

# 14th International Conference Series on Laser-light and Interactions with Particles (LIP 2024)

## 2024 International Workshop on Optoelectronic Perception (IWOP 2024)

September 18th-22nd, 2024, Xi'an Yohol Hotel (西安悦豪酒店), Xi'an, China



“复杂环境光电信息感知科学与技术”国际学术交流平台



西安电子科技大学  
XIDIAN UNIVERSITY

物理学院  
School of Physics

光电工程学院  
School of optoelectronic Engineering

国际合作与交流部  
Division of international cooperation & Exchange

**LIP2024** has been promoting state-of-the-art research and scientific exchange on laser-beams and interactions with particles and particle systems for more than three decades. It has been held in Rouen 1987; Tempe, 1990; Yokohama, 1993; Nürnberg, 1995; Minneapolis, 1998; Brighton, 2001; Kyoto, 2004; Graz, 2007; Rouen, 2012; Marseille, 2014; Xi'an, 2016; College Station (TX), 2018; Warswa, 2022. The conference is focused on interactions between laser beams and particles, from theory to practice.

**IWOP2024** is supported by the International Academic Platform for Optoelectronic Perception Science and Technology under Complex Environment (OPCE) approved by the Ministry of Education and State Bureau of Foreign Experts Affairs of China in 2017. This workshop focuses on the joint research work on basic theory, key technologies and application development in optoelectronic characteristics of targets and environment, optoelectronic detection technology, optoelectronic information and image processing, computational imaging and biomedical imaging areas.

### Schedule

Time	Events	Chair	Location
<b>September 18, 2024</b>			
8:30~18:30	● Registration		Xi'an Yohol Hotel Lobby
<b>September 19, 2024</b>			
<b>LIP2024&amp;IWOP2024, multifunction hall (多功能厅), 5<sup>th</sup> floor of Xi'an Yohol Hotel</b> Online Access: VooV meeting ID (腾讯会议): 509-8290-2486 Password: 1931			
08:30~9:10	● Opening Ceremony ● Workshop Photo	Prof. Huixin Zhou	Off-line

9:10~9:50	<p>➤ <b>Keynote Lecture:</b> Ultra-Wideband Dual-Polarized Tightly-Coupled Array Antenna for Future Integrated System of Communications, Sensing and Imaging  <b>Speaker:</b> Prof. <b>Steven Gao</b>, The Chinese University of Hong Kong, China</p>	Prof. <b>Lixin Guo</b>	Off-line
9:50~10:30	<p>➤ <b>Keynote Lecture:</b> Machine learning and artificial intelligence-based speckle pattern analysis for remote blood-chemicals detection  <b>Speaker:</b> Prof. <b>Zeev Zalevsky</b>, Bar-Ilan University, Israel</p>		Off-line
10:30~10:50	<b>Coffee Break</b>		
10:50~11:30	<p>➤ <b>Keynote Lecture:</b> Optical forces and torques in structured light  <b>Speaker:</b> Prof. <b>Baoli Yao, Xiaohao Xu</b>, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China</p>	Prof. <b>Peng Gao</b>	Off-line
11:30~12:10	<p>➤ <b>Keynote Lecture:</b> Electromagnetic Forces in Continuous Media  <b>Speaker:</b> Prof. <b>Vadim Markel</b>, University of Pennsylvania, USA</p>		Off-line
12:30~14:00	<b>Lunch (Buffet, Cafeteria on the 29th floor, Xi'an Yohol Hotel)</b>		
14:00~14:40	<p>➤ <b>Keynote Lecture:</b> Blowing-ups when using finite series to evaluate beam shape coefficients and a way to eliminate evanescent waves  <b>Speaker:</b> Prof. <b>Gérard Gouesbet</b>, CORIA-UMR6614, CNRS-Université et INSA de Rouen, France</p>	Prof. <b>Xiaoshu Cai</b>	Off-line
14:40~15:20	<p>➤ <b>Keynote Lecture:</b> Make the beam shape coefficient evaluation easy by using scalar spherical wave expansion and addition theorem  <b>Speaker:</b> Prof. <b>Jianqi Shen</b>, University of Shanghai for Science and Technology, China</p>		On-line
15:20~16:00	<p>➤ <b>Keynote Lecture:</b> Digital holography for particle characterization: hologram modeling, refractive index measurement, and optical compression  <b>Speaker:</b> Prof. <b>Fabrice Onofri</b>, French National Center for Scientific Research (CNRS), France</p>		Off-line
16:00~16:20	<b>Coffee Break</b>		
16:20~17:00	<p>➤ <b>Keynote Lecture:</b> Absorptive electromagnetic-selective structures: concept and design  <b>Speaker:</b> Prof. <b>Zhongxiang Shen</b>, Nanyang Technological University, Singapore</p>	Prof. <b>Bing Wei</b>	Off-line
17:00~17:40	<p>➤ <b>Keynote Lecture:</b> Novel Multifunctional Reconfigurable Wideband Frequency-Selective Filter/Shielding with Independently Controlled Operating Modes  <b>Speaker:</b> Prof. <b>Qingsheng Zeng</b>, Université du Québec en Outaouais, Canada</p>		Off-line
17:40~18:20	<p>➤ <b>Keynote Lecture:</b> Concurrent behavioral modelling and functional near infrared spectroscopy neuroimaging reveals how feedback affects decision making in internet gaming disorder  <b>Speaker:</b> Prof. <b>Zhen Yuan</b>, University of Macau, China</p>		Off-line
18:30~20:00	<b>Banquet (multifunction hall (多功能厅) on the 5th floor, Xi'an Yohol Hotel)</b>		

September 20, 2024

LIP2024, Xi'an Yohol Hotel, Fulu Hall (福祿厅)

Online Access: VooV meeting ID (腾讯会议): 436-8469-4121 Password: 4913

8:30~9:00	<b>Special session (1): A promenade in light scattering landscape with James Albert Lock</b> <b>Speaker:</b> Prof. <b>G�rard Gouesbet</b> , CORIA-UMR6614, CNRS-Universit� et INSA de Rouen, France
9:00~9:30	<b>Special session (2): The other half of professor James Albert Lock (online)</b> <b>Speaker:</b> Prof. <b>Vida Lock</b> , Cleveland State University, USA
<b>Session: Light/electromagnetic wave propagation in complex media</b> <b>Chair: Guoxia Han, Mingjian Chen</b>	
09:30-10:00	<b>Transmission of Gaussian pulses light in low visibility haze (invited)</b> Xinyu Wei, Qiang Xu, Yiping Han, Zhensen Wu School of Physics, Xidian University, China
10:00-10:30	<b>Complex characteristics of Bessel beams (invited)</b> Guoxia Han, Yihan Tian, Shiru Song, Qihui Zhao and Yunzhen Xing China University of Petroleum (East China), China
10:30-10:50	<b>Coffee Break</b>
<b>Session: Beam shape description of laser/electromagnetic wave</b> <b>Chair: Leonardo Andr� Ambrosio, Jiajie Wang</b>	
10:50-11:20	<b>Polychromatic generalized Lorenz-Mie theory (invited)</b> Leonardo Andr� Ambrosio, Jhonas Olivati de Sarro, G�rard Gouesbet University of S�o Paulo, Brazil.
11:20-11:45	<b>Description of the BSCs of 1D FWs after two pairs of lenses</b> Jhonas O. DE SARRO, Beatriz H. D. ROCHA, Leonardo A. AMBROSIO, Ger�rd GOUESBET University of S�o Paulo, Brazil
11:45-12:10	<b>On a relationship between electromagnetic and acoustical beam shape coefficients</b> Gouesbet G�rard, Leonardo A. Ambrosio, Jianqi Shen CORIA-UMR6614, Normandie Universit�, CNRS-Universit� et INSA de Rouen, France
12:10~14:00	<b>Lunch (Buffet, Cafeteria on the 29th floor, Xi'an Yohol Hotel)</b>
<b>Keynote Lectures:</b> <b>Chair: J�r�me Yon</b>	
14:00-14:40	<b>Super-resolution fluorescence and quantitative phase microscopy visualize live cells in 3D (Keynote Lecture)</b> <b>Speaker:</b> Prof. <b>Peng Gao</b> , Xidian University, China
14:40-15:20	<b>The discrete dipole approximation for light-scattering simulations (Keynote Lecture, online)</b> <b>Speaker:</b> Prof. <b>Maxim A. Yurkin</b> , CNRS researcher at CORIA, University of Rouen, France
<b>Session: Optical forces and other mechanical effects of light/laser/electromagnetic wave</b> <b>Chair: Vadim Markel, Yiping Han</b>	
15:20-15:50	<b>Optical enantioselective manipulation of chiral particles (invited)</b> Manman Li, Shaohui Yan, Yanan Zhang, Baoli Yao Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China
15:50-16:15	<b>Optical trapping efficiencies of dark-hollow Gaussian beam and annular beam (online)</b> Sumit YADAV, Abdul ALIM, Arijit K DE Condensed phase dynamics group, Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER) Mohali, India
16:15-16:35	<b>Coffee Break</b>
<b>Session: Light/laser/electromagnetic scattering of complex particles and aggregates</b> <b>Chair: Fabrice Onofri, Xiang'e Han</b>	

16:35-17:00	<b>Progress on the light scattering patterns of non-spherical drops simulated by vectorial complex ray model</b> Qingwei Duan, Xiang'e Han, Qinyao Li, Kuanfang Ren Xidian University, China
17:00-17:25	<b>On the Q factor of Mie modes (online)</b> Xavier ZAMBRANA-PUYALTO, Søren RAZA Technical University of Denmark, Denmark
17:25-17:50	<b>Forward scattering model for spherical particles: refraction and diffraction ring effects (online)</b> Lilian CHABROL, FABRICE ONOFRI IUSTI - UMR n°7343 CNRS/Aix-Marseille Université, France
17:50-18:15	<b>Light Scattering by Multilayer and Homogenized Curvilinear Systems (online)</b> Milena RAMANOVICH, Denis V. NOVITSKY, Andrey NOVITSKY National Academy of Sciences, Belarus
18:15~20:00	<b>Dinner (Buffet, Cafeteria on the 29th floor, Xi'an Yohol Hotel)</b>
<b>September 21, 2024</b>	
<b>LIP2024, Xi'an Yohol Hotel, Fulu Hall (福禄厅)</b>	
Online Access: VooV meeting ID (腾讯会议) : 436-8469-4121 Password: 4913	
<b>Session: Light/laser/electromagnetic scattering of complex particles and aggregates Chair: Jérôme Yon, Qingwei Duan</b>	
8:30-09:00	<b>Single non-spherical particle far-field scattering simulation based on FDTD method (invited)</b> Hong Hua, Tianyi Cai, Zeqi Liu, Wu Zhou, Xiaoshu Cai University of Shanghai for Science and Technology, China
09:00-09:30	<b>Light scattering by a buried circular cylinder (invited)</b> Huayong Zhang, Zhenzhen Chen Anhui University, China
09:30-10:00	<b>Particle size measurement using the laser diffraction model based on Monte Carlo method (invited)</b> Geyi Su, Minglei Guan, Mingxu Su University of Shanghai for Science and Technology, China
10:00-10:30	<b>Soot sizing in laminar diffusion flames: impact of self absorption (invited)</b> Mijail Littin, Guillaume Lefevre, Marek Mazur, Andrés Fuentes, Jérôme Yon INSA Rouen Normandie, Univ. Rouen Normandie, CNRS, Normandie Univ., CORIA UMR 6614, France
10:30-10:50	<b>Coffee Break</b>
<b>Session: Optical particle sizing and characterization methods Chair: Tianyi Cai, Lu Bai</b>	
10:50-11:20	<b>Motional and removable characteristics of lunar dust particles in electrostatic field (invited)</b> Haiyan Zhang, Wei Zhang, Siyuan Chang, Fugang Wang, Zhendong Zhao, Chao Zong, Yi Wang, Cunhui Li Lanzhou Institute of Physics, China
11:20-11:45	<b>On the effective-medium approach for monolayers of small particles and its relationship with multiple scattering models</b> Augusto García-Valenzuela, Omar Vázquez-Estrada, Anays Acevedo-Barrera, Rubén G. Barrera Universidad Nacional Autónoma de México, Mexico
11:45-12:10	<b>Simulation of the light scattering properties of interstellar tholins</b> Ankur GOGOI Jagannath Barooah University, India
12:10~14:00	<b>Lunch (Buffet, Cafeteria on the 29th floor, Xi'an Yohol Hotel)</b>
<b>Special session for young scholars from Xidian University Chair: Paul Briard, Zhiwei Cui</b>	

14:00-14:20	<b>A self-adaptive network based on free space optical communication</b> Ruike Yang, Ran Tan Xidian University, China
14:20-14:40	<b>Spectral prediction of composite structured metasurfaces based on convolutional neural network</b> Tan Qu, Jing Zhang, Zhensen Wu Xidian University, China
14:40-15:00	<b>Use of an iterative generalized regression neural network to determine the particle shape distribution of nanorods by depolarized dynamic light scattering</b> Hameed AKHTAR, Zhao Zhang, Jia Jie Wang, Yi Ping Han, Huan Yang, Paul BRIARD Xidian University, China
15:00-15:20	<b>Transmission characteristics of Laguerre-Gaussian beams in dusty environments</b> Yuancong Cao, Wenjie Jiang, Bowen Tao, Mingjian Cheng Xidian University, China
15:20-15:40	<b>Large-field optimized optical sectioning structured illumination microscopy</b> Xiaofei Chen, Kai Wen, Yunze Lei, Sha An, Hongfei Suo, Peng Gao Xidian University, China
15:40-16:00	<b>Design and Calibration of Optical Particle Analyzer for dust detection in Deep space</b> Zecheng Cui, Miaomiao Qi, Ting Zhang, Jiajie Wang Xidian University, China
16:00-16:20	<b>Blood cell characterization based on deep learning and diffraction phase microscopy</b> Nauman ALI, Xin Liu, Wenjian Wang, Ruihua Liu, Kequn Zhou, Ying Ma, Peng Gao Xidian University, China
16:20-16:40	<b>Coffee Break</b>
16:40-18:30	<b>All Posters – Discussions</b> <b>City Walk to the Grand Tang Mall (大唐不夜城)</b>
<b>September 22, 2024</b>	
<b>LIP2024, Xi'an Yohol Hotel, Fulu Hall (福禄厅)</b>	
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<b>Session: Optical imaging with structured illumination</b> <b>Chair: Varvara Gordeeva, Shaohui Yan</b>	
8:30-8:55	<b>Quantitative measurement of extinction, scattering, and absorption spectra from metallic nanoparticles</b> Alla GISICH, Baptiste AUGUIÉ, Eric C. LE RU Victoria University of Wellington, New Zealand
8:55-9:20	<b>Image analysis method for liquid-gas interface area disturbed by ultrasonic cavitation for evaluation of optimum influence modes</b> Varvara Yu. Gordeeva, Jean-Bastien Carrat, Roman N. Goly Biysk Technological Institute (branch) of Polzunov Altai State Technical University, Russia
9:20-9:45	<b>Preliminary derivation of second-order rainbow scattering by cam theory and experimental verification</b> Zhenyu Wang, Yingchun Wu, Xinhao Wang, Xuecheng Wu Zhejiang University, China
9:45-10:20	<b>Optimizing structured light therapy for 3d melanoma models: a Monte Carlo and machine learning approach (online)</b> Elena Vasilieva, Alexander Doronin, Vladislav V. Yakovlev, Vanderlei S. Bagnato Victoria University of Wellington, Wellington, New Zealand
10:20-10:40	<b>Coffee Break</b>
<b>Session: AI assisted analysis in light/electromagnetic scattering</b> <b>Chair: Tan QU, Haiying Li</b>	
10:40-11:10	<b>Convolutional neural network for particle's shape reconstruction in interferometric particle imaging (invited)</b> Alexis ABAD, Alexandre POUX, Marc BRUNEL UMR CNRS 6614 CORIA, Avenue de l'Université, France

11:10-11:35	<b>Convolutional neural network can track the radius evolution of levitating evaporating microdroplets</b> Kwasi NYANDEY, Gennadiy DERKACHOV, Daniel JAKUBCZYK Polish Academy of Sciences, Poland
11:35-12:00	<b>Property of plasmon-polaritons in nanorings assisted by lemniscateordered emitters (online)</b> Gennadiy BURLAK, Gustavo MEDINA-ÁNGEL Universidad Autonoma del Estado de Morelos, México
12:00~14:00	<b>Lunch (Buffet, Cafeteria on the 29th floor, Xi'an Yohol Hotel)</b>
<b>Session: Related applications</b> <span style="float: right;"><b>Chair: Denis LEBRUN, Huayong Zhang</b></span>	
14:00-14:30	<b>Analysing the reconstructed phase maps of digital in-line holograms: application to the characterization of viscoelastic fluids (invited)</b> Denis LEBRUN, Robin NOURY, Gilles GODARD, Marie-Charlotte RENOULT UMR 6614 CORIA, University and INSA of Rouen Normandy, France
14:30-14:55	<b>Near field distribution on the surface of spherical particles forming a two dimensional array in light-absorbing medium (online)</b> Valery LOIKO, Alexander MISKEVICH, Natalia LOIKO National Academy of Sciences of Belarus, Belarus
14:55-15:20	<b>Parameters of differential equations in four-flux and two-flux models approximated for wo3-nio inorganic electrochromic devices (online)</b> David BARRIOS Universidad Carlos III de Madrid, Spain
15:20-15:45	<b>Interferometry laser imaging for droplet sizing (ILIDS) with not fully defocused images (online)</b> Adelaida GARCIA-MAGARIÑO, Suthyvan SOR, Rafael BARDERA, Javier MUÑOZCAMPILLEJO Instituto Nacional de Tecnica Aeroespacial "Esteban Terradas (INTA), Spain
15:45-16:10	<b>Samarium-based complex salt micro-/nanoparticles: from synthesis to laser excitation fluorescence lifetime dynamics (online)</b> Nicoleta TOSA, Alexandra FALAMAS, Gheorghe BORODI, Lucian BARBU-TUDORAN National Institute for R&D of Isotopic and Molecular Technologies, Romania
16:10-16:30	<b>Coffee Break</b>
<b>Session: Related applications</b> <span style="float: right;"><b>Chair: Denis LEBRUN, Huayong Zhang</b></span>	
16:30-16:55	<b>Sum-rules methods for spectral response functions (online)</b> Brian Stout Aix-Marseille Universit'e, CNRS, Centrale Marseille, Institut Fresnel, France
16:55-17:20	<b>Fano-resonance assisted optical pulling force on plasmonic nanoparticles under femtosecond pulsed excitation (online)</b> Sumit YADAV, Anita DEVI, Arijit K DE Indian Institute of Science Education and Research (IISER) Mohali, India
17:20-18:00	<b>Closing ceremony of LIP2024</b>