SPIE. CONFERENCE ON
CHINESE LASER PRESS
ADVANCED PHOTONICS

22–23 August 2023
San Diego Marriott Marquis
San Diego, California, United States

Welcome to the SPIE-CLP Conference on Advanced Photonics. This two-day event features invited and selected presentations on hot topics in emerging photonics, organized by our conference program committee along four technical tracks: 1) photonic quantum technologies; 2) photonics for sustainability; 3) AI and machine learning in photonics and imaging; and 4) topological photonics, structured light, and trapping. We hope you will enjoy the occasion to explore and engage.

CONFERENCE CHAIRS:

Anatoly V. Zayats
King's College London
(United Kingdom)

Xiao-Cong Yuan
Shenzhen Univ. (China)

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TECHNICAL PROGRAM

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ADVANCED PHOTONICS

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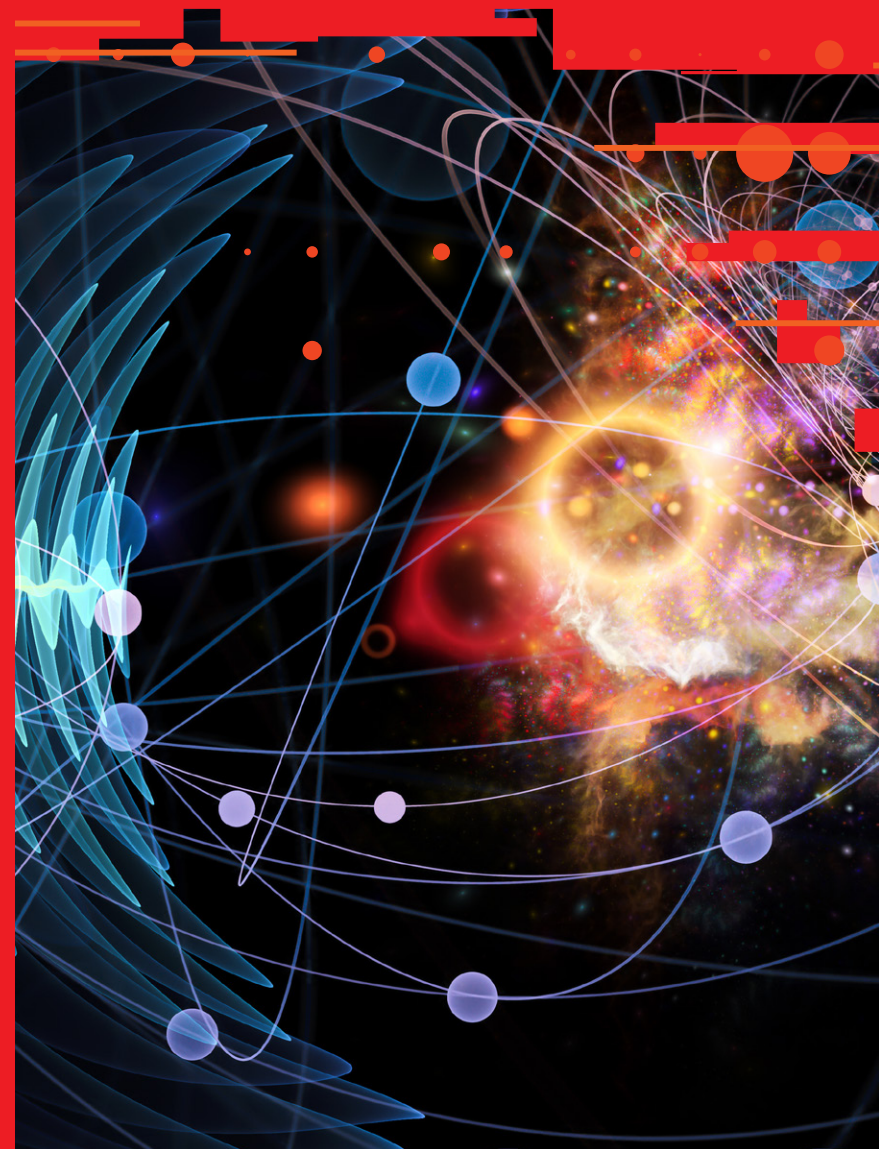

TIME	TUESDAY 22 AUGUST Location: Marriott Marquis, Marina F
9:00 AM - 9:15 AM	**WELCOME AND OPENING REMARKS** **Anatoly V. Zayats,** King's College London (United Kingdom) **Xiao-Cong Yuan,** Shenzhen Univ. (China)
9:15 AM - 1:00 PM	**SESSION 1: PHOTONIC QUANTUM TECHNOLOGIES**
9:15 AM	12746-4 • Invited Paper **Nanoscale covariance magnetometry with diamond quantum sensors,** Nathalie de Leon, Princeton Univ. (USA)
9:45 AM	12746-2 • Invited Paper **Advances in imaging through a single optical fibre,** Miles J. Padgett, Univ. of Glasgow (United Kingdom)
10:15 AM	12746-3 **Electrical excitation of color centers in phosphorus-doped diamond Schottky diodes,** Florian Sledz, Assegid M. Flatae, Stefano Lagomarsino, Univ. Siegen (Germany); Rozita Rouzbahani, Paulius Pobedinskas, Ken Haenen, Univ. Hasselt (Belgium), IMEC (Belgium); Tianxiao Guo, Xin Jiang, Paul Kienitz, Peter Haring-Bolivar, Univ. Siegen (Germany); Mario Agio, Univ. Siegen (Germany), Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy)
10:30 AM	Coffee Break
11:00 AM	12746-1 • Invited Paper **Scalable quantum and nonlinear photonics,** Jelena Vuckovic, Stanford Univ. (USA)
11:30 AM	12746-5 **Vector magnetometry based on polarimetric optically detected magnetic resonance,** Philipp Reuschel, Univ. Siegen (Germany); Mario Agio, Univ. Siegen (Germany), Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); Assegid M. Flatae, Univ. Siegen (Germany)
11:45 AM	12746-6 **Minimalistic efficient quantum devices build of dipole coupled nano arrays of quantum emitters,** Helmut Ritsch, Univ. Innsbruck (Austria)
12:00 PM	12746-7 **Coherent dynamics of inhomogeneously broadened ensembles in waveguide QED,** Lewis Ruks, NTT Basic research laboratories (Japan); Victor Manuel Bastidas, William John Munro, NTT Basic Research Labs. (Japan)
12:15 PM	12746-8 • Invited Paper **3D meta-optics for sorting light by wavelength, polarization, and angle of incidence,** Andrei Faraon, Gregory Roberts, Ian Foo, Caltech (USA)
12:45 PM	12746-9 **Enhanced extended superradiance in near-zero refractive index metamaterials,** Michaël Lobet, Lab. de Physique du Solide (Belgium), Harvard Univ. (USA); Olivia Mello, Harvard University (USA); Larissa Vertchenko, Sparrow Quantum (Denmark); Eric Mazur, Harvard University (USA)
1:00 PM	Lunch Break
2:30 PM - 5:00 PM	**SESSION 2: PHOTONICS FOR SUSTAINABILITY**
2:30 PM	12746-10 • Invited Paper **Multifunctional photonic thermal engineering for human-building-energy nexus**, Po-Chun Hsu, The Univ. of Chicago (USA)
3:00 PM	12746-11 • Invited Paper **Tailoring thermal radiation with nanoengineered materials for building and personal thermal management,** Lili Cai, Univ. of Illinois (USA)
3:30 PM	12746-12 • Invited Paper **Fluorescence-mediated radiative cooling for green buildings and skin electronics,** Dangyuan Lei, City Univ. of Hong Kong (Hong Kong, China)
4:00 PM	12746-13 **Hybrid graphene-dielectric-metal nanostructure for electrostatically tunable daytime radiative cooling,** Jayden Craft, Univ. of Central Florida (USA); Richard M. Osgood, U.S. Army Combat Capabilities Development Command Soldier Ctr. (USA); Michael N. Leuenberger, Univ. of Central Florida (USA)
4:15 PM	12746-14 **Enhancing photochemical reduction via copper-based metamaterial catalysts,** Anatoly Zayats, Wayne Dickson, King's College London (United Kingdom)
4:30 PM	12746-15 • Invited Paper **Surface electromagnetic waves in lossy media for environmental sensing applications,** Igor I. Smolyaninov, Saltenna LLC (USA); Vera N. Smolyaninova, Towson Univ. (USA)
5:00 PM - 6:00 PM	**Poster Session** Conference attendees are invited to attend the poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, network with colleagues in your field, and vote for your favorite poster in the People's Choice Award. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster session.
12746-31 • **Mean teacher for surface defect inspection with long-tailed distributions,** Erik I. Valle Salgado, Tsinghua Univ. (Mexico); Xinghui Li, Tsinghua Univ. (China)	
12746-32 • **Weed detection among soybean plants in artificial lighting environment using multispectral images and computer vision,** Yuri Sarreta Oda, Instituto de Física de São Carlos, Univ. de São Paulo (Brazil); Lucas Orlandi de Oliveira, Instituto de Física de São Carlos (Brazil); Samuel De Paula, Univ. de São Paulo (Brazil); André Orlandi de Oliveira, Jarbas Caiado de Castro Neto, Instituto de Física de São Carlos (Brazil)	
12746-33 • **An improved transmission line monitoring method based on YOLOV5,** Changquan Yuan, China Jiliang Univ. (China)	
12746-34 • **Compact slot microring resonator based on silicon nitride-on-insulator (SiNOI) platform for sensing application**, Alaa Sultan, Mohamed A. Swillam, The American Univ. in Cairo (Egypt)	
12746-35 • **Aberration-free high-bandwidth holographic imaging**, Zhengzhong Huang, Liangcai Cao, Tsinghua Univ. (China)	
12746-36 • **Efficient and compact silicon-based surface grating antenna for optical phased arrays,** Omar Elsheikh, Mohamed A. Swillam, The American Univ. in Cairo (Egypt)	
12746-37 • **High-sensitivity metasurface plasmonic sensor,** Mostafa Sayed, Abdullah Maher, Mohamed A. Swillam, The American Univ. in Cairo (Egypt)	
12746-38 • **All-optical control of ultrafast plasmon resonances in the pulse driven extraordinary optical transmission,** Hira Asif, Akdeniz University Antalya (Turkey); Mehment Emre Tasgin, Institute of Nuclear Sciences, Hacettepe University (Turkey); Ramazan Sahin, Akdeniz University Antalya (Turkey)	
12746-39 • **Automatic food quality grading techniques using hyperspectral imaging,** Shih-Yu Chen, National Yunlin Univ of Science and Technology (Taiwan)	
12746-40 • **Multifunctional materials for emerging technologies,** Gurpreet Singh Selopal, Dalhousie Univ. (Canada); Federico Rosei, Ctr. for Energy, Materials and Telecommunications, Institut National de la Recherche Scientifique (Canada)	

TIME	WEDNESDAY 23 AUGUST Location: Marriott Marquis, Marina F
9:00 AM - 10:30 AM	**SESSION 3: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN PHOTONICS AND IMAGING I**
9:00 AM	12746-16 • Invited Paper **Enlarge the capacity of holographic data storage using deep learning,** Xiaodi Tan, Xiao Lin, Jianying Hao, Haiyang Song, Yongkun Lin, Ruixian Chen, Hongjie Liu, Rupeng Yang, Jie Zheng, Xiaoqing Zheng, Rongquan Fan, Linlin Fan, Kun Wang, Dakui Lin, Yuhong Ren, Fujian Normal Univ. (China)
9:30 AM	12746-17 **At the crossroad between deep learning and nanotechnology for photonics,** Mintae Chung, Christian Santschi, Olivier J.F. Martin, École Polytechnique Fédérale de Lausanne (Switzerland)
9:45 AM	12746-18 **Leveraging highly data-efficient computational intelligence for the engineering of photonic devices: a case study on vortex phase mask coronagraphs,** Nicolas Roy, Université de Namur (Belgium); Lorenzo König, Olivier Absil, University of Liège (Belgium); Charlotte Beauthier, Cenaero ASBL (Belgium); Alexandre Mayer, Michaël Lobet, Université de Namur (Belgium)
10:00 AM	12746-19 **Temperature robust medium chemical concentration detection with microring resonators and machine learning,** Thomas Mikhail, Sarah Shafaay, Mohamed A. Swillam, The American Univ. in Cairo (Egypt)
10:15 AM	12746-20 **DS-ACNet: Point cloud classification algorithm exploiting depthwise separable convolution and adaptive convolution,** Thomas Mikhail, Chun Li, Guiyang Institute of Humanities and Technology (China)
10:30 AM	Coffee Break
11:00 AM - 1:00 PM	**SESSION 4: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN PHOTONICS AND IMAGING II**
11:00 AM	12746-21 • Invited Paper **Deep-learning-enabled computational microscopy and diffractive imaging,** Aydogan Ozcan, UCLA Samueli School of Engineering (USA)
11:30 AM	12746-22 • Invited Paper **Correlative super resolution microscopy and applications,** Kebin Shi, Peking Univ. (China)
12:00 PM	12746-23 **CANCELED: Blind image restoration with bright channel and extreme gradient prior constraint,** Yang Chao, Guiyang Institute of Humanities and Technology (China)
12:15 PM	12746-24 **Dynamic quantitative phase imaging via spatiotemporal compressive phase retrieval,** Yunhui Gao, Liangcai Cao, Tsinghua Univ. (China)
12:30 PM	12746-25 • Invited Paper **High-speed image reconstruction for super-resolution structured illumination microscopy using facile optimization and conversion of reconstruction code in the GPU environment,** Zhaojun Wang, Tianyu Zhao, Shaanxi Province Key Lab. of Quantum Information and Quantum Optoelectronic Devices, Xi'an Jiaotong Univ. (China); Huiwen Hao, Peking Univ. BIOPIC and School of Life Sciences (China); Yanan Cai, Northwest A&F Univ. (China); Kun Feng, Xue Yun, Yansheng Liang, Shaowei Wang, Shaanxi Province Key Lab. of Quantum Information and Quantum Optoelectronic Devices, Xi'an Jiaotong Univ. (China); Yujie Sun, Peking Univ. BIOPIC and School of Life Sciences (China); Ming Lei, Shaanxi Province Key Lab. of Quantum Information and Quantum Optoelectronic Devices, Xi'an Jiaotong Univ. (China); Kwangsung Oh, Univ. of Nebraska Omaha (USA); Piero R. Bianco, Univ. of Nebraska Medical Ctr. (USA)
1:00 PM	Lunch Break
2:30 PM - 5:00 PM	**SESSION 5: TOPOLOGICAL PHOTONICS, STRUCTURED LIGHT, AND TRAPPING**
2:30 PM	12746-26 • Invited Paper **All in a spin: Rotational levitated optomechanics,** Kishan Dholakia, The Univ. of Adelaide (Australia), Univ. of St. Andrews (United Kingdom)
3:00 PM	12746-27 • Invited Paper **Sculpted light in nano and microsystems,** Halina Rubinsztein-Dunlop, Itia A. Favre-Bulle, Mark L. Watson, Patrick Grant, Timo A. Nieminen, Alexander B. Stilgoe, The Univ. of Queensland (Australia)
3:30 PM	12746-28 • Invited Paper **An atomic compass based on vectorial light-matter interaction,** Sonja Franke-Arnold, Univ. of Glasgow (United Kingdom); Jinwen Wang, Xi'an Jiaotong University (China); Sphinx Svensson, Univ of Glasgow (United Kingdom); Thomas Clark, Wigner Research Ctr. for Physics (Hungary); Niclas Westerberg, Univ of Glasgow (United Kingdom)
4:00 PM	12746-29 • Invited Paper **Topological plasmonics and twistronics: Ultrafast vector movies of plasmonic skyrmions, merons, and skyrmion bags on the nanoscale,** Harald Giessen, Univ. Stuttgart (Germany)
4:30 PM	12746-30 • Invited Paper **Photonics of time-varying media, merons, and skyrmion bags on the nanoscale,** Emanuele Galiffi, The City Univ. of New York Advanced Science Research Ctr. (United States), The Blackett Lab., Imperial College London (United Kingdom); Romain Tirole, The Blackett Lab., Imperial College London (United Kingdom); Shixiong Yin, The City Univ. of New York Advanced Science Research Ctr. (United States); Huanan Li, The City Univ. of New York Advanced Science Research Ctr. (United States), Nankai Univ. (China); Stefano Vezzoli, The Blackett Lab., Imperial College London (United Kingdom); Paloma A. Huidobro, Mário G. Silveirinha, Instituto de Telecomunicações (Portugal); Riccardo Sapienza, The Blackett Lab., Imperial College London (United Kingdom); Andrea Alù, The City Univ. of New York Advanced Science Research Ctr. (United States), The City Univ. of New York (United States); John B. Pendry, The Blackett Lab., Imperial College London (United Kingdom)
5:00 PM - 5:30 PM	**AWARDS AND CLOSING REMARKS** **Anatoly V. Zayats,** King's College London (United Kingdom) **Xiao-Cong Yuan,** Shenzhen Univ. (China)

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Program current as of 25 Juiy 2023