



Advanced Lithography 2019

# EXHIBITION GUIDE

Moving technology to market™

**Exhibition**

26-27 February 2019

**Conferences + Courses**

24-28 February 2019

San Jose Convention Center  
San Jose, California, USA

[spie.org/al](http://spie.org/al)



# ADVANCED LITHOGRAPHY 2019

TECHNOLOGIES FOR LITHOGRAPHY R&D, DEVICES, TOOLS,  
FABRICATION, AND SERVICES.

Conferences and Courses: 24-28 February 2019

Exhibition: 26-27 February 2019

San Jose, California, USA

## Welcome to San Jose

**CUTTING-EDGE RESEARCH**

**WORLD-CLASS SPEAKERS**

**TRAINING AND EDUCATION**

**FOCUSED TECHNICAL TOPICS**

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# WELCOME TO THE EXHIBITION

## **SPIE.** ADVANCED LITHOGRAPHY

Tuesday 26 February · 10:00 AM - 5:00 PM  
 Wednesday 27 February · 10:00 AM - 4:00 PM

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SPIE would like to express its deepest appreciation to the symposium chairs, conference chairs, program committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This program is based on commitments received up to the time of publication and is subject to change without notice.

For information about exhibiting, sponsorship, and advertising opportunities at future Advanced Lithography events, contact: SPIE Sales at [spiesales@spie.org](mailto:spiesales@spie.org)

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# Thanks to the following sponsors for their generous support of SPIE Advanced Lithography



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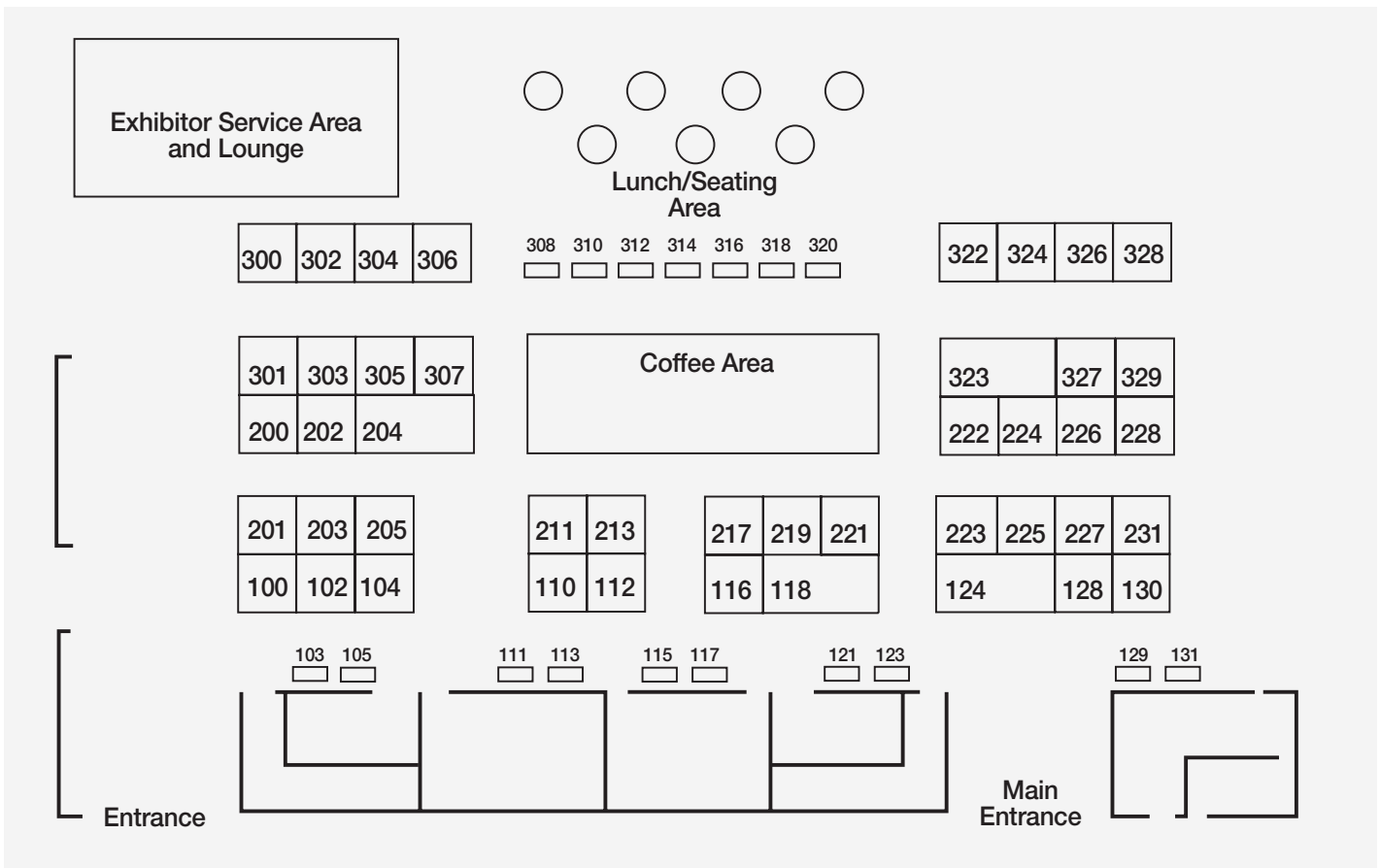
**NUFLARE**



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**TEL**™

# SAN JOSE CONVENTION CENTER - EXHIBITION FLOOR



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# GENERAL INFORMATION

## Exhibition Hours

Tuesday 26 February · 10:00 am to 5:00 pm  
Wednesday 27 February · 10:00 am to 4:00 pm

## Registration

### ONSITE REGISTRATION AND BADGE PICK-UP HOURS

San Jose Convention Center

Sunday 24 February · 7:15 am to 5:00 pm  
Monday 25 February · 7:15 am to 4:00 pm  
Tuesday 26 February · 7:30 am to 5:00 pm  
Wednesday 27 February · 7:30 am to 4:00 pm  
Thursday 28 February · 7:45 am to 4:00 pm  
(Thursday is conference registration only)

## Coffee Breaks

Served daily – 7:30 am, 10:00 am and 3:00 pm  
Check individual conference listings for exact times and locations.



## Breakfast Breads

Convention Center, Ballroom Concourse  
Monday – Thursday, 7:30 am



## Food and Refreshments for Purchase

Convention Center, Ballroom Concourse  
Monday – Thursday, 7:30 am to 4:00 pm

Hot and cold snacks, hot entrees, deli sandwiches, salads, and pastries are available for purchase. Cash and credit cards accepted.

## Exhibition Hall Concession Stand

Tuesday – Wednesday, 11:00 am to 2:00 pm

Hot and cold snacks, hot entrees, deli sandwiches, salads, and pastries are available for purchase. Cash and credit cards accepted.

## SPIE Hosted Lunches

Exhibition Hall  
Tuesday – Wednesday, 11:30 am to 1:00 pm

Check individual conference listings for exact times  
Complimentary tickets for these lunches will be included with full conference registrations. Students may purchase tickets at the Cashier Desk.



## Desserts

Exhibition Hall 1  
Tuesday and Wednesday

Complimentary tickets for the dessert snacks will be included in conference attendee registration packets.

## Internet Options

### WIRELESS ACCESS

Convention Center Upper Level Concourse

Complimentary wireless access is available; instructions will be posted onsite.

West end WiFi sponsored by




East end and Exhibition Hall WiFi sponsored by



### CHARGING STATION

Convention Center Concourse  
Open during registration hours

Charging Station sponsored by



## SPIE Conference and Exhibition App

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

Sponsored by



## SPIE Bookstore

Convention Center Lobby near Registration

Stop by the SPIE Bookstore to browse the latest SPIE Press Books, proceedings, and educational materials. While there, get a t-shirt or educational toy to bring home to the family.

## SPIE Education Services

Course Materials Pick-Up located near SPIE Registration and open during registration hours

Sunday: Course Desk, Monday-Thursday: Bookstore

If you have registered to attend a course, please stop by the Course Materials Desk (Sunday) or Bookstore (Monday-Thursday) AFTER you pick up your badge. Turn in your course ticket to get your course materials and location of your course.

Browse course offerings and other education services available: SPIE courses at conferences, online, and customized in-company.

# COURSES

**SPIE Courses are focused, efficient training from the most experienced and accomplished minds in industry and research.**

Gain knowledge from the experts and apply it directly to your daily work.



- Learn from the best. This is your opportunity for direct instruction from legends in the semi/litho industry, many of whom are pioneers in their fields.
- Course topics are aligned with current industry needs and trends.
- Earn CEUs for professional continuing education requirements.

## [spie.org/education](http://spie.org/education)

Information for Course attendees:  
[www.spie.org/education/course-attendees](http://www.spie.org/education/course-attendees)

### MONEY-BACK GUARANTEE

We are confident that once you experience an SPIE course for yourself you will look to us for your future education needs. However, if for any reason you are dissatisfied, we will gladly refund your money. We just ask that you tell us what you did not like; suggestions for improvement are always welcome.

### CONTINUING EDUCATION UNITS



SPIE is accredited by the International Association for Continuing Education and Training (IACET) and is authorized to issue the IACET CEU.

• 13 •  
**SPIE COURSES**

Review course descriptions onsite or online.

**SEE SPIE CASHIER TO REGISTER**

**SPIE Student Members receive significant discounts on courses.**

### SUNDAY 24 FEBRUARY 2019

SC101: **Introduction to Microlithography: Theory, Materials, and Processing** (Willson, Bowden, Dammel) 8:30 am to 5:30 pm, \$655 / \$383 / \$770

SC1099: **Chemistry and Lithography** (Okoroanyanwu) 8:30 am to 5:30 pm, \$755 / \$423 / \$870

SC1100: **Scatterometry in Profile, Overlay and Focus Process Control** (Cramer, Turovets) 1:30 pm to 5:30 pm, \$405 / \$261 / \$465

SC1132: **Computational Basis for Advanced Lithography Techniques** (Lai) 8:30 am to 5:30 pm, \$655 / \$383 / \$770

SC1133: **Advanced concepts in Metrology Toolset Stability and Matching** (Solecky, Adan) 8:30 am to 12:30 pm, \$405 / \$261 / \$465

SC1158: **Metrology of Image Placement** (Starikov) 1:30 pm to 5:30 pm, \$410 / \$263 / \$470

SC1263: **NEW Stochastic Lithography** (Mack, Petersen) 8:30 am to 5:30 pm, \$740 / \$417 / \$855

SC1264: **NEW Machine Learning for Lithography**, (Shiely), 1:30 pm to 5:30 pm, \$440 / \$275 / \$500

SC885: **Principles and Practical Implementation of Multiple Patterning**, (Dusa, Hsu), 8:30 am to 5:30 pm, \$655 / \$383 / \$770

SC888: **EUV Lithography**, (Bakshi, Ahn, Nauulleau), 8:30 am to 5:30 pm, \$885 / \$475 / \$1,000

SC992: **Lithography Integration for Semiconductor FEOL & BEOL Fabrication** (Lin, Zhang) 8:30 am to 5:30 pm, \$655 / \$383 / \$770

### MONDAY 25 FEBRUARY 2019

SC1030: **Interaction of Physical Design and Lithography** (Yuan) 1:30 pm to 5:30 pm, \$405 / \$261 / \$465

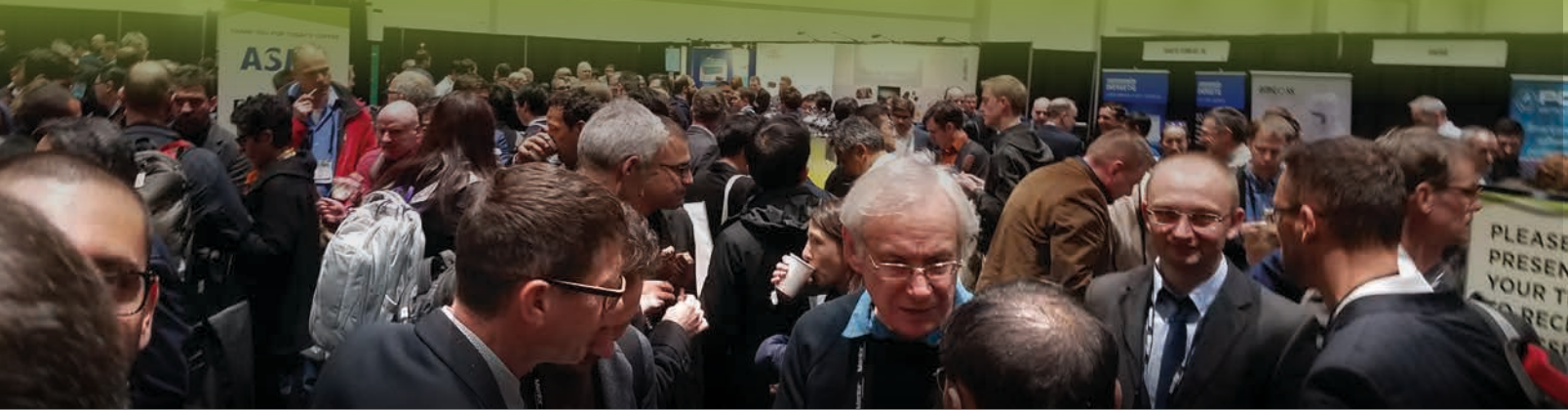
### THURSDAY 28 FEBRUARY 2019

SC616: **Practical Photoresist Processing** (Dammel) 8:30 am to 12:30 pm, \$405 / \$261 / \$465

PRICE KEY:  
 Member / Student Member / Non-Member



# EXHIBITOR DIRECTORY



## SPIE ADVANCED LITHOGRAPHY EXHIBITION

Tuesday · 10:00 am to 5:00 pm  
Wednesday · 10:00 am to 4:00 pm

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.

### 3M Co.

#113

Separation and Purification Sciences Division,  
13840 S Lakes Dr., Charlotte, NC, 28273-6738 United States  
+1 704 587 8888; fax +1 704 587 8673  
www.3m.com

#### Featured Product: 3M™ Metal Ion Purifier

At 3M, we apply science in collaborative ways to improve lives daily. 3M is a global science company that never stops inventing. Using 46 technology platforms, our integrated team of scientists and researchers works with customers to create breakthroughs. Our inventions have improved daily life for hundreds of millions of people all over the world. Scientists, researchers and marketers work across countries and across subjects to solve challenges big and small. Contact: Bob Gieger, Global Marketing Manager, bgieger@mmm.com

### Abeam Technologies, Inc.

#219

22290 Foothill Blvd Ste 2, Hayward, CA, 94541 United States  
+1 510 497 0222; fax +1 510 279 0076  
support@abeamtech.com; www.abeamtech.com

#### Featured Product: myTEM: automatic metrology using TEM and XSEM images myCD: model based contour extraction; CD-SEM

aBeam Technologies Inc. develops software to simulate and optimize e-beam technologies: CD-metrology, DI and EBL. myCD is a model based extraction of contours, CDs, LER and SWA from SEM images. myTEM automates metrology using TEM and XSEM images. CHARIOT is de-facto standard Monte Carlo software to simulate physics of SEM. aSEM is a fast simulator of SEM images including charging, e-fields and detectors. qSEM is a software to monitor CD-SEM. DISPLACE corrects placement error in EBL. Contact: Sergej Babin, sb@abeamtech.com

### Amuneal Manufacturing Corp. #202

4737 Darrah St, Philadelphia, PA, 19124-2705 United States  
+1 215 535 3000; fax +1 215 743 1715  
info@amuneal.com; www.amuneal.com

#### Featured Product: Magnetic Shielding Design & Fabrication

Since 1965, Amuneal has been serving highly technical markets, working with leaders in aerospace, electronics, cryogenics, healthcare, and research to develop cost-effective magnetic shielding strategies and products that outperform the most demanding requirements. We offer a number of standard component shields to our clients, however, our culture and capabilities allow us to manufacture and install unique custom shields ranging from prototypes and models to full-scale assemblies. Contact: Stuart Koch, Vice President, Technical Products, StuartK@Amuneal.com; Michael Adolf, Sr. Director, Technical Products, mikea@amuneal.com

### attocube systems Inc.

#307

**SPIE** Corporate Member

2020 Stuart St, Berkeley, CA, 94703 United States  
+1 510 649 9245  
info@attocube.com; www.attocube.com

attocube is the technology leader for ultra precise motion and sensing solutions compatible with extreme environmental conditions such as UHV, magnetic field, radiation exposure, as well as cryogenic to elevated operating temperatures. The portfolio also includes integrated measurement systems, such as the attoDRY800 cryo-optical table and a Photonic Probe Station, an ultra-stable, extremely compact and easy to use table top setup for nanophotonic device characterization.

### Benchmark Technologies

#217

Bldg E, 7 Kimball Ln, Lynnfield, MA, 01940-2654 United States  
+1 781 246 3303; fax +1 781 246 0308  
contact@benchmarktech.com; www.benchmarktech.com

#### Featured Product: Grayscale Reticle Design and Fabrication

Benchmark is a leading supplier of test and setup reticles for lithography systems. The company also offers overlay software for in fab monitoring and analysis, general design and layout services, grayscale mask design, mask making services, imprint stamps and other custom fabrication services. Contact: Andrew Zanzal, VP Sales, azanzal@benchmarktech.com; Patrick Reynolds, President, preynolds@benchmarktech.com



## C&D Semiconductor Services, Inc. #310

2031 Concourse Dr, San Jose, CA, 95131 United States  
+1 408 383 1888; fax +1 408 383 1889  
contactus@cdsemi.com; www.cdsemi.com

### Featured Product: P9000 Cluster System

Founded in 1989, C&D Semiconductor Services is a cutting edge and premier equipment manufacturer based in San Jose, California. Our state-of-the-art equipment manufacturing plant and incredibly skilled R&D workforce allow for us to design, build and manufacture custom photolithographic equipment specifically catered to varying customer requirements, specializing in automated wafer coating and developing, inspection and sorting, and highly specialized wafer processing solutions. Contact: Rick Acaba, National Sales Manager, racaba@cdsemi.com; Charlie Nguyen, General Manager, cnguyen@cdsemi.com

## Cadence Design Systems, Inc. #213

2655 Seely Ave, San Jose, CA, 95134-1931 United States  
+1 408 943 1234; fax +1 408 428 5001  
events@cadence.com; www.cadence.com/en/default.aspx

Cadence® is a leading provider of DFM solutions addressing designer and manufacturer challenges, resulting in improved design manufacturability and reduced time to yield. Our suite of manufacturability and variability solutions enables optical proximity correction, layout and yield analysis, and addresses challenges including lithography, chemical and mechanical polishing, and layout-dependent effects. To learn more, visit our Cadence booth or contact Philippe Hurat with your DFM questions. Contact: Philippe Hurat, Product Mgmt. Director, spie@cadence.com

### SPONSOR

## Canon U.S.A., Inc. #110

**SPIE.** Corporate Member

Industrial Products Division,  
3300 N First St,  
San Jose, CA, 95134-1900 United States  
+1 408 468 2001; fax +1 408 468 2149  
semi-info@cusa.canon.com; usa.canon.com/industrial



### Featured Product: FPA-5520iV HR i-line stepper for sub-micron Fan-Out Wafer Level Packaging & Photonics Applications

Canon USA Industrial Products Division provides advanced wafer & panel process equipment for applications including semiconductor, Advanced Packaging & display. Canon provides cost-effective wafer processing solutions including i-line & KrF optical lithography, nanoimprint lithography & Canon ANELVA deposition equipment. Canon also has a variety of panel based lithography & deposition solutions that can be extended to a variety of applications. Contact semi-info@cusa.canon.com for more info. Contact: Doug Shelton, Marketing Manager, sshelton@cusa.canon.com; Neel Chopra, Product Marketing Specialist, nchopra@cusa.canon.com

### SPONSOR

## Carl Zeiss SMT GmbH #130

Carl Zeiss Promenade 10  
Jena, 07745 Germany  
+49 3641 64 2563; fax +49 3641 64 2938  
info.sms@zeiss.com; www.zeiss.com/mask-solutions



### Featured Product: ForTune, AIMS EUV

ZEISS Semiconductor Mask Solutions (SMS) specializes in a key process in semiconductor manufacturing: the photomask. Core expertise in light and electron optics, complemented by a pioneering femto-second laser technology form the foundation of a product portfolio comprising in-die metrology, actinic qualification, repair, and tuning of photomasks. To increase automation and enhance tool capabilities, SMS also offers advanced software solutions. Contact: Jim Polcyn, Sales Director, Jim.Polcyn@zeiss.com; Leila Hammad, Marketing Manager, leila.hammad@zeiss.com

## Cosmotec, Inc. #128

229 Polaris Ave Ste 3  
Mountain View, CA, 94043-4579 United States  
+1 408 428 9741; fax +1 408 428 9742  
ask@cosmotec.us; www.cosmotec.us

### Featured Product: The Highest Quality Ceramic to Metal UHV Feedthroughs

The Highest Quality Ceramic-to-Metal UHV Feedthroughs over 25 Years of Excellence, Now in Silicon Valley. Quality: Surely 100% helium leak-tested, inspected and quality assured. Our products come with a 1-year satisfaction guarantee. Custom Products: Perfection you can count on. Customized Ceramic-to-Metal components for your every need that will exceed your expectations. Cosmotec makes your business run smoothly. Cleanliness: UHV Cleaning and Vacuum Baking Service Available. Contact: Taku Sekiguchi, President and CEO, sekiguchi@cosmotec.us; Taku Sekiguchi, President and CEO, sekiguchi@cosmotec.us

## Coventor, Inc. #323

9121 Anson Way, Suite 200, Raleigh, NC, 27615 United States  
+1 617 648 8388; fax +1 919 869 1472  
sales@coventor.com; www.coventor.com

### Featured Product: SEMulator3D, a platform for modeling semiconductor and MEMS fabrication processes

Coventor®, a Lam Research company, is a market leader in automated solutions for developing semiconductor process technology, as well as micro-electromechanical systems (MEMS). Coventor serves a worldwide customer base with offices in North America, Europe and Asia. Its SEMulator3D modeling and analysis platform provides fast and accurate 'virtual fabrication' of advanced semiconductor manufacturing processes, allowing engineers to understand manufacturing effects early in the development cycle Contact: Dave Cook, sales@coventor.com

# EXHIBITOR DIRECTORY

## CyberOptics Corp.

#121

5900 Golden Hills Dr, Minneapolis, MN, 55416 United States  
+1 763 542 5000; fax +1 763 542 5100  
info@cyberoptics.com; www.cyberoptics.com

**Featured Product: WaferSense® and ReticleSense® Measurement Portfolio including APS3, APSRQ and AMSR**

CyberOptics Corporation is a leading global developer and manufacturer of high precision sensing technology solutions. CyberOptics sensors are being used in general purpose metrology and 3D scanning, surface mount technology (SMT) and semiconductor markets to significantly improve yields and productivity. Headquartered in Minneapolis, Minnesota, CyberOptics conducts worldwide operations through its facilities in North America, Asia and Europe. Contact: Allyn Jackson, Sales Manager & Sr. FAE, [ajackson@cyberoptics.com](mailto:ajackson@cyberoptics.com); Ferris Chen, Global Sales Director, [fchen@cyberoptics.com](mailto:fchen@cyberoptics.com)

## Energetiq Technology, Inc.

#308

**SPIE** Corporate Member

7 Constitution Way, Woburn, MA, 01801-1024 United States  
+1 781 939 0763; fax +1 781 939 0769  
info@energetiq.com; www.energetiq.com

**Featured Product: EQ-10 Electrodeless Z-Pinch™ 10 Watt EUV Source**

Energetiq Technology is the world's leading developer and manufacturer of ultra-bright light sources. Energetiq's EUV Sources are compact, easy-to-use, reliable, and cost-effective. Energetiq's EUV light sources are based on proven Electrodeless Z-pinch™ technology using Xenon gas. The EQ-10 Series EUV sources are uniquely suited for metrology and research applications and has become the workhorse EUV source through its proven reliability, ease of use, and low operating cost. Contact: Samuel Gunnell, Technical Sales Engineer, [sgunnell@energetiq.com](mailto:sgunnell@energetiq.com)

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the business of photonics  
**optics.org**

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and we'll send the news to you.

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[optics.org](http://optics.org)

optics.org: 2 Alexandra Gate, Ffordd Pengam, Cardiff CF24 2SA, United Kingdom Tel: +44 (0)117 905 5330 Fax: +44 (0)117 905 5331

## Entegris, Inc.

#324

129 Concord Rd, Billerica, MA, 01821-4600 United States  
+1 978 436 6500; fax +1 978 436 6735

[www.entegris.com/content/en/home/about-us/locations.html](http://www.entegris.com/content/en/home/about-us/locations.html)

Entegris provides critical products and materials used in advanced high-technology manufacturing. These products and materials are used to make the building blocks of many of the world's most complex microelectronic products, such as computers, mobile devices and phones, data storage components, televisions and monitors, and automobiles. With a broad product offering, advanced manufacturing capabilities, worldwide infrastructure and unmatched technical expertise, our passion is your advantage.

## GenlSys Inc

#322

**SPiE** Corporate Member

PO Box 410956, San Francisco, CA, 94141-0956 United States  
+1 812 322 4554

[info@genisys-gmbh.com](mailto:info@genisys-gmbh.com); [www.genisys-gmbh.de](http://www.genisys-gmbh.de)

**Featured Product: LAB All-in-One Lithography Simulation. Enable next generation products and faster development cycles**

Based in Munich, Germany, with offices in Tokyo, Japan and San Francisco, California, GenlSys develops, markets and supports flexible, high-performance software solutions for the optimization of micro and nano fabrication processes. Addressing the market for lithography and inspection, GenlSys combines deep technical expertise in layout data processing, process modeling, correction and optimization with world class software engineering and a strong focus on ease of use. Contact: Roger McCay, Director of Sales North America, [mccay@genisys-gmbh.com](mailto:mccay@genisys-gmbh.com); Nezih Unal, Vice President, [unal@genisys-gmbh.com](mailto:unal@genisys-gmbh.com)

## GUDENG PRECISION INDUSTRIAL CO., LTD.

#203

9F., No 2 Sec 4 Zhongyang Rd, Tucheng Dist., New Taipei City, Taiwan, 23678 Taiwan

+886 2 2268 9141; fax +886 2 2269 1943

[ellen.wu@gudeng.com](mailto:ellen.wu@gudeng.com); [www.gudeng.com.tw](http://www.gudeng.com.tw)

**Featured Product: EUV RETICLE CARRIER**

Gudeng Precision Industrial Co., LTD is principally engaged in the production and sale of integrated solutions for protection, transfer and storage of photo masks and molds. The Company primarily operates two business segments. Gudeng Precision has contributed to developing innovative technology and has been a technological leader of Extreme Ultraviolet Lithography (EUV) mask handling. Gudeng Equipment is our subsidiary established in August, 2016 focusing on purging stations and mask cleaners. Contact: Ellen Wu, Product Assistant Manager, [ellen.wu@gudeng.com](mailto:ellen.wu@gudeng.com); Kevin Su, Sales Rep., [kevin.su@gudeng.com](mailto:kevin.su@gudeng.com)

## Heidelberg Instruments Inc.

#224

**SPiE** Corporate Member

2539 W 237th St Ste A, Torrance, CA, 90505 United States  
+1 310 212 5071; fax +1 310 212 5254

[info@himt.us](mailto:info@himt.us); [www.himt.us](http://www.himt.us)

Heidelberg Instruments is a world leader in the production of high precision photolithography systems and maskless aligners. Heidelberg Instruments has an installation base of over 850 systems in more than 50 countries. Our systems are installed in academic and industrial sites and are used in research, development and production. Applications include photomask manufacturing, MEMS, MOEMS, microfluidics, CMOS, LED and display technologies. Contact: Niels Wijnaendts van Resandt, Director of Sales North & South America, [sales@himt.de](mailto:sales@himt.de)

## INKO Industrial Corp.

#318

695 Vaqueros Ave, Sunnyvale, CA, 94085-3524 United States  
+1 408 830 1040; fax +1 408 830 1058

[sales@pellicle-inko.com](mailto:sales@pellicle-inko.com); [www.pellicle-inko.com](http://www.pellicle-inko.com)

**Featured Product: pellicle, ArF pellicle, KrF pellicle**

INKO, a U.S. based company, manufactures a complete line of pellicles for applications ranging from ASIC production to high volume memory production. From broadband to I/G line, to 248nm/193nm DUV lithography, we have the right pellicles for your needs. Contact Joe Mac, Sales and customer service, [joemac@pellicle-inko.com](mailto:joemac@pellicle-inko.com), or Feng Ye, [ye@pellicle-inko.com](mailto:ye@pellicle-inko.com) Contact: Feng Ye, QA manager, [ye@pellicle-inko.com](mailto:ye@pellicle-inko.com); Joe Mac, Customer service manager, [joemac@pellicle-inko.com](mailto:joemac@pellicle-inko.com)

## Inspectrology LLC

#320

**SPiE** Corporate Member

142 North Rd Ste N, Sudbury, MA, 01776 United States  
+1 978 212 3100; fax +1 978 897 1787

[info@inspectrology.com](mailto:info@inspectrology.com); [www.inspectrology.com](http://www.inspectrology.com)

**Featured Product: IVS 200 Metrology System for 75mm-200mm processes.**

Reliability and Flexible Metrology are the hallmarks of the IVS 200. Overlay Registration, CD, IR Infra Red, Z Height (film thickness), Contact, Bump, Bonded Wafer Overlay, Vernier, In Circuit Overlay are all ideal applications for the IVS 200 platform making the system a true swiss army knife of Metrology.

With world wide support and representatives in every major market, Inspectrology is well positioned to provide the support needed to keep fabs running at peak efficiency. Contact: Paul Knutrud, [pknutrud@inspectrology.com](mailto:pknutrud@inspectrology.com)

## J.A. Woollam

#211

645 M St Ste 102, Lincoln, NE, 68508-2243 United States  
+1 402 477 7501; fax +1 402 477 8214

[sales@jawoollam.com](mailto:sales@jawoollam.com); [www.jawoollam.com](http://www.jawoollam.com)

For all your ellipsometry needs, from measuring your 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. Stop by our booth #211 for more information or contact us today about the variety of spectroscopic ellipsometers we provide to help you characterize your thin films. You can also email us today at [sales@jawoollam.com](mailto:sales@jawoollam.com) or visit us on the web at [www.jawoollam.com](http://www.jawoollam.com) Contact: Ron Synowicki, Applications Engineer, [rsynowicki@jawoollam.com](mailto:rsynowicki@jawoollam.com)

## JENOPTIK Optical Systems, LLC #201

**SPiE** Corporate Member

16490 Innovation Dr, Jupiter, FL, 33478-6428 United States  
+1 561 881 7400; fax +1 561 881 1947

[sales@jenoptik-inc.com](mailto:sales@jenoptik-inc.com); [www.jenoptik.us](http://www.jenoptik.us)

JENOPTIK Optical Systems delivers a unique range of custom optical solutions incorporating precision assemblies and wafer scale microoptics for DUV through infrared applications. In-house expertise in system design, modeling, test and fabrication of optics and microoptics enables Jenoptik to deliver cutting-edge solutions for your inspection and metrology OEM applications. We combine design and engineering with high volume manufacturing to deliver from facilities in the US, Germany and Asia. Contact: Mark Bigelow, Director Business Development, [Mark.Bigelow@jenoptik-inc.com](mailto:Mark.Bigelow@jenoptik-inc.com); Ray Malcom, Director Business Development Semiconductor, [ray.malcom@jenoptik-inc.com](mailto:ray.malcom@jenoptik-inc.com)



# EXHIBITOR DIRECTORY

## JEOL USA Inc.

#200

**SPIE.** Corporate Member

11 Dearborn Rd, Peabody, MA, 01960-3823 United States  
+1 978 535 5900; fax +1 978 536 2205  
salesinfo@jeol.com; www.jeolusa.com

### Featured Product: Advanced EBL Systems

JEOL has supplied a complete line of systems since its first Lithography system in 1967. JEOL is the world's top supplier of EBL systems. Our applications range from mask/reticle production for high-end devices and nano-lithography research to ultrafine, direct write exposures for communication devices. JEOL continuously pursues higher writing accuracy, and throughput, with easier operation. We offer unsurpassed technical reliability and service expertise. Contact: Zane Marek, E-BEAM Product MGR / Sales, marek@jeol.com; Hitoshi Kato, Technical Sales MGR, hkato@jeol.com

## JSR Micro, Inc.

#124

**SPIE.** Corporate Member

1280 N Mathilda Ave, Sunnyvale, CA, 94089-1213 United States  
+1 408 543 8800; fax +1 408 543 8996  
marketing@jsrmicro.com; www.jsrmicro.com

### Featured Product: Leading-edge photoresists, developers, packaging materials and specialty chemicals

JSR Micro, Inc. is an innovation partner to its customers manufacturing the industry's most innovative family of photoresists, developers, and specialty chemicals. JSR is also a leader in Advanced Cleans Technology and materials for packaging. Our unique THB series of negative tone resists and WPR series of dielectric materials are ideal for next generation packaging technologies that facilitate higher performance. Contact: Joe Ritter, Sales, jritter@jsrmicro.com; Rowland Wong, Sales, rwong@jsrmicro.com

**SPIE.** Education



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**SPIE.**

## King Industries Inc.

#105

1 Science Rd, Norwalk, CT, 06852 United States  
+1 203 866 5551; fax +1 203 866 1268  
mktg@kingindustries.com; www.kingindustries.com

### Featured Product: K-PURE®, NACURE®, K-KAT®

King Industries, Inc. offers an extensive range of products under the K-PURE® trade name to meet the specific needs of various segments in the electronic chemicals market. Many are based on King's decades of experience with blocked acids and their uses. Products range from thermal acid generators to corrosion control and catalysis of various thermoset resins. Get more information at www.kingindustries.com. Contact: Dan Miller, Technical Sales Manager, dmiller@kingindustries.com; Karen Stenger, Marketing Communications, kstenger@kingindustries.com

## LouwersHanique

#316

Energieweg 3A, Hapert, 5527 AH Netherlands  
+31 497 339 696; fax +31 497 386 372  
info@louwershanique.com; www.louwershanique.com

### Featured Product: 3D components in glass and fused silica using "Selective Laser-induced Etching"

LouwersHanique specializes in thermal forming of glass and the processing of technical glass, quartz glass and technical ceramics (such as aluminum oxide, silicon carbide, silicon, and Macor). The company activities also include the bonding and [clean room] assembly of unique material combinations based on an extensive range of bonding and integration technologies. The primary company focus and strength lies with low-volume high-mix niche solutions for high-end semiconductor capital equipment. Contact: Carel van de Beek, Sales Manager, carel.van.de.beek@louwershanique.com; Paul Meyer, Sr. Application & Sales engineer, paul.meyer@louwershanique.com

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## SPONSOR

## Mentor Graphics Corporation #222

Corporate  
Member

8005 SW Boeckman Rd,  
Wilsonville, OR  
97070-7777 United States  
+1 503 685 7000; fax +1 503 685 1543  
calibre@mentor.com; www.mentor.com

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### Featured Product: Calibre RET/MDP

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## MGN International, Inc.

#303

41984 Rio Nedo Ste 200, Temecula, CA, 92590 United States  
+1 951 719 2910; fax +1 951 719 2920  
info@mgninternational.com; www.mgnintl.com

## Micro Lithography, Inc.

#225

1257 Elko Dr, Sunnyvale, CA, 94089-2211 United States  
+1 408 747 1769; fax +1 408 747 1978  
www.mliusa.com

MLI is featuring pellicles formulated to yield high rates of transmission and long lifetimes for UV exposure. Our complete line of pellicle films ranges from broadband, g-/i-line to DUV (KrF-248nm and ArF-193nm). MLI's DUV pellicles have the lowest outgassing materials available in the market today.

## MicroChem Corp.

#304

200 Flanders Rd, Westborough, MA, 01581-1040 United States  
+1 617 965 5511; fax +1 617 965 5818  
mcc@microchem.com; www.microchem.com

### Featured Product: Photoresist and ancillary chemicals

MicroChem Corp, a leading manufacturer of electronic materials for over 26 years, focuses on providing innovative chemicals solutions to the MEMS, microelectronic, and semiconductor markets. Along with our exclusive distribution partnership with Dow electronic materials, MicroChem specializes in photoimageable epoxy, eBeam and PMGI Bi-layer resists and a suite of ancillary lithography materials. MicroChem is a wholly owned subsidiary of Nippon Kayaku Co. Ltd., Tokyo, Japan. Contact: Janice Collins, jcollina@microchem.com; Bob Andrews, bandrews@microchem.com

## Mitsui Chemicals America, Inc. #129

61 Metro Dr, San Jose, CA, 95110 United States  
+1 408 487 2891; fax +1 408 453 0684  
www.mitsuichemicals.com

Since 1986, Mitsui has been the industry leader in providing pellicles to the semiconductor industry. Mitsui's ISO 9001 certified full automated plant produces Mitsui Pellicle, which transmits more than 99% of exposed light with excellent uniformity and longevity. Mitsui Pellicle, manufactured by rigorous selection of all materials and with more than 30 years accumulated expertise of non-dust structure, contributes to maximum production yields by eliminating pellicle related particle generations Contact: Yutaka Haneda, Sales Manager, y.haneda@mitsuichem.com; Hiromi Tsuboi, Sales Manager, h.tsuboi@mitsuichem.com

## NTT Advanced Technology Corp. #115

1950 University Ave Ste 600, East Palo Alto, CA, 94303-2250 United States  
+1 408 392 4280; fax +1 408 573 7721  
bizdevelop@ml.ntt-at.co.jp; www.ntt-at.com

NTT-AT delivers Multilayer mirrors, Nano-scale test patterns, Polarizer, Transmission grating, Fresnel zone plate and the other custom design optical components for R&D and industrial fields. These components are fabricated as solutions for various EUV lithography related fields such as light source, metrology, mask and photo-resist. NTT-AT's optics are corresponding to LPPs, SRs/XFELs, HHGs and soft x-ray lasers.

# EXHIBITOR DIRECTORY

## Pall Corp.

#223

25 Harbor Park Dr, Port Washington, NY, 11050-4605 United States  
+1 516 484 5400; fax +1 516 801 9711  
microelectronics@pall.com; www.pall.com

**Featured Product: 2nm Asymmetric Nylon, 5nm PTFE and sub-1nm HDPE filters for advanced lithography chemistries.**

Pall offers a complete line of filtration, purification and separation technologies for all lithography processes. These include asymmetric Nylon 6,6, High density polyethylene and PTFE media. Pall has demonstrated that our innovative filter technologies can significantly reduce defectivity, decrease filter start up time and improve overall cost of ownership. Find out how Pall can help you improve your lithography process. Contact: Glenn Dado, Product Manager, Glenn\_Dado@pall.com

## PCAS Canada

#112

725 Trotter St, Saint-Jean-Sur-Richelieu, QC, J3B 8J8 Canada  
+1 450 348 0901; fax +1 450 349 1528  
contact@pcas.com; www.pcas.com

PCAS is a technology-oriented fine chemical group serving global industrial customers since 1962. Our core expertise is the development and production of high quality materials (polymers and small molecules) for Life Sciences and Specialty Chemicals markets, such as Lubricant, Cosmetics and Electronics. Our customers within the Electronic industry use our products in Photolithography/Microelectronics (Resist, ARC, Additives) and Printed Electronics (OLED, OFET, OPV) applications. Contact: Francis Belanger, Global Electronic Market Manager, francis.belanger@pcascanada.com

## Philips Innovation Services

#314

Program Management, High Tech Campus 34,  
Eindhoven, 5656 AE Netherlands  
+31 40 27 48060  
innovationservices@philips.com;  
www.innovationservices.philips.com

**Featured Product: Focus on 2 fields of expertise: High-precision contact-free motion systems and Thin film technology.**

Philips Innovation Services creates the bridge from idea to market for each innovation journey. Making innovation work, is our drive as well as our deliverable. That is what we have been doing in the last 50 years. Not only within Philips but also for external customers in the Semiconductor market. Helping leading equipment suppliers to keep pace with Moore's Law through our expertise. By bringing together all the required experience, expertise, methods and tools, we get things done. Contact: Arie Leunis, Program Management, arie.leunis@philips.com

## Philips SCIL Nanoimprint Solutions

#312

De Lismortel 31, Eindhoven, 5612 AR Netherlands  
+31 6 51087938  
www.philips.com/scil-nanoimprint

**Featured Product: nanoimprint equipment, nanoimprint resist, nanoimprint process, high index optical material**

Substrate Conformal Imprint Lithography (SCIL) is a cost effective, robust, high yield process enabling nanometer resolution patterns on a large variety of materials. It can be used to make high quality structures on wafer areas up to 200 mm with feature sizes down to less than 10 nm and overlay alignment down to 1 µm. We help customers with optimized equipment, consumable materials and processes for high volume production. Contact: Rob Voorkamp, rob.voorkamp@philips.com; Marc Verschuuren, marc.verschuuren@philips.com

## Pozzetta, Inc.

#306

3121 S Platte River Dr, Englewood, CO, 80110-2139 United States  
+1 303 783 3172; fax +1 303 374 7342  
sales@pozzetta.com; www.pozzetta.com

**Featured Product: Photomask Boxes, Reticle Cassettes, SMIF Pods, Wafer Carriers, PFA Fittings**

We help our customers reduce costs with customized in-process solutions such as reticle boxes, wafer carriers, PFA fittings, and critical device shipping solutions. We help optimize fab space by personally reviewing the storage and processing of critical devices and delivering complete solutions that include tracking tags, reticle pods and custom cleanroom storage solutions. We also help manage cleaning and maintenance programs for cassettes, pods and wet process stations. Contact: Artemis Vasiliades, Account Executive, artemis@pozzetta.com; Scott Reese, Account Executive, scott.reese@pozzetta.com

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## SPONSOR

### Qoniac GmbH

#100

**SPIE** Corporate Member

Dr. Kuelz-Ring 15, Dresden,  
Sachsen, 01067 Germany  
+49 351 4189 3340; fax +49 351 4189 3341  
info@qoniac.com; www.qoniac.com



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## Raith America, Inc.

#104

1377 Long Island Motor Parkway Ste 101, Islandia, NY, 11749 United States  
+1 631 738 9500; fax +1 631 738 2055  
sales@raithamerica.com; www.raith.com

Raith is a leading precision technology manufacturer for electron beam lithography (EBL), focused ion beam (FIB) nanofabrication and precise, large area SEM imaging. With sub-10 nm patterning performance, our instruments are enabling researchers in both academic and industry environments to continuously advance their applications in applied nanotechnological research and areas of industry that use nanotechnology for product applications or produce components from compound semiconductors. Contact: Jason Sanabia, President & CEO, jason.sanabia@raithamerica.com



**Rigaku Innovative Technologies, Inc. #305**

1900 Taylor Rd, Auburn Hills, MI, 48326-1740 United States  
+1 248 232 6400; fax +1 248 232 6500  
Optics@rigaku.com; www.RigakuOptics.com

**Featured Product: EUV Optics**

Rigaku Innovative Technologies (RIT) is a global supplier of high performance thin film coatings and EUV optics used in commercial and academic institutions and government research facilities. RIT's state of the art coating facility and dedicated metrology equipment ensures the highest quality. RIT utilizes its staff of 10 PhD Scientists and 10 Engineers with over 250 years combined experience to provide the customer with the best solution to their coating and optics needs. Contact: Alex Sedlacek, Sales Engineer-Americas and Asia, alex.sedlacek@rigaku.com

**SPONSOR**

**SCREEN SPE USA, LLC #116**

820 Kifer Rd Ste B,  
Sunnyvale, CA,  
94086-5214 United States  
+1 408 523 9140; fax +1 408 523 9150  
inquiries@screen-spe.com; www.screen.co.jp/eng/spe



**Featured Product: LithoSpin DUO-S. High productivity integrated or stand-alone EUV/ArF/KrF coat/develop track**

SCREEN SPE USA (SEUS) was established in 1987 in Sunnyvale, California. SEUS is a sales, marketing, engineering and service organization responsible for operations in the US market for SCREEN Holdings Co., Ltd, Kyoto, Japan. SEUS now has 7 major local offices in the US to better serve our customers. SCREEN Semiconductor is a manufacturer of semiconductor equipment for the lithography coat/develop and wet cleaning/etching processes. Contact: Luke Chang, Program Director, luke.chang@screen-spe.com

**Seiwa Optical America Inc. #103**



3042 Scott Blvd, Santa Clara, CA, 95054-3301 United States  
+1 408 844 8008; fax +1 408 844 8944  
info@seiwaamerica.com; www.seiwaamerica.com

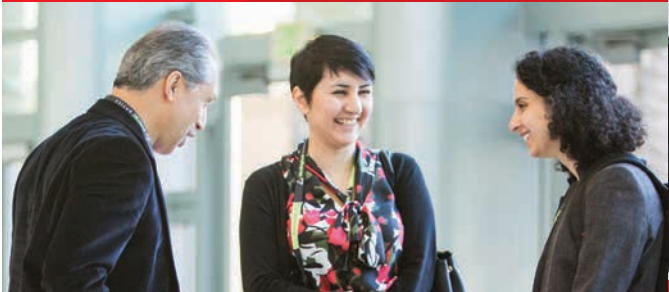
**Featured Product: Projection Exposure System, Mask Aligner, Inspection System and Repair System for micro LED market**

For over 50 years, SEIWA OPTICAL has been a provider of standard and customizable optical solutions for machine vision, inspection, and industrial processing. We have offices established worldwide and are also a distributor for industrial vision products. Contact: info@seiwaamerica.com

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# EXHIBITOR DIRECTORY

## Shin-Etsu MicroSi, Inc.

#118

**SPIE** Corporate Member

10028 S 51st St, Phoenix, AZ, 85044-5203 United States  
+1 480 893 8898; fax +1 480 893 8637  
info@microsi.com; www.microsi.com

Shin-Etsu, the world's No. 1 supplier of semiconductor silicon wafers and a leading supplier of essential electronic materials. Shin-Etsu's product portfolio includes, photomask blanks, EB resists, pellicles, synthetic quartz, semiconductor advanced resists along with numerous specialized thermal interface materials. Contact: Edwin Nichols, Marketing Manager, enichols@microsi.com

## Solid State Technology

#117

1786 18th St, San Francisco, CA, 94107-2343 United States  
+1 415 255 0390; fax +1 415 255 9214  
info@extensionmedia.com; solid-state.com

### Featured Product: Solid State Technology

Solid State Technology reaches the largest, most qualified community of decision makers for semiconductor and electronics manufacturing through the magazine, email newsletters, website, webcasts and The ConFab Conference & Networking event. Topics include Advanced Packaging, MEMS, LEDs and Displays as well as current trends in the industry. Visit us here [www.solid-state.com](http://www.solid-state.com) Contact: Kerry Hoffman, Director of Sales, khoffman@extensionmedia.com Contact: Jenna Johnson, Marketing Manager, info@extensionmedia.com

## Synopsys, Inc.

#204

**SPIE** Corporate Member

690 E Middlefield Rd, Mountain View, CA, 94043-4010 United States  
+1 650 584 5000  
info@synopsys.com; www.synopsys.com

### Featured Product: DTCO, machine learning, Proteus ILT, Proteus OPC, Proteus EUV, Proteus LRC, CATS, S-Litho

Synopsys provides industry-proven EDA solutions to meet the demands of today's advanced IC manufacturing processes while setting the standard in platform flexibility to enable innovative solutions for next generation technology nodes. Synopsys comprehensive Mask Synthesis, Mask Data Preparation, TCAD and Yield Management tools provide leading-edge performance, accuracy, quality, and cost of ownership for all your production and development needs.

## SPONSOR

### TEL

#111



2400 Grove Blvd,  
Austin, TX, 78741-6500 United States  
+1 512 947 8032; fax +1 512 424 1670  
marketing@us.tel.com; www.tel.com

Tokyo Electron Limited (TEL), established in 1963, is a leading global company of innovative semiconductor and flat panel display (FPD) production equipment worldwide. All of TEL's semiconductor and FPD production equipment product lines maintain high market shares in their respective global segments. TEL has located research & development, manufacturing, sales, and service locations all over the world. Contact: Katy Crist, Marketing Communications Director, [katy.crist@us.tel.com](mailto:katy.crist@us.tel.com); Rob Crowell, Manager, Strategic Marketing, [rob.crowell@us.tel.com](mailto:rob.crowell@us.tel.com)

## Vistec Electron Beam GmbH

#221

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 VSB lithography system

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 and maintains service & support centers in Europe, Taiwan & in the US. Contact: Ines Stolberg, Manager Product Management & Marketing, [electron-beam@vistec-semi.com](mailto:electron-beam@vistec-semi.com); Kevin Grens, Business Development Manager, [kevin.grens@vistec-semi.com](mailto:kevin.grens@vistec-semi.com)

## XEI Scientific, Inc.

#123

**SPIE** Corporate Member

1755 E Bayshore Rd Ste 17, Redwood City, CA, 94063-4153 United States  
+1 650 369 0133; fax +1 650 363 1659  
sales@evactron.com; www.evactron.com

### Featured Product: The Evactron® 50 and the Evactron 20EP with instant plasma ignition offer Turbo Plasma Cleaning™

Evactron® De-Contaminators by XEI Scientific, Inc. are world leaders in remote RF plasma cleaning of carbon contamination in vacuum chambers. Evactrons use a unique, energy-efficient hollow cathode plasma source to generate oxygen radicals plus UV from nitrogen metastables for dual-action removal of adventitious carbon at TMP pressures. The new Evactron 50 De-Contaminator outperforms other remote plasma cleaners and is easy to use, reliable, compact, and low cost: perfect for your SEM or FIB. Contact: Barbara Armbruster, Director of Sales/Marketing, [sales@evactron.com](mailto:sales@evactron.com); Meggie Price, Marketing Administrator, [meggie@evactron.com](mailto:meggie@evactron.com)

## Zygo Corporation

#205

**SPIE.** Corporate Member

21 Laurel Brook Rd, Middlefield, CT, 06455-1291 United States  
+1 860 347 8506; fax +1 860 347 8372  
inquire@zygo.com; www.zygo.com

For nearly 50 years, the world's leading manufacturers have relied on ZYGO products for critical production testing, quality control, research & development. Unmatched commitment to superior quality has established ZYGO as the industry leader for precision measurement products, optical system design and assembly, and high-precision optical fabrication. ZYGO delivers advanced optical metrology tools for precise, noncontact measurement of surfaces and material characteristics. Contact: David Melton, Director Sales and Support Americas, dmelton@zygo.com



Photo credit: Kallol Mukherjee



## International Day of Light

16 May

The International Day of Light is a global initiative highlighting to the citizens of the world the importance of light and light-based technologies in their lives, for their futures, and for the development of Society.

**SPIE supports the International Day of Light and its annual celebration on 16 May.**



### SPIE IDL GRANTS

SPIE will provide seed funding up to US\$3,000 to organizations creating Day of Light activities.



### IDL RESOURCES

SPIE encourages communities to plan their own annual celebration on 16 May and provides various resources to help create an event.



### SPIE PHOTO CONTEST

Amateur and professional photographers alike should submit photos demonstrating the vital role that light plays in our lives for a chance to win US\$2,500.



**SPIE.**

Learn more: [spie.org/idl](http://spie.org/idl)



# PRODUCT CATEGORIES

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XEI Scientific, Inc.

## BASIC RESEARCH, SCIENCE

attocube systems Inc.  
Coventor, Inc.  
Energetiq Technology, Inc.  
Heidelberg Instruments Inc.  
King Industries Inc.  
Philips SCIL Nanoimprint Solutions  
Raith America, Inc.  
Rigaku Innovative Technologies, Inc.  
Synopsys, Inc.  
Vistec Electron Beam GmbH  
XEI Scientific, Inc.

## BIOMEDICAL, MEDICAL IMAGING, HEALTH CARE

attocube systems Inc.  
Heidelberg Instruments Inc.  
LouwersHanique  
Philips SCIL Nanoimprint Solutions  
Seiwa Optical America Inc.

## CAMERAS AND IMAGING SYSTEMS

Canon U.S.A., Inc.  
Inspectrology LLC  
Seiwa Optical America Inc.

## CHEMICAL AND BIOLOGICAL ANALYSIS

LouwersHanique  
XEI Scientific, Inc.

## COMMUNICATIONS & NETWORKING

Cadence Design Systems, Inc.

## COMPUTING SYSTEMS, DATA PROCESSING

attocube systems Inc.  
Cadence Design Systems, Inc.  
Carl Zeiss SMT GmbH  
LouwersHanique  
Raith America, Inc.

## COMPUTING, DATA PROCESSING HARDWARE

Cadence Design Systems, Inc.  
Carl Zeiss SMT GmbH

## CONSULTING SERVICES

Coventor, Inc.  
GUDENG PRECISION INDUSTRIAL CO., LTD.  
Synopsys, Inc.

## CONSUMER ELECTRONICS

Cadence Design Systems, Inc.  
Energetiq Technology, Inc.  
Philips SCIL Nanoimprint Solutions

## DEFENSE, SECURITY, LAW ENFORCEMENT

Philips SCIL Nanoimprint Solutions  
Raith America, Inc.

## DETECTORS, SENSORS

Canon U.S.A., Inc.

## DISPLAYS: CONSUMER, INFORMATION, ENTERTAINMENT

Canon U.S.A., Inc.  
Heidelberg Instruments Inc.  
Philips SCIL Nanoimprint Solutions  
Raith America, Inc.  
Seiwa Optical America Inc.

## DISTRIBUTOR, RESELLER, INTEGRATOR

GUDENG PRECISION INDUSTRIAL CO., LTD.

## EARTH SCIENCES, ENVIRONMENTAL MONITORING, CLIMATE

XEI Scientific, Inc.

## ELECTRONIC COMPONENTS

LouwersHanique

## ELECTRONIC, DIGITAL IMAGING

Carl Zeiss SMT GmbH

## EMERGING PHOTONICS TECHNOLOGIES

Coventor, Inc.  
Philips SCIL Nanoimprint Solutions

## FIBER OPTICS AND ACCESSORIES

LouwersHanique

## INDUSTRIAL SENSING AND MEASUREMENT

attocube systems Inc.  
Canon U.S.A., Inc.  
GUDENG PRECISION INDUSTRIAL CO., LTD.  
XEI Scientific, Inc.

## INFORMATION PROCESSING AND COMPUTING

Coventor, Inc.  
Vistec Electron Beam GmbH

## LASER COMPONENTS AND ACCESSORIES

LouwersHanique  
Shin-Etsu MicroSi, Inc.

## LASER INDUSTRY

Vistec Electron Beam GmbH

## LED, OLED, NON-LASER LIGHT SOURCES

Energetiq Technology, Inc.  
Seiwa Optical America Inc.

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# PRODUCT CATEGORIES

## LITHOGRAPHIC EQUIPMENT

C&D Semiconductor Services, Inc.  
 Canon U.S.A., Inc.  
 Carl Zeiss SMT GmbH  
 Coventor, Inc.  
 Energetiq Technology, Inc.  
 GUDENG PRECISION INDUSTRIAL CO., LTD.  
 Heidelberg Instruments Inc.  
 INKO Industrial Corp.  
 LouwersHanique  
 Philips SCIL Nanoimprint Solutions  
 Raith America, Inc.  
 Rigaku Innovative Technologies, Inc.  
 SCREEN SPE USA, LLC  
 Seiwa Optical America Inc.  
 Vistec Electron Beam GmbH

## MACHINE VISION, FACTORY AUTOMATION

Canon U.S.A., Inc.  
 GUDENG PRECISION INDUSTRIAL CO., LTD.  
 Seiwa Optical America Inc.

## MATERIALS PROCESSING, LASERS IN MANUFACTURING

attocube systems Inc.  
 LouwersHanique

## MATERIALS, ABRASIVES, CHEMICALS

JSR Micro, Inc.  
 King Industries Inc.  
 Shin-Etsu MicroSi, Inc.

## MICROSCOPES

attocube systems Inc.  
 Inspectrology LLC  
 Raith America, Inc.  
 Seiwa Optical America Inc.  
 XEI Scientific, Inc.

## MICROTECHNOLOGY

Coventor, Inc.  
 Energetiq Technology, Inc.  
 Heidelberg Instruments Inc.  
 Vistec Electron Beam GmbH

## MISC CONSUMABLES AND EQUIPMENT

XEI Scientific, Inc.

## NANOTECHNOLOGY PRODUCTS

Energetiq Technology, Inc.  
 Philips SCIL Nanoimprint Solutions  
 XEI Scientific, Inc.

## OPTICAL COATINGS, THIN FILMS

Rigaku Innovative Technologies, Inc.

## OPTICAL COMPONENTS - FILTERS, MIRRORS, OTHER

Canon U.S.A., Inc.  
 LouwersHanique  
 Rigaku Innovative Technologies, Inc.  
 XEI Scientific, Inc.

## OPTICAL COMPONENTS - LENSES

Seiwa Optical America Inc.

## OPTICAL DESIGN AND ENGINEERING

Coventor, Inc.  
 Rigaku Innovative Technologies, Inc.

## OPTICAL FABRICATION EQUIPMENT

Philips SCIL Nanoimprint Solutions

## OPTICS MANUFACTURING

LouwersHanique  
 Rigaku Innovative Technologies, Inc.  
 Seiwa Optical America Inc.

## PHOTONIC INTEGRATION

Philips SCIL Nanoimprint Solutions

## POSITIONING EQUIPMENT, MOTION CONTROL AND ACCESSORIES

attocube systems Inc.  
 Raith America, Inc.

## SEMICONDUCTOR DEFENSE SECURITY

Inspectrology LLC

## SEMICONDUCTOR MANUFACTURING

C&D Semiconductor Services, Inc.  
 Cadence Design Systems, Inc.  
 Canon U.S.A., Inc.  
 Carl Zeiss SMT GmbH  
 Coventor, Inc.  
 Energetiq Technology, Inc.  
 Heidelberg Instruments Inc.  
 Pozzetta, Inc.  
 Raith America, Inc.  
 SCREEN SPE USA, LLC  
 Seiwa Optical America Inc.  
 Synopsys, Inc.  
 Vistec Electron Beam GmbH

## SOFTWARE

Coventor, Inc.  
 Synopsys, Inc.  
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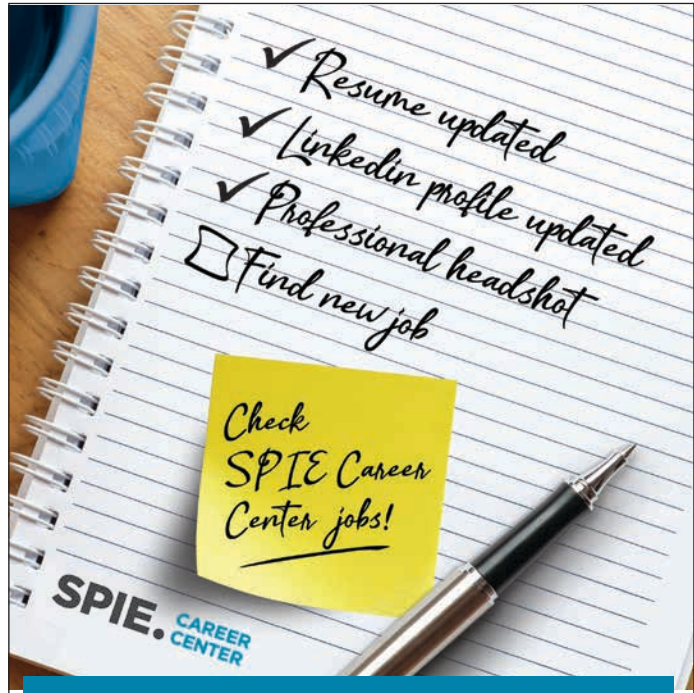
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SPIE, or their officially designated event management, in their sole discretion, reserves the right to accept or decline an individual's registration for an event. Further, SPIE, or event management, reserves the right to prohibit entry or to remove any individual whether registered or not, be they attendees, exhibitors, representatives, or vendors, whose conduct is not in keeping with the character and purpose of the event. Without limiting the foregoing, SPIE and event management reserve the right to remove or refuse entry to anyone who has registered or gained access under false pretenses, provided false information, or for any other reason whatsoever that they deem is cause under the circumstances.

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Registrations must be fully paid before access to the conference is allowed. SPIE accepts VISA, MasterCard, American Express, Discover, Diner's Club, checks and wire transfers. Onsite registrations can also be paid with cash.

### SPIE Safe Meeting Policy | Code of Conduct

SPIE is committed to providing a harassment- and discrimination-free experience for everyone at our events, an experience that embraces the richness of diversity where participants may exchange ideas, learn, network, and socialize in the company of colleagues in an environment of mutual respect.

SPIE does not tolerate harassment of event participants, attendees, exhibitors, speakers, volunteers, contractors, service providers, venue staff, or SPIE staff. This Code of Conduct applies to all SPIE meeting-related events, including those sponsored by other organizations but held in conjunction with SPIE events, in public or private facilities.

The SPIE Anti-Harassment Policy may be found at <http://spie.org/policy> (PDF)

The SPIE Code of Conduct may be found at <http://spie.org/conduct> (PDF)

In addition, SPIE Members and authors of SPIE publications must adhere to the SPIE Code of Ethics, found at <http://spie.org/ethics> (PDF)

### Reporting of Unethical or Inappropriate Behavior

Onsite at an SPIE meeting, contact any SPIE Staff with concerns or questions for thorough follow-up. If you feel in immediate danger, please dial the local emergency number for police intervention.

SPIE has established a confidential reporting system for staff and all meetings participants to raise concerns about possible unethical or inappropriate behavior within our community. Complaints may be filed by phoning toll-free to +1-888-818-6898 from within the United States and Canada, or online at [www.SPIE.ethicspoint.com](http://www.SPIE.ethicspoint.com) and may be made anonymously.

### Identification Requirement Policy

To verify registered participants and provide a measure of security, SPIE will ask attendees to present a government-issued photo identification at registration to collect registration materials.

Individuals are not allowed to pick up badges for other attendees. Further, attendees may not have some other person participate in their place at any conference-related activity. Such other individuals will be required to register on their own behalf to participate.

### Access to Conference Events / Access for Children Younger than 18

All conference technical and networking events require a badge for admission. Registered attendees may bring children with them as long as they have been issued a badge. Registration badges for children under 18 are free and available at the SPIE registration desk onsite. Children under 14 years of age must be accompanied by an adult at all times, and guardians are asked to help maintain a professional, disturbance-free conference environment.

# SPIE EVENT POLICIES

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Unauthorized solicitation in the Exhibition Hall is prohibited. Any nonexhibiting manufacturer or supplier observed to be distributing information or soliciting business in the aisles, or in another company's booth, will be asked to leave immediately.

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Conferences, courses, and poster sessions: For copyright reasons, recordings of any kind are prohibited without prior written consent of the presenter or instructor. Attendees may not capture or use materials presented in any meeting/course room or in course notes on display without written permission. Consent forms are available at Speaker Check-In or SPIE Registration. Individuals not complying with this policy will be asked to leave a given session and/or asked to surrender their recording media. Refusal to comply with such requests is grounds for expulsion from the event.

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SPIE supplies tested and safety-approved laser pointers for all conference meeting rooms. For safety reasons, SPIE requests that presenters use provided laser pointers.

Use of a personal laser pointer represents the user's acceptance of liability for use of a non-SPIE-supplied laser pointer. If you choose to use your own laser pointer, it must be tested to ensure <5 mW power output. Laser pointers in Class II and IIIa (<5 mW) are eye safe if power output is correct, but output must be verified because manufacturer labeling may not match actual output. You are required to sign a waiver releasing SPIE of any liability for use of potentially non-safe, personal laser pointers. Waivers are available at Speaker Check-In.

## Unsecured Items Policy

Personal belongings should not be left unattended in meeting rooms or public areas. Unattended items are subject to removal by security. SPIE is not responsible for items left unattended.

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At most events, SPIE provides wireless access for attendees. Properly secure your computer before accessing the public wireless network. SPIE is not responsible for computer viruses or other computer damage.

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## Agreement to Hold Harmless

Attendee agrees to release and hold harmless SPIE from any and all claims, demands, and causes of action arising out of or relating to your participation in the event you are registering to participate in and use of any associated facilities or hotels.

## Event Cancellation Policy

If for some unforeseen reason SPIE should have to cancel an event, processed registration fees will be refunded to registrants. Registrants will be responsible for cancellation of travel arrangements or housing reservations and the applicable fees.

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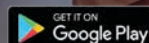
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Swabian Instruments GmbH  
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SwissLitho AG  
SwissOptic AG  
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Synopsys, Inc.  
Syntec Optics  
Taiyo Optics (Dong Guan) Corp.  
tec5USA, Inc.  
Technica Optical Components, LLC  
Technical Manufacturing Corp.  
Tecport Optics, Inc.  
Teledyne e2v UK Ltd.  
Teledyne Judson Technologies  
Telops Inc.  
Tempo Clean Room Foam  
TeraXion Inc.  
Texas Instruments Inc.  
The Hong Kong Polytechnic Univ.  
The Scatter Works Inc.  
The Univ. of Arizona  
Thorlabs, Inc.  
Timbercon, Inc.  
TLC International World Headquarters  
TOPTICA Photonics, Inc.  
Toshiba America Information Systems, Inc.  
Tower Optical Corp.  
TRIOPTICS GmbH  
TRIOPTICS USA  
TwinStar Optics, Coatings & Crystals, Inc.  
Tydex  
ULTRA TEC Mfg., Inc.  
Umicore Optical Materials USA, Inc.  
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Video Systems Srl  
Vincent Associates  
Virtual Industries, Inc.  
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Vital Materials Co., Ltd.  
Vixar Inc.  
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Wavelength Electronics, Inc.  
Wavelength Opto-Electronic (S) Pte. Ltd.  
WINHO Optical Mfg. Co., Ltd.  
World Star Tech  
Wuhan National Lab. for Optoelectronics  
WZW-Optic AG  
Xactra Technologies  
XEI Scientific, Inc.  
Xenics NV  
XIMEA Corp.  
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XYALIS  
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Z & Z Optoelectronics Tech. Co., Ltd.  
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