Zeon Chemicals L.P.

#### **EMERGING PHOTONICS TECHNOLOGIES**

AdvR, Inc.

**Daylight Solutions** 

**ESPROS Photonics AG** 

Finetech

Ligentec

LumenFlow Corp.

Lumerical Solutions, Inc.

Luxmux Technology Corporation

Multiphoton Optics GmbH North American Coating

nanosystec GmbH

Laboratories

Photon Design Quantum Design

Shasta Crystals

Sydor Optics, Inc.

TelAztec LLC VLC Photonics

## **FIBER OPTICS AND**

Adamant Co., Ltd.

AdValue Photonics, Inc.

Aerotech, Inc.

ΔFI

Aistana Inc.

**ALIO** Industries

Apollo Instruments, Inc.

Applied Image, Inc.

Arrow Thin Films, Inc.

Ascentta, Inc.

Auxora (Shenzhen), Inc.

Avantes, Inc.

Axetris AG

China International Optoelectronic

Coastal Connections

CorActive High-Tech Inc.

Cybel LLC

DataRay Inc.

DiCon Fiberoptics

Electro-Optics Technology, Inc.

**Empire Precision Plastic** 

**FBGS** 

FemtoFiberTec GmbH

Fiber Optic Center, Inc.

Fiberoptic Components, Inc.

Fiberoptic Systems, Inc.

Fibotec Fiberoptics GmbH

FISBA AG

Frankfurt Laser Company Fraunhofer Institute for Applied

Optics and Precision Engineering

Fraunhofer UK Research Ltd.

**GROUP COMPANY LIMITED** 

General Photonics Corp.

GMT GLOBAL INC. (CHANGHUA

BRANCH) Gooch & Housego PLC

Grintech GmbH

Gulf Photonics. Inc.

Hellma USA, Inc.

Hong-Ming Technology Co., Ltd.

**Ibsen Photonics** 

IKO International, Inc.

IMM Photonics GmbH

Interfiber Analysis IPG Photonics Corp.

IRflex Corporation

ITF Technologies Inc.

J & M Analytik AG J. Hauser GmbH & Co. KG

Keopsys Inc.

Kogakugiken Corp. Kylia

Laser Components GmbH

Laser Components USA, Inc.

Laser Mechanisms. Inc.

LEONI Fiber Optics, Inc.

**LEUKOS** LightComm Technology Co., Ltd.

Lincoln Laser Co.

Luvantix SSCP Mad City Labs., Inc.

MH GoPower Co., Ltd.

Micro Laser Systems, Inc.

Micronor Inc.

microPEP Mightex Systems

MIKROP AG

Mitsubishi Cable Industries, Ltd.

Molex - Polymicro Technologies™

MPA Crystal Corp. MPB Communications Inc.

Multisorb Technologies

Muguans

MY Polymers Ltd. nanosystec GmbH

Nextrom

NOVAE NP Photonics. Inc.

Nufern

Omega Optical, Inc.

Omicron Laserage Laserprodukte

**GmbH** 

Oplatek Group Oy OpTek Systems Inc.

Optikron GmbH **OSI Optoelectronics** 

Oxide Corporation

Paradigm Research Optics PD-LD, Inc.

**PERFOS** Photon Control Inc.

Photonic Optische Geraete GmbH Photron USA. Inc.

Plasma Process Group PolarOnyx Laser Inc.

PowerPhotonic Ltd. Precipart

Prizmatix Ltd.

**Pure Photonics** 

Q-Peak, Inc. **RESOLUTION Spectra Systems** 

Reynard Corp.

RIO-OptaSense

VPIphotonics GmbH XiO Photonics

Alnair Labs Corp.

**ALPhANOV** Analog Modules, Inc.

Brimrose Corp. of America Calmar Laser

Exposition

Clemson University

Diode Laser Concepts, Inc

Diverse Optics Inc.

Energetia Technology, Inc.

Feinwerkoptik Zünd AG

**FEMTOprint SA** 

Fibercore Ltd.

Fibertech Optica Inc.

ficonTEC Corporation Filmetrics. Inc.

**GANZHOU JIATON TECHNOLOGY** 

**GLOphotonics** 

**Gould Fiber Optics** 

Guernsey Coating Labs., Inc.

Santec U.S.A. Corp. Schäfter + Kirchhoff GmbH Schmidt & Bender GmbH & Co. KG SemiNex Corp. Shasta Crystals Showmark, LLC Sill Optics GmbH & Co. KG Sinclair Manufacturing Co. Si-Ware Systems SmarAct Inc. Sofradir EC Spectra Quest Lab. Inc. StellarNet, Inc.

Swiss Jewel Co. Taihan Fiberoptics Co., Ltd. Taiwan Optics/Optronics

Manufacturers' Association

(TOOMA)

Technica Optical Components, LLC Technobis Fibre Technologies BV TEM Messtechnik GmbH

TeraXion Inc. TH Mittelhessen

Toyo Seikan Group Holdings, Ltd.

TransMIT GmbH ULTRA TEC Mfg., Inc.

US Fiberoptec Technology, Inc. Vacuum Engineering & Materials

VI Systems

VORTRAN Laser Technology, Inc.

XSoptix LLC Yenista Optics Inc. Zemax, LLC Zeon Chemicals L.P. **ZEUS** 

#### INDUSTRIAL SENSING AND MEASUREMENT

4D Technology Corp. AdValue Photonics. Inc.

ΔFI

Airoptic Sp. z o.o. Alpes Lasers SA Amtron GmbH

Analog Modules, Inc.

Anteryon BV

Art Electronics Co., Ltd. attocube systems Inc.

**Axiom Optics** Axsun Technologies

B&W Tek, Inc.

Basler

Brighterwave, Inc. Brimrose Corp. of America

Carl Zeiss Jena GmbH

CryLaS GmbH

China International Optoelectronic

Exposition **CMOSIS** International

CorActive High-Tech Inc. Cornell Technical Services, LLC Cristal Laser S.A.

Ayase America Inc.

Beijing TRANS Manufacture and

Trade Co., Ltd. Boston Electronics Corp.

JCMwave GmbH

KETEK GmbH

Kopp Glass, Inc. Kozak Micro Adjusters

Laser Components Canada Laser Components DG, Inc.

Crystal IS. Inc.

Crystalline Mirror Solutions GmbH Daheng Optical Thin Film Center

DataRay Inc. **Daylight Solutions** 

Delta Optical Thin Film A/S Diode Laser Concepts. Inc Duma Optronics Ltd.

eagleyard Photonics GmbH Elite Engineering Corp. **EPIGAP Optronic GmbH** 

EPIX. Inc.

**ESPROS Photonics AG** EssentOptics Ltd. Exalos AG

FRGS

Fiberoptic Components, Inc. Fibertech Optica Inc.

Filmetrics, Inc. Firebird Sensors, Inc.

Fraunhofer UK Research Ltd.

Fraunhofer-Institut for Produktion Technology IPT

Fraunhofer-Institut für Photonische Mikrosysteme

Gasera Ltd.

GD Optical Competence GmbH

**GLOphotonics** 

GMT GLOBAL INC. (CHANGHUA

BRANCH)

Gooch & Housego PLC

**Gould Fiber Optics** greenTEG AG

Gulf Photonics, Inc.

Haas Laser Technologies, Inc.

Hamamatsu Corp. HEIDENHAIN Corp. Hinds Instruments, Inc. Hindsight Imaging **HORIBA Scientific** 

**Huanic Corporation** 

**Ibsen Photonics** 

ICAMR - International Consortium for Advanced Manufacturing

Research

**ID** Quantique

IMM Photonics GmbH Infrared Materials, Inc.

Infrared Systems Development Corp.

inno-spec GmbH

Innovative Photonic Solutions

InPhenix, Inc. Inrad Optics **INSION GmbH** 

International Light Technologies, Inc. Iridian Spectral Technologies Ltd.

**Isomet Corporation** J. Hauser GmbH & Co. KG

**KEYENCE** Corporation

Kyosemi Opto America Corp.

Laser Components GmbH

Laser Components Pyro Group, Inc.

Laser Components USA, Inc. Laser-Compact Co. Ltd.

Laser-Export Co. Ltd.

LaserPoint srl

LEONI Fiber Optics, Inc.

**LEUKOS** Ligentec

Lincoln Laser Co. Luceo Co., Ltd. LumenFlow Corp. Lumics GmbH

Luxmux Technology Corporation

Lvtid

M3 Measurement Solutions

Mahr Federal Inc. Masimo Semiconductor

Metrue, Inc.

MH GoPower Co., Ltd.

Micronor Inc. mirSense

Mitsubishi Cable Industries, Ltd.

**Multisorb Technologies** 

Muguans

nanoplus GmbH NANYANG KAIXIN

OPTICAL&ELECTRONIC CO.,LTD

neaspec GmbH

NeTHIS

New England Photoconductor Corp.

New Scale Technologies, Inc.

Norcada Inc. Noxant

NP Photonics, Inc.

nPoint. Inc.

NRD - Advanced Static Control

Ocean Optics, Inc. Onefive GmbH Oplatek Group Oy Optikron GmbH

**OPTITEC Cluster Optometrics Corporation** ORAFOL Fresnel Optics GmbH

PerkinElmer, Inc. PHASICS

Photon Control Inc. Photonic Science Ltd.

Photonsense Technologies

Photron Itd Pleora Technologies Polaris Motion Precitec USA PRIMES GmbH Prizmatix Ltd. Pure Photonics

Q-Peak, Inc. Queensgate, a brand of Elektron Technology UK Ltd

RedWave Labs Ltd. **RESOLUTION Spectra Systems** 

RIEGL Research Forschungsgesellschaft GmbH

Rikola I td. Santec U.S.A. Corp. Schäfter + Kirchhoff GmbH Semiconsoft, Inc.

SensL

Sensofar USA Servometer

Sierra-Olympic Technologies, Inc.

Sinclair Manufacturing Co. SIOS Meßtechnik GmbH

SmarAct Inc

Sofradir EC Special Optics, Inc.

SPECIM, Spectral Imaging Oy Ltd.

Spectral Engines Oy Spectrogon US, Inc. StellarNet, Inc.

STII

Stratium Ltd.

Stream Technologies Inc. Sumitomo Electric Industries. Ltd.

TAG Optics, Inc.

TEM Messtechnik GmbH

The Prince & Izant Companies ThermoTek, Inc.

TMC

Tomocube TRIOPTICS

Unice E-O Services Inc.

Vectronix Inc. Vertilas GmbH

Viavi Solutions Inc. Vision Components GmbH

Vixar Inc.

Vortex Optical Coatings Ltd.

Wavelength References, Inc. Wild Group World Star Tech

Wuhan Guide Infrared Co., Ltd.

XiO Photonics YY Labs., Inc. Zarbeco, LLC Zygo Corporation

#### **INFORMATION PROCESSING AND** COMPUTING

AdvR, Inc.

**AUREA Technology** 

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Instrument Technology Research Ctr. Lumerical Solutions, Inc.

#### LASER COMPONENTS AND ACCESSORIES

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abariscan GmbH

Acktar Ltd.

AdValue Photonics, Inc.

Advanced Cooling Technologies, Inc. Advanced Fiber Resources (Zhuhai)

Ltd. AdvR, Inc. **AKA Optics SAS** Alnair Labs Corp. ΔΙ PhΔΝΟV

Altos Photonics. Inc. Amtron GmbH

Analog Modules, Inc. Andon Electronics Corp. Antervon BV ARGES GmbH Arrow Thin Films, Inc. Arroyo Instruments, LLC Auxora (Shenzhen), Inc. Azur Light Systems Baikowski International Corp. Beijing Golden Way Scientific Co., Ltd. Beijing JCZ Technology Co., Ltd. Beijing Jiepu Trend Technology Co., Ltd. Beijing TRANS Manufacture and Trade Co., Ltd. Berlin Adlershof - WISTA-MANAGEMENT GMBH Berliner Glas KGaA Herbert Kubatz GmbH & Co. **BKtel photonics** BMV Optical Technologies Inc. BoXin Photoelectric Co., Ltd. Brimrose Corp. of America Cambridge Technology Canon U.S.A., Inc. CASIX, Inc. Changchun New Industries Optoelectronics Technology Co., China International Optoelectronic Exposition Clemson University **Coastal Connections** Coining, Inc. Cosmo Optics Covesion Ltd. Cryslaser Inc. Crystal GmbH CRYSTECH Inc. **CVI Laser Optics** Cybel LLC Daheng Optical Thin Film Center DataRay Inc. Dausinger + Giesen GmbH Dayoptics, Inc. **DiCon Fiberoptics** Diode Laser Concepts, Inc Dr. Bohrer Lasertec GmbH Duma Optronics Ltd. eagleyard Photonics GmbH Edmund Optics Inc. **EKSPLA** Electro-Optics Technology, Inc. Exciton, Inc. Fairfield Crystal Technology, LLC Fastlite FIBERCRYST S.A.S. Firebird Sensors, Inc. First Light Lamps

GD Optical Competence GmbH Gentec Electro-Optics Inc. Gitterwerk GmbH **GLOphotonics** Gooch & Housego PLC greenTEG AG GT Crystal Systems Haas Laser Technologies, Inc. Han's TianCheng Semiconductor Co., Ltd. Haphit Inc HC Photonics Corp. Hellma USA, Inc. Hinds Instruments, Inc. **HOLOEYE Photonics AG Huanic Corporation Ibsen Photonics ID** Quantique Infinite Optics Inc. Innovative Optics, Inc. InPhenix, Inc. **Inrad Optics** Intane Optics Interfiber Analysis International Optoelectronics IPG Photonics Corp. IRD Glass **IRflex Corporation Isomet Corporation** ISP System ITF Technologies Inc. JETSEAL, Inc. Kentek Corp. Kogakugiken Corp. Lasence Inc. Laser Components Canada Laser Components DG, Inc. Laser Components USA, Inc. Laser Materials Corp. Laser Mechanisms, Inc. Laser Quantum USA LASERTEC INC Laservision USA LASORB - A division of Pangolin Laser Systems, Inc. Lattice Materials LLC **LEUKOS** Leysop Ltd. LightComm Technology Co., Ltd. LightTrans Lincoln Laser Co. Lumics GmbH MegaWatt Lasers, Inc. Meller Optics, Inc. Melles Griot Menlo Systems GmbH MESSTEC Power Converter GmbH Mirrorcle Technologies, Inc. Mitsubishi Cable Industries, Ltd. Muguans MWTechnologies, Lda MY Polymers Ltd. **NeTHIS** New Scale Technologies, Inc.

New Source Technology, LLC

Next Scan Technology

NoIR LaserShields Norlase ApS NP Photonics, Inc. nPoint, Inc. Nufern **Nutfield Technology** Onefive GmbH Onyx Optics, Inc. Optec S.p.A. **Optics Balzers** Optikron GmbH OptiSource, LLC OSI Laser Diode, Inc. OWIS GmbH PD-I D. Inc. Perkins Precision Developments, LLC PFC Flexible Circuits Limited **PHASICS** Photodigm, Inc. Photonic Cleaning Technologies Photonics Industries International, Inc. **PHOTONIS** PicoLAS GmbH Pleiger Laseroptik GmbH & Co. KG PolarOnyx Laser Inc. PowerPhotonic Ltd. PRIMES GmbH Princeton Optronics, Inc. **QED Optics** Q-Peak, Inc. Radiantis Raicol Crystals Ltd. RAM Photonics, LLC RedWave Labs Ltd. Research Electro-Optics, Inc. **RESOLUTION Spectra Systems** Reynard Corp. Rogers Germany GmbH (curamik) S & R Optic GmbH SCANLAB America, Inc. ScannerMAX Servometer Shasta Crystals Shin-Etsu MicroSi, Inc. Sill Optics GmbH & Co. KG Sinclair Manufacturing Co. Sinocera Photonics, Inc. SIOS Meßtechnik GmbH Solid State Cooling Systems Spectra Quest Lab. Inc. Sutter Instrument SwissOptic AG Sydor Optics, Inc. Tecnisco Ltd. TelAztec LLC TEM Messtechnik GmbH Tempotec Optics Co., Ltd. TH Mittelhessen The Roditi International Corporation Ltd. Thermacore, Inc. ThermoTek, Inc.

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Cymtec Ltd.

FISBA AG

Fraunhofer II T

FOCtek Photonics, Inc.

Fraunhofer Heinrich Hertz Institute

**GANZHOU JIATON TECHNOLOGY** 

GROUP COMPANY LIMITED

TJS, Inc.

**UAB Altechna** 

UltraFast Innovations GmbH

 ${\sf Daco\ Instrument\ Co}.$ 

Daheng Optical Thin Film Center

DataRay Inc.

DILAS Diode Laser, Inc.

Dowa Electronics Materials Co., Ltd.

Dr. Bohrer Lasertec GmbH DTF Technology GmbH eagleyard Photonics GmbH Edmund Optics Inc.

EKSMA Optics EKSPLA ELAS. Ltd.

Electro-Optics Technology, Inc. Elite Optoelectronics Co., Ltd.

EOLITE Lasers Esco Optics, Inc. Evaporated Coatings, Inc.

Exciton, Inc.
FEMTOprint SA
Fibercore Ltd.
FIBERCRYST S.A.S.
Firebird Sensors, Inc.
First Light Imaging
First Light Lamps

Frankfurt Laser Company

Fraunhofer ILT

Fraunhofer UK Research Ltd. Fraunhofer-Institut for Produktion Technology IPT

Gamma Scientific

GANZHOU JIATON TECHNOLOGY GROUP COMPANY LIMITED

Gentec Electro-Optics Inc.

Gitterwerk GmbH GLOphotonics

GMT GLOBAL INC. (CHANGHUA BRANCH)

Gooch & Housego PLC

greenTEG AG GT Crystal Systems

Haas Laser Technologies, Inc. Han's TianCheng Semiconductor Co., Ltd.

Haphit Inc HC Photonics Corp. Hellma USA, Inc. Huanic Corporation Ibsen Photonics II-VI Incorporated

Inlight Precision Optics Co., Ltd. InnoLas Photonics GmbH Innovative Optics, Inc. Inrad Optics

Inrad Optics
Intane Optics
Integrated Optics
Interfiber Analysis

International Optoelectronics IPG Photonics Corp.

IRD Glass

JENOPTIK I Optical Systems JENOPTIK Laser GmbH

JETSEAL, Inc. Kentek Corp.

Keysight Technologies Kogakugiken Corp. Lasence Inc. Laser Components Canada Laser Components DG, Inc.

Laser Components GmbH Laser Components USA, Inc.

Laser Focus World Laser Materials Corp. Laser Mechanisms, Inc. Laser Quantum USA LaserPoint srl LASERTEC INC

Laservision USA LASORB - A division of Pangolin Laser Systems, Inc.

LAYERTEC GmbH Lextar Electronics Corp.

Leysop Ltd. Ligentec Light Conversion

LightComm Technology Co., Ltd.

LightTrans

LIMO Lissotschenko Mikrooptik GmbH

Lumics GmbH

Lytid

M Squared Lasers Ltd. Market Tech, Inc.

Materion

Materion Advanced Material Group

MegaWatt Lasers, Inc.

Melles Griot

Menlo Systems GmbH

MESSTEC Power Converter GmbH

MH GoPower Co., Ltd.

Mitsubishi Cable Industries, Ltd. Molex - Polymicro Technologies™

MWTechnologies, Lda MY Polymers Ltd. NEC TOKIN America, Inc.

Necsel

New Source Technology, LLC Next Scan Technology NoIR LaserShields

NOIR LaserShields
NP Photonics, Inc.

Nufern

**Nutfield Technology** 

Omicron Laserage Laserprodukte GmbH

Oplatek Group Oy Optec S.p.A. OpTek Systems Inc.

Optics Balzers
OPTIDA
Optikron GmbH
OptiSource, LLC
Optiwave Systems Inc.
OSI Laser Diode, Inc.
OWIS GmbH

Oxide Corporation Pantec Engineering AG Paradigm Research Optics Particle Measuring Systems

PD-LD, Inc. PERFOS

Perkins Precision Developments, LLC

PHASICS Photodigm, Inc. Photon Design

Photon Engineering LLC
Photonic Cleaning Technologies

Photonics Industries International,

Inc.
Photonics Spectra, a Photonics

Media Publication
Plasma Process Group

Pleiger Laseroptik GmbH & Co. KG

Plymouth Grating Lab. Polaris Motion

PolarOnyx Laser Inc. Power Technology, Inc. PowerPhotonic Ltd.

PRIMES GmbH Pure Photonics QED Optics Q-Peak, Inc.

Quantum Composers, Inc.

Raicol Crystals Ltd.

Rainbow Research Optics, Inc. RESOLUTION Spectra Systems

ROFIN-Sinar, Inc.

Rogers Germany GmbH (curamik)

Ross Optical Industries Rubicon Technology Inc. S & R Optic GmbH SCANLAB America. Inc.

ScannerMAX Shasta Crystals Shimadzu Corp.

Shin-Etsu MicroSi, Inc. Sigmadyne, Inc.

Sinclair Manufacturing Co. Sinocera Photonics, Inc. SIOS Meßtechnik GmbH SMC Corporation of America Solid State Cooling Systems

Spark Lasers

Spectra-Physics/A Newport

Company Spectrogon US, Inc.

Spectrogon US, Inc. SPI Lasers Standa

Steinmeyer, Inc. SwissOptic AG TAG Optics, Inc.

TEC Microsystems GmbH

Tecnisco Ltd.
Teem Photonics
TelAztec LLC

Tempotec Optics Co., Ltd.

TeraDiode Inc.

The Roditi International Corporation

Ltd. ThermoTek, Inc. TJS, Inc.

TMC UAB Altechna

UltraFast Innovations GmbH Unioriental Optics Co., Ltd.

Valley Design Corp. Vescent Photonics Inc.

Vixar Inc. Voltage Multipliers, Inc.

WZW-Optic AG

XiO Photonics Yelo Ltd. YSL Photonics

YY Labs., Inc. Z & Z Optoelectronics Tech. Co., Ltd. Zaber Technologies Inc.

Zemax, LLC

Z-LASER-America Inc.

#### LASERS AND SYSTEMS

AdTech Optics, Inc. AdValue Photonics, Inc. Advanced Optowave Corp. Advanced Scientific Concepts

AdvR, Inc. Allied Scientific Pro Alnair Labs Corp. Alpes Lasers SA ALPhANOV

Altos Photonics, Inc. Amplitude Systemes Amplitude Technologies

Analog Modules, Inc.
Apollo Instruments, Inc.
Applied Laser Engineering Ltd.

AUREA Technology Axsun Technologies

Azur Light Systems B&W Tek, Inc.

Beijing Jiepu Trend Technology Co., Ltd.

Beijing RealLight Technology Co., Ltd.

Bertin Technologies BKtel photonics

Boston Electronics Corp.
Breault Research Organization, Inc.

Brighterwave, Inc.

Brolis Semiconductors UAB BWT Beijing Ltd.

Calmar Laser Canon U.S.A., Inc. CASIX, Inc.

Changchun New Industries
Optoelectronics Technology Co.,

Ltd.
Clark-MXR, Inc.
Clemson University
Continuum

CorActive High-Tech Inc. Craft Center SAWAKI Inc.

CryLaS GmbH Cryslaser Inc.

Crystalline Mirror Solutions GmbH

CRYSTECH Inc.
Cybel LLC
Daco Instrument Co.

Daheng New Epoch Technology, Inc.

Daylight Solutions
DILAS Diode Laser, Inc.
Diode Laser Concepts, Inc
Dr. Bohrer Lasertec GmbH

eagleyard Photonics GmbH

Dausinger + Giesen GmbH

**EKSPLA** 

ELAS. Ltd. Elforlight Ltd. Elite Optoelectronics Co., Ltd. Energetiq Technology, Inc. **EOLITE Lasers Exalos AG** Exciton. Inc. Fastlite FIBERCRYST S.A.S. Fibotec Fiberoptics GmbH First Light Lamps FISBA AG Frankfurt Laser Company Fraunhofer ILT Fraunhofer Institute for Applied Optics and Precision Engineering IOF Fraunhofer UK Research Ltd. Freedom Photonics, LLC GAM Laser Inc. Gitterwerk GmbH Haas Laser Technologies, Inc. Hamamatsu Corp. Han's TianCheng Semiconductor Co., Ltd. Haphit Inc **Huanic Corporation** HÜBNER GmbH & Co KG ID Quantique **II-VI** Incorporated IMM Photonics GmbH INGENERIC GmbH InnoLas Photonics GmbH Innolume GmbH Innovative Photonic Solutions InPhenix, Inc. **Integrated Optics** International Optoelectronics IPG Photonics Corp. ITF Technologies Inc. JENOPTIK Laser GmbH JETSEAL, Inc. Keopsys Inc. Lasence Inc. Laser Components Canada Laser Mechanisms, Inc. Laser Quantum USA Laser-Compact Co. Ltd. Laser-Export Co. Ltd.

LASERTEC INC

LASORB - A division of Pangolin Laser Systems, Inc. **LEUKOS** 

Lighthouse Photonics, Inc. LightMachinery Inc. LIMO Lissotschenko Mikrooptik **GmbH** LumenFlow Corp.

Lumentum Operations LLC Lumerical Solutions, Inc. Luvantix SSCP

Lvtid

Ligentec

**Light Conversion** 

M Squared Lasers Ltd. Market Tech, Inc.

Masimo Semiconductor MegaWatt Lasers, Inc. Melles Griot

Menlo Systems GmbH

MESSTEC Power Converter GmbH

Micro Laser Systems, Inc.

mirSense MIRTHE Center

Mitsubishi Cable Industries. Ltd.

Modulight, Inc.

MPB Communications Inc. Multisorb Technologies

Muguans

MWTechnologies, Lda nanoplus GmbH neaspec GmbH Necsel

New Source Technology, LLC

nLIGHT Norcada Inc. Norlase ApS

Northrop Grumman Cutting Edge

Optronics NOVAF

NP Photonics. Inc.

Nufern

**Nutfield Technology** 

Okabe Manufacturing Co., Ltd. Omicron Laserage Laserprodukte

**GmbH** 

Ondax, Inc. Onefive GmbH OpTek Systems Inc. Optical Engines, Inc. **Optics Balzers** Oxide Corporation Oxxius SA

Pantec Engineering AG Pavilion Integration Corp.

PD-LD, Inc. **PERFOS** Photodigm, Inc.

Photonics Industries International,

Photonics Spectra, a Photonics Media Publication

Photonsense Technologies Polaris Motion

PolarOnyx Laser Inc. Power Technology, Inc. Princeton Optronics, Inc. Pure Photonics

QPC Lasers-Laser Operations LLC

Q-Peak. Inc. Quantel Laser

Quantum Composers, Inc. Quartus Engineering Inc.

Radiantis

Raicol Crystals Ltd. RAM Photonics, LLC Research Electro-Optics, Inc.

RIEGL Research

Forschungsgesellschaft GmbH RIO-OptaSense

ROFIN-Sinar, Inc. Santec U.S.A. Corp. SCANLAB America, Inc. Schäfter + Kirchhoff GmbH

SemiNex Corp. Shimadzu Corp.

SIOS Meßtechnik GmbH

Spark Lasers

Spectra Quest Lab. Inc. Spectra-Physics/A Newport Company

SPI Lasers

Standa

Stellar Industries Corp.

Stratium Ltd.

Taihan Fiberoptics Co., Ltd.

Technica Optical Components, LLC

Tecnisco Ltd. **Teem Photonics** 

TEM Messtechnik GmbH

TeraDiode Inc. TeraXion Inc. Thorlabs Inc. TJS. Inc.

TransMIT GmbH TRUMPF Inc.

UltraFast Innovations GmbH Unioriental Optics Co., Ltd.

Vertilas GmbH Vescent Photonics Inc.

VI Systems

VORTRAN Laser Technology, Inc. VPIphotonics GmbH

Wavelength References, Inc. Wild Group World Star Tech

XiO Photonics Xiton Photonics GmbH

Yelo Ltd.

Yenista Optics Inc. YSL Photonics

Z-LASER-America Inc.

#### LED, OLED, NON-LASER **LIGHT SOURCES**

Advance Reproductions Corp. Apollo Optical Systems, Inc.

Axetris AG B&W Tek, Inc.

Boston Electronics Corp.

Breault Research Organization, Inc. Bright LED Electronics Group

**Brolis Semiconductors UAB** China International Optoelectronic

Exposition Chroma Technology Corp.

CoolLED

Craft Center SAWAKI Inc. Cree, Inc.

Crystal IS, Inc. Cymtec Ltd.

Dowa Electronics Materials Co., Ltd. Electro Optical Industries, Inc. **Empire Precision Plastic** 

Enable Inc.

Energetiq Technology, Inc. **EPIGAP Optronic GmbH** 

Exalos AG

Fiberoptic Systems, Inc. Fibertech Optica Inc. Fibotec Fiberoptics GmbH Foreal Spectrum, Inc. Frankfurt Laser Company Fraunhofer Institute for Silicate Research ISC

Fraunhofer UK Research Ltd. Freedom Photonics, LLC

Gamma Scientific

**GANZHOU JIATON TECHNOLOGY** GROUP COMPANY LIMITED GD Optical Competence GmbH

Greenlight Optics, LLC G-S Plastic Optics GT Crystal Systems Hamamatsu Corp. Hellma USA, Inc.

IKO International, Inc. **IMM Photonics GmbH** 

InPhenix, Inc.

International Light Technologies, Inc.

ISP System

J. Hauser GmbH & Co. KG Jasper Display Corp.

JOANNEUM RESEARCH Forschungs GmbH

Kopp Glass, Inc.

Kyosemi Opto America Corp. Laser Components DG, Inc.

Laser Quantum USA

LEUKOS

Lextar Electronics Corp.

Lite-On Technology Corporation

LumenFlow Corp. Luvantix SSCP

Luxmux Technology Corporation

Market Tech. Inc. Marubeni America Corp. Masimo Semiconductor

Materion Advanced Material Group

MaxEmil Photonics Corp. Midwest Optical Systems Mightex Systems MSG Lithoglas GmbH

Necsel

NIKKISO AMERICA, INC. NP Photonics, Inc.

NTKJ Co., Ltd. (Nihon Tokushu Kogaku Jushi)

Omicron Laserage Laserprodukte **GmbH** 

Opto Diode Corp. OSI Laser Diode, Inc.

**OSI Optoelectronics** Photonic Optische Geraete GmbH

Photonics Industry & Technology **Development Association** 

Pi Photonics

PolarOnyx Laser Inc. Prior Scientific Inc. Prizmatix I td Rikola I td.

Schölly Micro Optics GmbH Seattle Photonics Associates LLC

Sensor Electronic Technology, Inc. Sill Optics GmbH & Co. KG Sofradir EC StellarNet, Inc. Sumitomo Electric Industries, Ltd. Superlum Sutter Instrument Swarovski Optik KG Synopsys, Inc. Taiwan Optoelectronic Semiconductor Industry Association

TFD, INC Wild Group

Yunnan Olightek Opto-Electronic Technology Co., Ltd.

#### **LIGHTING AND ILLUMINATION**

Abrisa Technologies Advanced Scientific Concepts Ajile Light Industries Allied Scientific Pro Apollo Optical Systems, Inc. Beijing RealLight Technology Co.,

Breault Research Organization, Inc. Bright LED Electronics Group

BWT Beijing Ltd. CASIX. Inc.

Chroma Technology Corp.

CoolLED Cree Inc. Cymtec Ltd.

Delta Optical Thin Film A/S

DiCon Fiberoptics DILAS Diode Laser, Inc.

Docter Optics, Inc.

Dowa Electronics Materials Co., Ltd.

Duma Optronics Ltd.

ELAS. Ltd.

Electro Optical Industries, Inc. Elite Optoelectronics Co., Ltd. **Empire Precision Plastic** 

Enable Inc.

Evaporated Coatings, Inc. Fiberoptic Components, Inc. FRAMOS Technologies Inc. Frankfurt Laser Company

Fraunhofer ILT

Fraunhofer Institute for Applied Optics and Precision Engineering IOF

Gamma Scientific

**GANZHOU JIATON TECHNOLOGY GROUP COMPANY LIMITED** 

Gooch & Housego (Orlando)

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Hong-Ming Technology Co., Ltd.

Infinite Optics Inc.

Inlight Precision Optics Co., Ltd. International Light Technologies, Inc.

IRD Glass Isuzu Glass. Inc.

J. Hauser GmbH & Co. KG

Kokusai Shoii Co., Ltd.

Kopp Glass, Inc.

Lambda Research Corporation

Lasence Inc.

Laser Components Canada Laser Components GmbH

LASORB - A division of Pangolin Laser Systems, Inc.

Lextar Electronics Corp.

LightTrans

Lite-On Technology Corporation Luxmux Technology Corporation

MEOPTA- OPTIKA, S.R.O.

Metrue, Inc.

Mightex Systems

Moore Nanotechnology Systems,

II C

Moulded Optics GmbH

MPB Communications Inc.

MSG Lithoglas GmbH

Nantong Ruisen Optical Element Technology Co., Ltd.

North American Coating

Laboratories

NTKJ Co., Ltd. (Nihon Tokushu Kogaku Jushi)

Oplatek Group Oy

Optical Support, Inc.

Optics for Hire

Opto Diode Corp.

**Optometrics Corporation** 

**ORAFOL Fresnel Optics GmbH** 

Photonic Optische Geraete GmbH

Photonics Industry & Technology

**Development Association** 

Pi Photonics

Precitech

Princeton Optronics, Inc.

Quantel Laser

Reynard Corp.

**Ross Optical Industries** 

S & R Optic GmbH

ScannerMAX

son-x Gmbh

StellarNet, Inc.

Synopsys, Inc.

Taiwan Optoelectronic

Semiconductor Industry

Association

Tecnottica Consonni Srl

TJS, Inc.

Westboro Photonics

World Star Tech

Zemax, LLC

Z-LASER-America Inc.

#### **LITHOGRAPHIC EQUIPMENT**

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Contour Metrological &

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CryLaS GmbH Cymtec Ltd.

Energetiq Technology, Inc.

Firebird Sensors. Inc.

Han's TianCheng Semiconductor Co., Ltd.

IKO International. Inc.

Lincoln Laser Co.

Mad City Labs., Inc.

Multiphoton Optics GmbH

Opto-Alignment Technology, Inc.

Photonic Cleaning Technologies

Quantum Design

S & R Optic GmbH

Synopsys, Inc.

**UC** Components Inc

Vistec Electron Beam GmbH

#### MACHINE VISION, **FACTORY AUTOMATION**

4D Technology Corp. abariscan GmbH

AC Photonics. Inc.

**ACT-Vision** 

Aerotech, Inc.

Ajile Light Industries

**ALIO Industries** 

Allied Scientific Pro

Allied Vision Technologies Inc.

Andon Electronics Corp.

April Electro-Optics Co., Ltd.

Art Electronics Co., Ltd.

**ATIK Cameras** 

**Axiom Optics** 

Ayase America Inc.

Rasler

BoXin Photoelectric Co., Ltd.

Bright LED Electronics Group

Brookman Technology, Inc.

**CEDRAT TECHNOLOGIES** 

Chroma Technology Corp. CMOS Sensor Inc.

CMOSIS International

Daheng New Epoch Technology, Inc.

Diode Laser Concepts, Inc

Edmund Optics Inc.

Electro Optical Industries, Inc.

**EPIGAP Optronic GmbH** 

EPIX. Inc.

**ESPROS Photonics AG** 

Exalos AG Fiberoptic Systems, Inc.

ficonTEC Corporation

FOCtek Photonics, Inc.

FRAMOS Technologies Inc.

Fraunhofer-Institut for Produktion Technology IPT

Haas Laser Technologies, Inc.

HEIDENHAIN Corp. Heimann Sensor GmbH

Hellma USA, Inc.

HIWIN Corp. IKO International, Inc.

Inlight Precision Optics Co., Ltd.

inno-spec GmbH

IRD Glass ISP System JML Optical Industries, LLC

Kozak Micro Adjusters

Laser Components GmbH

Lein Applied Diagnostics Ltd. Lincoln Laser Co.

Lumenera Corp.

LumenFlow Corp.

Mad City Labs., Inc.

Melles Griot

MEOPTA- OPTIKA, S.R.O.

Midwest Optical Systems

MIKROP AG

Minus K Technology Inc.

Mirrorcle Technologies, Inc.

Nanjing Creator Optics Co., Ltd.

nanosystec GmbH

Navitar Inc.

NEC TOKIN America. Inc.

**NeTHIS** 

New Imaging Technologies

New Scale Technologies, Inc.

Noxant

**Nutfield Technology** 

Optec S.p.A. OPTIX Co.

Opto-Alignment Technology, Inc.

**ORAFOL Fresnel Optics GmbH** 

OSI Laser Diode, Inc.

Paradigm Research Optics **Photometrics** 

Photonfocus AG

Photonic Science Ltd.

Photonics Spectra, a Photonics Media Publication

Photron Ltd.

Pi Photonics

**PixeLINK** 

Pleora Technologies

Point Grey

Prior Scientific Inc. Prizmatix Ltd.

**Pvxalis** 

Reynard Corp.

Rochester Precision Optics, LLC

S & R Optic GmbH S.E.Technologies Ltd.

SCANLAB America, Inc.

Schäfter + Kirchhoff GmbH Schneider Optics, Inc.

Schölly Micro Optics GmbH SemiNex Corp.

Servometer

Shanghai HXF LaiYi Precision Optics Co., Ltd.

Sierra-Olympic Technologies, Inc. Sill Optics GmbH & Co. KG

son-x Gmbh

Special Optics, Inc. SPECIM, Spectral Imaging Oy Ltd.

Steinmeyer, Inc.

Stream Technologies Inc.

Sumitomo Electric Industries, Ltd.

Suzhou Bofei Optics Co., Ltd.

Swarovski Optik KG SwissOptic AG

Synergy Optosystems Co., Ltd. TAG Optics, Inc. Tecnottica Consonni Srl Thermo Scientific - CIDTEC TLC International World Headquarters **UC Components Inc** Uniforce Sales & Engineering Universal Optical Co., Limited Vescent Photonics Inc. Vision Components GmbH Vistec Flectron Beam GmbH Voltage Multipliers, Inc. World Star Tech **Xenics** XIMEA

#### MATERIALS PROCESSING, LASERS IN MANUFACTURING

AASA

AdValue Photonics, Inc. Advanced Optowave Corp.

Zaber Technologies Inc.

Aerotech, Inc.

ALPhANOV

Amplitude Systemes

Amtron GmbH

Apollo Instruments, Inc.

Applied Laser Engineering Ltd.

Applied Thin-Film Products

ARGES GmbH

Aspen Systems, Inc.

attocube systems Inc.

Beijing Jiepu Trend Technology Co., Ltd.

Beijing RealLight Technology Co., Ltd.

Berliner Glas KGaA Herbert Kubatz GmbH & Co

BKtel photonics

Bullen Ultrasonics, Inc.

BWT Beijing Ltd.

CAILabs

Calmar Laser

Cambridge Technology

Canon U.S.A., Inc.

Changchun New Industries

Optoelectronics Technology Co.,

Clark-MXR, Inc.

Continuum

CorActive High-Tech Inc.

CryLaS GmbH

Daco Instrument Co.

Dausinger + Giesen GmbH

DILAS Diode Laser, Inc.

Dr. Bohrer Lasertec GmbH

Duma Optronics Ltd.

ELAS, Ltd.

Electro-Optics Technology, Inc.

EOLITE Lasers FEMTOprint SA

FIBERCRYST S.A.S. ficonTEC Corporation

Firebird Sensors, Inc.

Fraunhofer Institute for Silicate Research ISC

GANZHOU JIATON TECHNOLOGY GROUP COMPANY LIMITED

GD Optical Competence GmbH

Gentec Electro-Optics Inc.

Gitterwerk GmbH

Gooch & Housego PLC

areenTEG AG

Haas Laser Technologies, Inc.

Han's TianCheng Semiconductor Co., Ltd.

Heraeus Noblelight America LLC

HIWIN Corp. InnoLas Photonics GmbH

IPG Photonics Corp.

Isomet Corporation

ISP System

ITF Technologies Inc.

JENOPTIK Laser GmbH

Jinan Jingzheng Electronics Co., Ltd.

Kentek Corp.

Laser Mechanisms. Inc.

Laser-Compact Co. Ltd.

Laser-Export Co. Ltd.

LaserPoint srl

LASERTEC INC

LASORB - A division of Pangolin

Laser Systems, Inc.

LAYERTEC GmbH

LightComm Technology Co., Ltd.

LightMachinery Inc.

LIMO Lissotschenko Mikrooptik

GmbH

Lincoln Laser Co.

Lumentum Operations LLC

Lumics GmbH

Market Tech, Inc.

MDI Advanced Processing GmbH

MegaWatt Lasers, Inc.

Menlo Systems GmbH

MESSTEC Power Converter GmbH

Mitsubishi Cable Industries, Ltd.

Multiphoton Optics GmbH

MWTechnologies, Lda

nanosystec GmbH

New Imaging Technologies

Next Scan Technology

nLIGHT

Northrop Grumman Cutting Edge

Optronics

NOVAE

NP Photonics, Inc.

Nufern

**Nutfield Technology** 

Onefive GmbH

OpTek Systems Inc.

Opto-Alignment Technology, Inc.

**OWIS GmbH** 

Oxide Corporation

Pantec Engineering AG

PCT Systems, Inc.

Perkins Precision Developments, LLC PFC Flexible Circuits Limited

Photonfocus AG

Photonic Cleaning Technologies Photonics Industries International,

Inc.

PixeLINK

Pleiger Laseroptik GmbH & Co. KG

Polaris Motion

PolarOnyx Laser Inc.

PowerPhotonic Ltd.

Precipart

PRIMES GmbH

Primoceler, Inc.

QPC Lasers-Laser Operations LLC

Quantel Laser

Quantum Composers, Inc.

RedWave Labs Ltd.

Research Electro-Optics, Inc.

ROFIN-Sinar, Inc.

SCANLAB America, Inc.

SENSOFAR METROLOGY

Spark Lasers

Spectra-Physics/A Newport

Company

SPI Lasers

Stellar Industries Corp.

Suzhou Bofei Optics Co., Ltd.

TAG Optics, Inc.

Tecnisco Ltd.

TEM Messtechnik GmbH

TeraDiode Inc.

TeraXion Inc.

TH Mittelhessen

The Prince & Izant Companies

The Roditi International Corporation Ltd.

ThermoTek, Inc.

TJS, Inc.

TransMIT GmbH

TRUMPF Inc.

Unioriental Optics Co., Ltd.

Valley Design Corp.

World Star Tech

Xiton Photonics GmbH

## MATERIALS, ABRASIVES, CHEMICALS

Advanced Thin Films

Applied Thin-Film Products

April Electro-Optics Co., Ltd.

Baikowski International Corp.

Beijing Jiepu Trend Technology Co.,

Ltd. Bullen Ultrasonics, Inc.

Cambridge Technology

Clemson University Coining, Inc.

Covesion Ltd.

Crystal GmbH

Crystran Ltd.
DCM Tech. Corp.

DITF Interconnect Technology Dowa Electronics Materials Co., Ltd.

Element Six Technologies U.S. Corp

Fairfield Crystal Technology, LLC Fiber Optic Center, Inc.

GANZHOU JIATON TECHNOLOGY GROUP COMPANY LIMITED

Gavish, Inc.

GT Crystal Systems

Han's TianCheng Semiconductor Co., Ltd.

HC Photonics Corp.

ICAMR - International Consortium for Advanced Manufacturing

Research II-VI Incorporated

IMEC

Infinite Optics Inc.

Insaco Inc.

International Optoelectronics

Isuzu Glass, Inc.

Jinan Jingzheng Electronics Co., Ltd.

JULABO USA, Inc.

Kogakugiken Corp.

Kopp Glass, Inc.

Laser Materials Corp.

Lattice Materials LLC Luvantix SSCP

Materion

Materion Advanced Material Group

MPA Crystal Corp.

MSG Lithoglas GmbH

MY Polymers Ltd.

Nanjing Creator Optics Co., Ltd.

NP Photonics, Inc.

Ohara Corporation

OptoTech Optical Machinery Inc.
Oxide Corporation

Oxide Co

Precipart

Raicol Crystals Ltd.

Rubicon Technology Inc. S & R Optic GmbH

Shanghai HXF LaiYi Precision Optics Co., Ltd.

Sinocera Photonics, Inc.

Si-Ware Systems

Spectra-Physics/A Newport

Company

Stellar Industries Corp.

Stemmerich, Inc.

Sumitomo Electric Industries, Ltd.

Swiss Jewel Co.

Sydor Optics, Inc. Tempo Clean Room Foam

The Prince & Izant Companies

The Roditi International Corporation Ltd.

Thermacore, Inc.

ThetaMetrisis LLC

Umicore Optical Materials USA, Inc. Umicore Thin Film Products

Universal Photonics Inc.

Vacuum Engineering & Materials Valley Design Corp.

Valtech Corporation Zeon Chemicals L.P.

MICROSCOPES attocube systems Inc. AUREA Technology

Basler

BigC Dino-Lite Digital Microscope Boston Electronics Corp. Brimrose Corp. of America Bruker Nano Surfaces, Inc.

CoolLED

Daco Instrument Co.
Daylight Solutions
DiCon Fiberoptics
Docter Optics, Inc.
Dr. Bohrer Lasertec GmbH

EPIX, Inc.

Exalos AG

Fiberoptic Components, Inc.

Filmetrics, Inc.

Hinds Instruments, Inc.

Infrared Systems Development Corp. Iridian Spectral Technologies Ltd.

ISS, Inc.

KETEK GmbH

**KEYENCE** Corporation

Leica Microsystems CMS GmbH

Mad City Labs., Inc.

Mahr Federal Inc.

Minus K Technology Inc.

Mitutoyo America Corporation

Nanjing Creator Optics Co., Ltd.

Nanomotion Inc.

neaspec GmbH

nPoint, Inc.

Olympus

**PHASICS** 

Photonic Optische Geraete GmbH

Photonic Science Ltd.

**PixeLINK** 

Pyxalis

Raptor Photonics Ltd.

Semiconsoft, Inc.

Semrock

SENSOFAR METROLOGY

Sensofar USA

Special Optics, Inc.

Starlight Xpress Ltd.

StellarNet, Inc.

STRATEC Biomedical USA

Sutter Instrument

Suzhou Bofei Optics Co., Ltd.

TAG Optics, Inc.

Thorlabs Inc.

Tomocube

ULTRA TEC Mfg., Inc.

Wild Group

Xenics

XIMEA

XiO Photonics

Yunnan Olightek Opto-Electronic Technology Co., Ltd.

Zarbeco, LLC

Zemax, LLC Zygo Corporation

#### **MICROTECHNOLOGY**

Adamant Co., Ltd. Advance Reproductions Corp. Axetris AG Bullen Ultrasonics, Inc. Carl Zeiss Jena GmbH

FEMTOprint SA

Fraunhofer-Institut für Photonische Mikrosysteme

Holographix LLC

Materion

Materion Advanced Material Group MEMS & Nanotechnology Exchange

Micro-Hybrid Electronic GmbH

Mirrorcle Technologies, Inc.

MSG Lithoglas GmbH

Norcada Inc.

OpTek Systems Inc.

PFC Flexible Circuits Limited

Si-Ware Systems

Spectral Engines Oy

Stemmerich, Inc.

Tecnisco Ltd.

Teem Photonics

TFD, INC

ThetaMetrisis LLC

Vacuum Engineering & Materials

Vistec Electron Beam GmbH

XiO Photonics

## MISC CONSUMABLES AND EQUIPMENT

Aerotech, Inc.

Basler

Blackstone-NEY Ultrasonics

Cristal Laser S.A.

DTF Technology GmbH

Elma Ultrasonic

Excell Technology

ficonTEC Corporation

Finetech

Gel-Pak

GTI Technologies, Inc.

JAYCO Cleaning Technologies

JETSEAL, Inc.

Laservision USA

Lincoln Laser Co.

nanosystec GmbH

PCT Systems, Inc.

Photonic Cleaning Technologies

Rikola Ltd.

Satisloh North America Inc.

Solid State Cooling Systems

Standa

ULTRA TEC Mfg., Inc.

Virtual Industries, Inc.

## MOUNTS, TABLES, VIBRATION ISOLATION

Aerotech, Inc.

Arroyo Instruments, LLC

Daheng New Epoch Technology, Inc.

Ealing Catalog Inc.

Filmetrics, Inc.

GMT GLOBAL INC. (CHANGHUA BRANCH)

HIWIN Corp.

Kinetic Systems, Inc.

Minus K Technology Inc.

Navitar Inc.

Optical Support, Inc.

**OWIS GmbH** 

Oxide Corporation

Prior Scientific Inc.

Tecnisco Ltd.

TMC

Unice E-O Services Inc.

Wavelength Opto-Electronic (S)

Pte. Ltd.

Zaber Technologies Inc.

Z-LASER-America Inc.

Zolix Instruments Co., Ltd.

## NANOTECHNOLOGY PRODUCTS

Agilent Technologies ALIO Industries

AUREA Technology

Berlin Adlershof - WISTA-

MANAGEMENT GMBH CEDRAT TECHNOLOGIES

Crystalline Mirror Solutions GmbH

Dowa Electronics Materials Co., Ltd.

FEMTOprint SA

Fraunhofer Institute for Silicate

Research ISC Gitterwerk GmbH

Holographix LLC

ID Quantique

Jinan Jingzheng Electronics Co., Ltd. JOANNEUM RESEARCH Forschungs

GmbH

Lumerical Solutions. Inc.

Masimo Semiconductor

MEMS & Nanotechnology Exchange

NANYANG KAIXIN

OPTICAL&ELECTRONIC CO.,LTD

Norcada Inc

Particle Measuring Systems

PerkinElmer, Inc.

Quantum Design

SRICO Inc.

TelAztec LLC

ThetaMetrisis LLC

ULTRA TEC Mfg., Inc.

Universal Photonics Inc.
Vacuum Engineering & Materials

Vistec Electron Beam GmbH

VLC Photonics

AccuCoat Inc.

## OPTICAL COATINGS, THIN FILMS

Abrisa Technologies

Acktar Ltd.

Acton Optics & Coatings

Advanced Cooling Technologies, Inc. Advanced Thin Films

Applied Laser Engineering Ltd.

Applied Optics Ctr., a Div. of Optex

Systems, Inc. Argyle International, Inc.

Arrow Thin Films, Inc.

ASE Optics

asphericon, Inc.

Auxora (Shenzhen), Inc.

Beijing Golden Way Scientific Co.,

Ltd.

Beijing Jiepu Trend Technology Co., Ltd.

Beijing TRANS Manufacture and Trade Co., Ltd.

Berlin Adlershof - WISTA-MANAGEMENT GMBH

Berliner Glas KGaA Herbert Kubatz GmbH & Co.

BMV Optical Technologies Inc.

BoXin Photoelectric Co., Ltd.

Carl Zeiss Jena GmbH

China International Optoelectronic
Exposition

Chroma Technology Corp.

CODIXX AG

Cosmo Optics

Crystalline Mirror Solutions GmbH

CRYSTECH Inc.

Crystran Ltd.

CVI Laser Optics Dayoptics, Inc.

Delta Optical Thin Film A/S

Deposition Sciences, Inc. Docter Optics, Inc.

Dominar, Inc.

DTF Technology GmbH

East Tender Optoelectronics Corp.

Edmund Optics Inc.

EKSMA Optics

EMF Corp.

**Empire Precision Plastic** 

Esco Optics, Inc.
Evaporated Coatings, Inc.

Feinwerkoptik Zünd AG

Ferson Technologies
Fiber Optic Center, Inc.

FOCtek Photonics, Inc.

Foreal Spectrum, Inc.
Fraunhofer Institute for Applied
Optics and Precision Engineering

IOF Fraunhofer Institute for Silicate

GANZHOU JIATON TECHNOLOGY

GROUP COMPANY LIMITED

Research ISC

Gavish, Inc. G-S Plastic Optics

Guernsey Coating Labs., Inc.

Guild Optical Associates, Inc. Haphit Inc

HC Photonics Corp.
II-VI Incorporated

Infinite Optics Inc.

Inlight Precision Optics Co., Ltd.

Inrad Optics
Instrument Technology Research Ctr.

Intane Optics
International Optoelectronics

IRD Glass Iridian Spectral Technologies Ltd.

ISP Optics Corp. Isuzu Glass, Inc.

JENOPTIK I Optical Systems

Jinan Jingzheng Electronics Co., Ltd. JML Optical Industries, LLC **Keysight Technologies** Kogakugiken Corp. Kokusai Shoji Co., Ltd. Laser Components USA, Inc. Laser Materials Corp. LASERTEC INC Lattice Materials LLC LAYERTEC GmbH Leysop Ltd. Ligentec Materion MaxEmil Photonics Corp. Meller Optics, Inc. Melles Griot MEOPTA- OPTIKA, S.R.O. Midwest Optical Systems Millog Oy Moulded Optics GmbH MPA Crystal Corp. MSG Lithoglas GmbH MY Polymers Ltd. Nanjing Creator Optics Co., Ltd. NANYANG KAIXIN OPTICAL&ELECTRONIC CO.,LTD Newport Thin Film Lab., Inc. Nitto Optical Co., Ltd. Omega Optical, Inc. Oplatek Group Oy **Optics Balzers OPTIDA** Optikron GmbH Optimax Systems, Inc. **OPTITEC Cluster** OPTIX Co. **OPTOFLUX GmbH** Opto-Line International, Inc. **Optometrics Corporation ORAFOL Fresnel Optics GmbH** PerkinElmer, Inc. Perkins Precision Developments, LLC PIKE Technologies Plant for Optics Plasma Process Group Pleiger Laseroptik GmbH & Co. KG Plymouth Grating Lab. Rainbow Research Optics, Inc. Research Electro-Optics, Inc. Reynard Corp. Rochester Precision Optics, LLC **Ross Optical Industries** Rubicon Technology Inc. Schmidt & Bender GmbH & Co. KG Schölly Micro Optics GmbH Semrock Servometer Sinocera Photonics, Inc. Society of Vacuum Coaters Spectral Systems Spectrogon US, Inc. Stellar Industries Corp. Suzhou Bofei Optics Co., Ltd.

Sydor Optics, Inc. Taiwan Optics/Optronics Manufacturers' Association (TOOMA) Tecnisco Ltd. Tecnottica Consonni Srl Tecport Optics, Inc. TelAztec LLC Tempo Clean Room Foam Tempotec Optics Co., Ltd. TFD. INC The China and South Optical Crystal Co. ThetaMetrisis LLC UAB Altechna Umicore Optical Materials USA, Inc. Umicore Thin Film Products United Lens Co., Inc.

V&D New Materials (Jiangsu) Co., I td Vacuum Engineering & Materials Viavi Solutions Inc.

Vortex Optical Coatings Ltd. Wavelength Opto-Electronic (S) Pte. Ltd.

WZW-Optic AG

Z & Z Optoelectronics Tech. Co., Ltd.

Zuend Precision Optics Itd. Zygo Corporation

#### **OPTICAL** COMMUNICATION, **NETWORKING DEVICES**

AC Photonics, Inc. Adamant Co., Ltd.

Advanced Fiber Resources (Zhuhai) Ltd.

AFL

Alnair Labs Corp. Ascentta, Inc. **AUREA Technology** Auxora (Shenzhen), Inc. **Axsun Technologies** Brimrose Corp. of America

Calmar Laser

Fiber Optic Center, Inc.

Fibercore Ltd.

Fraunhofer-Institut für Photonische Mikrosysteme

Freedom Photonics, LLC

**GLOphotonics Gould Fiber Optics** 

Haphit Inc InPhenix, Inc.

Jiangsu Wavelet Science Technology Development Co.,Ltd.

Kylia

LEONI Fiber Optics, Inc. LightComm Technology Co., Ltd. Lumerical Solutions, Inc. MEOPTA- OPTIKA, S.R.O. MH GoPower Co., Ltd.

microPEP

Molex - Polymicro Technologies™ MPB Communications Inc.

Muguans MWTechnologies, Lda OEwaves, Inc.

Photon Design

Photonsense Technologies **R&D Interconnect Solutions** RAM Photonics, LLC

S & R Optic GmbH Siskiyou Corporation

SRICO Inc.

Synergy Optosystems Co., Ltd.

Vertilas GmbH VI Systems **VLC Photonics** 

VPIphotonics GmbH

Wavelength References, Inc.

Yelo Ltd.

#### **OPTICAL COMPONENTS** FILTERS, MIRRORS, **OTHER**

abariscan GmbH Abrisa Technologies AC Photonics, Inc. AccuCoat Inc. Acton Optics & Coatings Adamant Co., Ltd. AdValue Photonics, Inc. Advanced Thin Films

AdvR, Inc. ΑFI Aistana Inc. **AKA Optics SAS** 

Altos Photonics, Inc.

Anson Optical Products Co., Ltd.

Antervon BV

Applied Image, Inc. Applied Optics Ctr., a Div. of Optex

Systems, Inc. April Electro-Optics Co., Ltd.

Archer OpTx, Inc. Argyle International, Inc. Arrow Thin Films, Inc.

Ascentta, Inc.

**ASE Optics** 

asphericon, Inc.

Auxora (Shenzhen), Inc.

Ayase America Inc.

Beijing Golden Way Scientific Co.,

Ltd. Beijing Jiepu Trend Technology Co.,

Ltd.

Beijing TRANS Manufacture and Trade Co., Ltd.

BMV Optical Technologies Inc. BoXin Photoelectric Co., Ltd. Bullen Ultrasonics, Inc. Calin Technology Co. Ltd.

Cambridge Technology Canon U.S.A., Inc.

Carl Zeiss Jena GmbH CASIX, Inc.

Chroma Technology Corp.

CODIXX AG

Contour Metrological & Manufacturing, Inc. (CMM) Cosmo Optics Cristal Laser S.A. Cryslaser Inc. Crystal GmbH

Crystalline Mirror Solutions GmbH

CRYSTECH Inc. Crystran Ltd. **CVI Laser Optics** 

Daheng New Epoch Technology, Inc. Daheng Optical Thin Film Center

Dayoptics, Inc.

Delta Optical Thin Film A/S Deposition Sciences, Inc. Docter Optics, Inc. Dominar, Inc.

E.R. Precision Optical Corp.

Ealing Catalog Inc. Edmund Optics Inc. **EKSMA Optics** ELAS, Ltd.

Electro Optical Industries, Inc. Electro-Optics Technology, Inc.

**Empire Precision Plastic** 

Esco Optics, Inc.

Evaporated Coatings, Inc.

Exciton, Inc.

Fairfield Crystal Technology, LLC

Feinwerkoptik Zünd AG Ferson Technologies Fibercore Ltd. FOCtek Photonics, Inc. Foreal Spectrum, Inc.

Fraunhofer Heinrich Hertz Institute Fraunhofer Institute for Applied

Optics and Precision Engineering

Fraunhofer Institute for Silicate

Research ISC

Gavish Inc.

**GD Optical Competence GmbH** Gentec Electro-Optics Inc.

Gitterwerk GmbH

GMT GLOBAL INC. (CHANGHUA BRANCH)

Gooch & Housego PLC **Gould Fiber Optics** 

G-S Plastic Optics GT Crystal Systems

Guild Optical Associates, Inc.

Hangzhou Freqcontrol Electronic Technology Ltd.

Haphit Inc

HC Photonics Corp.

Hitachi High Technologies America

**HOLOEYE Photonics AG** 

Holographix LLC **HORIBA Scientific Ibsen Photonics II-VI** Incorporated

Imagine Optic Inc. Infinite Optics Inc. INGENERIC GmbH

Inlight Precision Optics Co., Ltd.

**Inrad Optics** Insaco Inc.

Instrument Technology Research Ctr.

Swarovski Optik KG

SwissOptic AG

Integrated Optics International Optoelectronics

IRD Glass

**IRflex Corporation** 

Iridian Spectral Technologies Ltd.

**Isomet Corporation** ISP Optics Corp. ISP System Isuzu Glass. Inc.

J. Hauser GmbH & Co. KG JENOPTIK I Optical Systems JML Optical Industries, LLC Keysight Technologies Kogakugiken Corp. Kokusai Shoji Co., Ltd. Kopp Glass, Inc.

Laser Components GmbH Laser Components USA, Inc. Laser Mechanisms, Inc.

Laser Quantum USA LASERTEC INC Lattice Materials LLC LAYERTEC GmbH

LEONI Fiber Optics, Inc.

Levsop Ltd. Ligentec

LightComm Technology Co., Ltd.

LightMachinery Inc.

LightTrans

LIMO Lissotschenko Mikrooptik GmbH

Luceo Co., Ltd. Materion

MegaWatt Lasers, Inc. Meller Optics, Inc. Melles Griot

MEOPTA- OPTIKA, S.R.O.

microPEP

Midwest Optical Systems

MIKROP AG Millog Oy

Minus K Technology Inc. Mirrorcle Technologies, Inc. Mitsubishi Cable Industries, Ltd. Molex - Polymicro Technologies™ Moulded Optics GmbH

MPA Crystal Corp. MSG Lithoglas GmbH Multiphoton Optics GmbH Nanjing Creator Optics Co., Ltd. Nantong Ruisen Optical Element Technology Co., Ltd.

NANYANG KAIXIN

OPTICAL&ELECTRONIC CO.,LTD

NEC TOKIN America, Inc.

New England Photoconductor Corp.

New Scale Technologies, Inc. New Source Technology, LLC

Newport Thin Film Lab., Inc. Nitto Optical Co., Ltd.

NTKJ Co., Ltd. (Nihon Tokushu

Kogaku Jushi) OEwaves, Inc. Ohara Corporation Omega Optical, Inc.

Ondax, Inc.

Onvx Optics, Inc. Oplatek Group Oy **Optics Balzers OPTIDA** 

Optik + Optikron GmbH Optimax Systems, Inc.

OptiSource, LLC **OPTITEC Cluster** OPTIX Co. OPTOFLUX GmbH

Opto-Line International, Inc. **Optometrics Corporation** 

ORAFOL Fresnel Optics GmbH Perkins Precision Developments, LLC

PHASICS

Photonic Optische Geraete GmbH

Photonsense Technologies

Photron Ltd. PIKE Technologies Plant for Optics

Pleiger Laseroptik GmbH & Co. KG

Plymouth Grating Lab. PowerPhotonic Ltd.

Precipart **QED Optics** 

Rainbow Research Optics, Inc. Research Electro-Optics, Inc.

Reynard Corp. **Ross Optical Industries** Rubicon Technology Inc. S & R Optic GmbH Santec U.S.A. Corp.

Schmidt & Bender GmbH & Co. KG

Schneider Optics. Inc.

Semrock Servometer

Shanghai HXF LaiYi Precision Optics

Co., Ltd. Shimadzu Corp. Sierra Precision Optics Sinocera Photonics, Inc. Spectral Systems Spectrogon US, Inc. SRICO Inc.

Stemmerich, Inc. Sutter Instrument Suzhou Bofei Optics Co., Ltd. Swarovski Optik KG Swiss Jewel Co. Sydor Optics, Inc. TAG Optics, Inc. Taiwan Optics/Optronics Manufacturers' Association

(TOOMA) Tecnottica Consonni Srl

Tempotec Optics Co., Ltd. TeraXion Inc. TFD. INC.

The Prince & Izant Companies

The Roditi International Corporation Ltd.

Thermacore, Inc. Thorlabs Inc.

TLC International World Headquarters

UAB Altechna

UltraFast Innovations GmbH Unioriental Optics Co., Ltd.

United Lens Co., Inc.

Universal Optical Co., Limited US Fiberoptec Technology, Inc.

Valley Design Corp. Voltage Multipliers, Inc.

Vortex Optical Coatings Ltd.

Wavelength Opto-Electronic (S) Pte. Ltd.

WZW-Optic AG

Z & Z Optoelectronics Tech. Co., Ltd.

Zemax, LLC

Zeon Chemicals L.P. Zuend Precision Optics Itd.

Zygo Corporation

#### **OPTICAL COMPONENTS** - LENSES

Abrisa Technologies AC Photonics, Inc.

Accumold Aistana Inc.

Allied Scientific Pro

Altos Photonics, Inc.

Anson Optical Products Co., Ltd.

Antervon BV

Apollo Instruments, Inc. Apollo Optical Systems, Inc.

Applied Image, Inc.

Applied Optics Ctr., a Div. of Optex Systems, Inc.

April Electro-Optics Co., Ltd.

Archer OpTx, Inc.

Argyle International, Inc.

Arrow Thin Films, Inc.

**ASE Optics** Asphera, Inc.

asphericon, Inc. Axetris AG

Ayase America Inc.

BASO Precision Optics Ltd.

Beijing Golden Way Scientific Co., Ltd.

Beijing TRANS Manufacture and Trade Co., Ltd.

Berliner Glas KGaA Herbert Kubatz

GmbH & Co.

BMV Optical Technologies Inc. BoXin Photoelectric Co., Ltd.

Breault Research Organization, Inc. Calin Technology Co. Ltd.

Canon U.S.A., Inc. Carl Zeiss Jena GmbH

Chengdu Daxin Optical Instrument Co., Ltd.

Contour Metrological &

Manufacturing, Inc. (CMM) Cosmo Optics Crystal GmbH CRYSTECH Inc.

Crystran Ltd. **CVI Laser Optics** 

Daheng New Epoch Technology, Inc. Daheng Optical Thin Film Center

Davoptics, Inc.

Deposition Sciences, Inc.

Diverse Optics Inc.

Docter Optics, Inc.

E.R. Precision Optical Corp.

Ealing Catalog Inc. Edmund Optics Inc. **EKSMA Optics** 

**Empire Precision Plastic** 

Enable Inc. Esco Optics, Inc.

ELAS. Ltd.

Fairfield Crystal Technology, LLC

Feinwerkoptik Zünd AG Ferson Technologies

FISBA AG

FOCtek Photonics, Inc. Frankfurt Laser Company

Fraunhofer Institute for Applied Optics and Precision Engineering

Gavish, Inc.

GD Optical Competence GmbH

Gooch & Housego PLC Greenlight Optics, LLC Grintech GmbH G-S Plastic Optics GT Crystal Systems

Guild Optical Associates, Inc.

Haas Laser Technologies, Inc.

Hellma USA, Inc.

Hitachi High Technologies America

**HOLOEYE Photonics AG** 

Holographix LLC **Huanic Corporation** II-VI Incorporated

IMM Photonics GmbH

Infinite Optics Inc. INGENERIC GmbH

Inlight Precision Optics Co., Ltd.

Instrument Technology Research Ctr. **Integrated Optics** IRCameras, LLC IRD Glass

ISP Optics Corp. Isuzu Glass, Inc.

J. Hauser GmbH & Co. KG JENOPTIK I Optical Systems

JML Optical Industries, LLC JOANNEUM RESEARCH Forschungs

GmbH Kentek Corp.

Kopp Glass, Inc. Laser Components GmbH

Lattice Materials LLC

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