

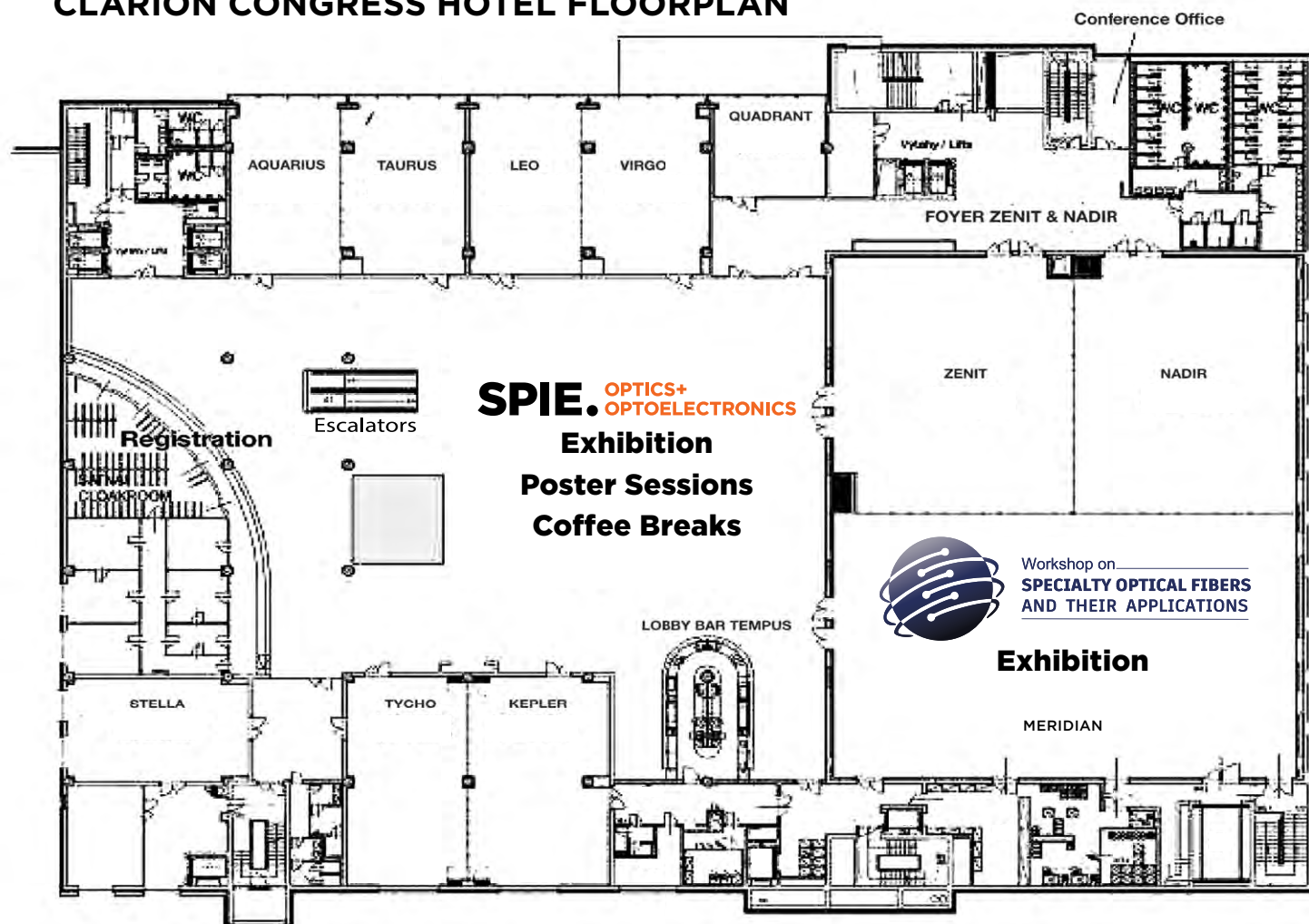
TECHNICAL PROGRAMME | EXHIBITION GUIDE

SPIE. OPTICS+ OPTOELECTRONICS

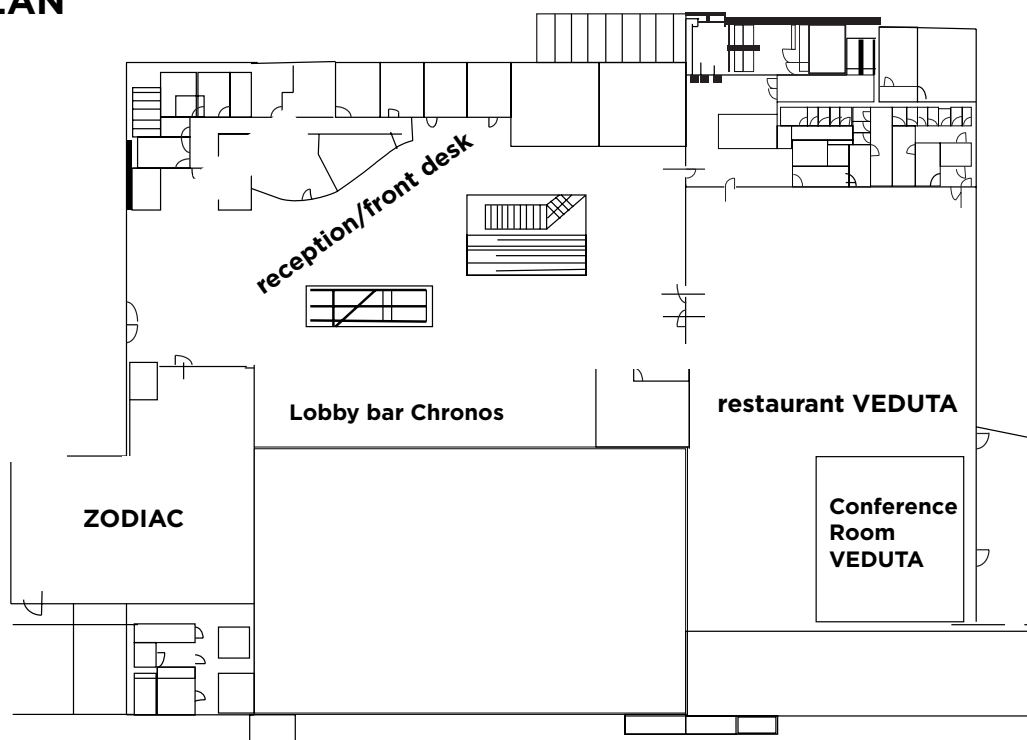
7-10 APRIL 2025 | CLARION CONGRESS HOTEL PRAGUE
PRAGUE, CZECH REPUBLIC

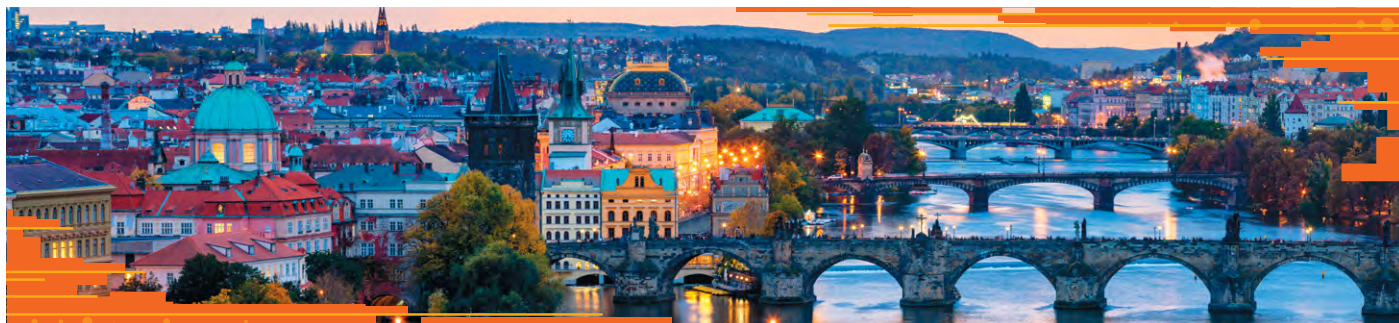


CLARION CONGRESS HOTEL FLOORPLAN



ZODIAC FLOOR PLAN





Experience the energy of SPIE Optics + Optoelectronics

General Information—PAGES 2-3

Plenary Presentations—PAGES 4-5

Hear presentations about breakthrough discoveries and new approaches given by leading speakers from across the globe.

Technical Events—PAGES 7

Poster events, workshops, and panel discussions - connect with colleagues on topics critical to your work and interest areas.

Special Events—PAGE 9

Connect with your colleagues at various events and receptions offered onsite.

Conf. Schedule—PAGES 12-18

Technical Conferences—PAGES 28-126

- Conf. 13523: **Metamaterials XV** 28-33
- Conf. 13524: **Nonlinear Optics and Applications XIV** . 34-38
- Conf. 13525: **Photon Counting and Quantum Optics 2025** 39-43
- Conf. 13526: **Real-time Processing of Image, Depth and Video Information 2025** 44-48
- Conf. 13527: **Optical Sensors 2025** 49-58
- Conf. 13528: **Smart Materials for Opto-Electronic Applications 2025** 59-66
- Conf. 13529: **Holography: Advances and Modern Trends IX** 67-72
- Conf. 13530: **Integrated Optics: Design, Devices, Systems, and Applications VIII** 73-80

- Conf. 13531: **EUV and X-ray Optics: Synergy between Laboratory and Space IX** 81-85
- Conf. 13532: **High-power, High-energy Lasers and Ultrafast Optical Technologies II** 86-91
- Conf. 13533: **Optics Damage and Materials Processing by EUV/X-ray Radiation (XDam9)** 92-96
- Conf. 13534: **Laser Acceleration of Electrons, Protons, and Ions VIII** 97-103
- Conf. 13535: **Research Using Extreme Light Infrastructures: New Frontiers with Petawatt-Level Lasers VI** 104-111
- Conf. 13536: **X-Ray Free-Electron Lasers: Advances in Source Development and Instrumentation VII** 112-117
- Conf. 13537: **Compact Radiation Sources from EUV to Gamma-rays: Development and Applications II** 118-123
- Conf. 13538: **Coherent and Incoherent Radiation Sources based on Laser-driven Relativistic Plasma Waves** 124-126

Exhibition—PAGES 20-25

- TUESDAY 8 APRIL 10.00 - 17.00
- WEDNESDAY 9 APRIL 10.00 - 17.00
- THURSDAY 10 APRIL 10.00 - 13.00

SPIE Policies—PAGES 26-27

Thank you to these sponsors for their support



Thank you to our cooperating organisations



PROMOTIONAL PARTNERS
Electro Optics Magazine

GENERAL INFORMATION

Badge pick up and registration hours

Location: Clarion Hotel, Conference Floor Foyer

Sunday 6 April	15:00 - 17:00
Monday 7 April	07:45 - 17:00
Tuesday 8 April	07:45 - 17:00
Wednesday 9 April	08:00 - 17:00
Thursday 10 April	08:00 - 16:00

Exhibition-only visitor registration is complimentary, but you still must register.

Exhibition hours

Tuesday 8 April	10:00 - 17:00
Wednesday 9 April	10:00 - 17:00
Thursday 10 April	10:00 - 13:00

Event Partners Cashier

Location: Registration Area. Open during registration hours.

Receipt and Certificate of Participation

Preregistered attendees who need a stamped receipt or attendees who need a Certificate of Participation may obtain those at the Cashier.

Badge Corrections

Badge corrections can be made at the Cashier. Please mark your badge with your changes before approaching the counter.

Speaker Check-in and Preview Station

Location: Registration Area

Monday - Thursday 08:00 - 17:00

Speakers are not able to present using their own devices. All conference rooms are equipped with a computer workstation, projector, screen, lapel microphone, and laser pointer. All presenters are requested to come to their conference room during the breaks with their memory devices or laptops to confirm their presentation display settings.

Internet access

Complimentary wireless internet access will be available; connection speed depends on the number of users. Please read the SPIE Wireless Service Policy.

Login details and password are available at the Registration Desk.

SPIE Conference and Exhibition App

This useful tool allows you to search and browse the programme, special events, participants, exhibitors, and more. It is free and available for iPhone and Android phones. If you don't already have it, you can download the SPIE app.

Luggage and coat check

Location: next to the Registration Desk. Open during Registration Hours.

Complimentary luggage, package, and coat storage are available. Please note opening hours.

Child Care Services

This listing by SPIE does not imply an endorsement or recommendation of these services. They are provided on an "information only" basis for your further analysis and decision. Other services may be available.

To book childcare services, please contact the Event Partners Registration Office at support@conference.cz

Fénix Shopping Centre amenities and services

The adjacent shopping Fénix Shopping centre has a multitude of shops as well as services such as restaurants, parking, Children's corner, self-delivery services, banks, ATMs, a post office and a copy centre. For further information (open in Chrome and use English Translation extension).

Mother's Room

Location: Please request a key from the Registration Desk

The Mothers' Room is a lockable room intended for nursing mothers. There is no storage, running water, or refrigeration available in this space.

Quiet Room

Location: Please request key from Registration Desk

The Quiet Room is intended for silent meditation, reflection, and prayer. No mobile devices or computer use is allowed, and no food nor beverages are allowed.

Lost and Found

Location: Cashier

Found items will be kept at the Cashier in the Registration area during the meeting and available only during registration hours. At the Clarion Hotel security services.

Urgent message line

+420 211 131 139

Messages for attendees can be left by calling the Clarion Hotel and Congress Centre and asking for the Events Partners Conference and Registration Desk. Message will be taken during registration hours Monday — Thursday. It is the attendees' responsibility to check the message board on a regular basis.

Food and beverage services

Coffee Breaks

Complimentary Coffee - Location: Conference Foyer

Monday - Thursday07:00 - 16:00

Lunches for purchase

Location: Clarion Hotel, Veduta Restaurant

Monday - Thursday 12:00 - 14:00

Check individual conference listings for exact times.

This new offer provides a food buffet in the hotel's Veduta Restaurant at €28/person, per day. Tickets available via registration.

Other food and refreshments for purchase

Location: Food Court adjacent to Hotel

There are several food outlets in the food court in the adjacent shopping Fénix shopping centre.

HARASSMENT

consists of unwanted, unwelcomed, and uninvited behavior that demeans, threatens, or offends another.

To report harassment you have witnessed or experienced at this meeting, contact any SPIE staff member or use the SPIE reporting hotline at 1-888-818-6898 or spie.ethicspoint.com.

More information:

spie.org/conduct



Download the SPIE Conference and Exhibition App



Get the App



Enhance your SPIE conference experience

Download the free mobile app to enrich your meeting experience. View events, exhibitors and connect with participants all in the palm of your hand. The app is free, easy to use, and loaded with features designed for planning and connecting on the go.

Make the most of your time with these app features:

- » Real-time programme updates
- » Customize your schedule
- » Organize your meeting notes
- » Add new connections to your contacts
- » Plan exhibitor visits
- » Navigate the venue
- » Bookmark specific research
- » Create meeting reports
- » And a whole lot more.

SPIE.

SPIE is the international society for optics and photonics. We bring engineers, scientists, students, and business professionals together to advance light-based science and technology.

Over the past five years, we have invested more than \$25 million in the international optics community through our advocacy and support, including scholarships, educational resources, travel grants, endowed gifts, and public-policy development.

SPIE is a registered trademark of the Society of Photo-Optical Instrumentation Engineers. All rights reserved.

PLENARY SESSION

Optics + Optoelectronics plenary sessions feature presentations from a wide range of leaders in the field, with focus on developing research and visions of the future of laser technologies.

Monday Plenary Session

7 April 2025 • 16:15 - 18:00 | Nadir

16:15-16:30

Welcome Address

Peter de Groot, Zygo Corp. (United States)
2025 SPIE President

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics to



Pavel Cheben
National Research Council Canada

SPIE congratulates Pavel Cheben, Principal Research Officer at the National Research Council Canada, in recognition of his pioneering contributions to silicon photonic waveguide devices, including the invention of metamaterial waveguides and advancing sub-wavelength integrated photonics technology.

Presentation of SPIE Fellowship to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)
Symposium Chair

Pavel Bakule, ELI Beamlines (Czech Republic)
Symposium Chair

16:30 to 17:15

New perspectives on photonic quantum computing and quantum machine learning



Philip Walther
Univ. of Vienna (Austria)

17:15 to 18:00

Large-scale optical machine learning exploiting disorder



Sylvain Gigan
Sorbonne Univ. (France) and Lab. Kastler-Brossel, ENS (France)

Tuesday Plenary Session

8 April 2025 • 09:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)
Optics + Optoelectronics Symposium Chairs

9:05 to 9:50

Laser-plasma interaction studies for advanced direct-drive ignition



Emma Hume
ILIL, National Institute of Optics-CNR (Italy)

9:55 to 10:40

Advancements in attosecond technology and applications



Francesca Calegari
Deutsches Elektronen-Synchrotron DESY (Germany)



WSOF Plenary Session I & II-Tuesday

8 April 2025 | Zenit

WSOF PLENARY SESSION I

11:00 to 11:45

Welcome and Introduction

Pavel Honzátko

Institute of Photonics and Electronics,
Czech Academy of Sciences (Czech Republic)

11:00 to 11:45

Fibers for high pulse energy fiber lasers



Clémence Jollivet

Coherent Inc. (United States)

WSOF PLENARY SESSION II

13:35 to 14:20

Welcome and Introduction

John Ballato

Clemson University (United States)

Fiber regenerative amplifiers for femtosecond pulse generation



Frank Wise

Cornell Univ. (United States)

WSOF Plenary Session III-Wednesday

9 April 2025 • 08:45 - 09:30 CEST | Zenit

11:00 to 11:45

Welcome and Introduction

Ivan Kašík

Institute of Photonics and Electronics,
Czech Academy of Sciences (Czech Republic)

Soft glass fibres: versatility through glass composition, nano/micro-crystal incorporation and fibre structure



Heike Ebendorff-Heidepriem

Univ. of Adelaide (Australia)



Wednesday Plenary Session

Joint Plenary Session between SPIE Optics + Optoelectronics

9 April 2025 • 13:30 - 15:10 | Nadir

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)
Optics + Optoelectronics Symposium Chairs

13:35 to 14:20

High repetition rate femtosecond X-ray studies of dynamically compressed matter



Justin S. Wark

Clarendon Lab., Univ. of Oxford and
Oxford Centre for High Energy Density Science
(United Kingdom)

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech
Academy of Sciences (Czech Republic)
2025 WSOF Chair

14:25 to 15:10

One (hollow) fibre to rule them all



Francesco Poletti

Optoelectronics Research Ctr., Univ. of
Southampton (United Kingdom)



See full details and updates at
spie.org/eoo or on the
SPIE App

TECHNICAL EVENTS

Connect with your colleagues and explore topics in depth. Events include a technical workshop, lab tour, and a poster session.

Holography Workshop

7 April 2025 • 13:00 - 16:00 | Zodiac

Workshop Chairs:

Andrea Bianco, INAF-Osservatorio Astronomico di Brera (Italy); **Suzanne Martin**, Technological Univ. Dublin (Ireland)

This workshop is organised in collaboration with early stage researchers to address important topics relevant to their future careers. It will cover the following themes: industry voices on hologram manufacturing, technology and job opportunities; canvas of light - holograms in art installations; Holography 2045, shaping tomorrow's visual experience-young researchers perspective.

Poster Sessions

Location: Conference Foyer

Conference attendees are invited to attend the evening poster sessions. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field.

Tuesday 8 April 2025 17:30 - 19:00
Joint Poster Session between Optics + Optoelectronics and WSOF

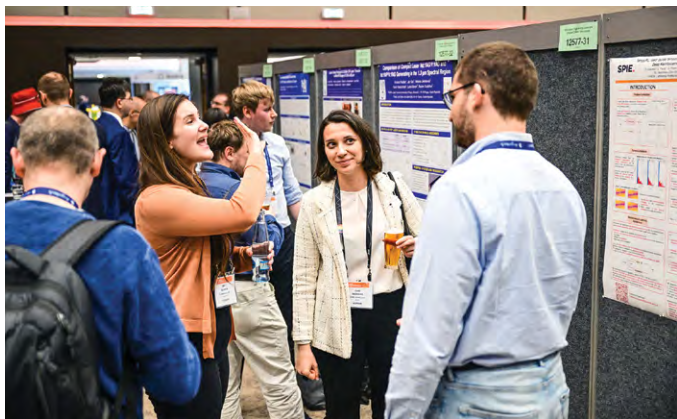
Poster Setup: Tuesday 10:00 - 17:00 hrs

Wednesday 9 April 2025 17:40 - 19:15

Poster Setup: Wednesday 10:00 - 17:00 hrs

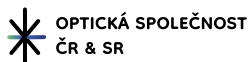
Poster authors, view poster presentation guidelines and set-up instructions at <http://spie.org/EOOPosterGuidelines>.

SPIE assumes no responsibility for posters left up after the end of the poster session.



Workshop on Frontiers in Applied Optics: Materials, Methods, and Sensors

10 April 2025 • 09:00 - 16:45 | Virgo



This Czech Optical Society Workshop serves as a networking and knowledge exchange platform and aims to showcase the innovative contributions of Ph.D. students in advancing optical technologies. It explores cutting-edge topics, including novel materials for optics and optoelectronics, breakthrough methodologies enhancing optical applications, and the development of sensors and detectors driving societal advancements.

Workshop Chair:

Alexandr Dejneka

Institute of Physics of the Czech Academy of Sciences (Czech Republic)

Czech and Slovak Optical Society General Chair

9:00 - 9:15 | Virgo

Welcome and Opening Remarks

Alexandr Dejneka, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

9:15 - 10:15 | Virgo

Session 1: Tutorial

Session Chair: **Alexandr Dejneka**, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

9:15 - 10:15

Scintillation materials and where we can use them (Tutorial)

Vítězslav Jarý, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

Coffee Break: 10:15 to 10:45

10:45 - 12:25 | Virgo

Session 2: Advanced Materials for Optics and Optoelectronics

Session Chair: **Alexandr Dejneka**, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

10:45 - 11:05

Dependence of CuMnAs quench-switching on excitation laser pulse parameters

Andrej Farkaš, Institute of Physics of the Czech Academy of Sciences (Czech Republic) and Charles Univ. (Czech Republic); **Miloslav Surýnek**, Charles Univ. (Czech Republic); **Filip Křížek**, Vít Novák, Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Petr Němec**, Charles Univ. (Czech Republic); **Kamil Olejník**, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

11:05 - 11:25

Anomalous magneto-optical Kerr Effect in unconventional antiferromagnetic MnTe

Michal Hubert, **Tomáš Maleček**, Charles Univ. (Czech Republic); **Dominik Kriegner**, **Karel Výborný**, Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Martin Veis**, Charles Univ. (Czech Republic)

11:25 - 11:45

Optically-induced magnetic dynamics in altermagnetic candidate MnTe

J. Střihavková, **J. Kimák**, **Z. Sadeghi**, Charles Univ. (Czech Republic); **D. Kriegner**, **H. Reichlová**, Institute of Physics of the Czech Academy of Sciences (Czech Republic) and Technical Univ. Dresden (Germany); **G. Springholz**, Johannes Kepler Univ. Linz (Austria); **E. Schmoranzarová**, **P. Němec**, Charles Univ. (Czech Republic)

11:45 - 12:05

Optical and magneto-optical spectroscopies of half- and full-Heusler Rh-Mn-Sb thin films

Šimon Šťastný, **Aleš Melzer**, Charles Univ. (Czech Republic); **Artem Shamardin**, **Stanislav Cichoň**, **Michal Rameš**, **Ján Lančok**, Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Michal Hubert**, Charles Univ. (Czech Republic); **Oleg Heczko**, Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Martin Veis**, Charles Univ. (Czech Republic)

12:05 - 12:25

Large magneto-optical response of $\text{Eu}_{0.5}\text{Bi}_{2.5}\text{Fe}_5\text{O}_{12}$ thin garnet films prepared by metal-organic decomposition

Matěj Bernat, Jan Hrabovský, Charles Univ. (Czech Republic); **Hotaka Sakaguchi**, Nagaoka Univ. of Technology (Japan); **Michal Hubert, Petr Kos, Jakub Zázvorka**, Charles Univ. (Czech Republic); **Takayuki Ishibashi**, Nagaoka Univ. of Technology (Japan); **Martin Veis**, Charles Univ. (Czech Republic)

Lunch Break: 12.25 to 13.30

13:30 to 15:10 | Virgo

Session 3: Breakthrough Methods in Optics

Session Chair: **Barbora Špačková**, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

13:30 - 13:50

Ultrafast spectroscopy of single light-harvesting complexes

May Myat Noe Shein, Pavel Malý, Charles Univ. (Czech Republic)

13:50 - 14:10

The journey towards weighing biomolecules with light at atomistic resolution

Evangelos Ofreas Efraimidis, Barbora Špačková, Tereza Roesel Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Niklas Hansen, Vladimíra Petráková**, J. Heyrovský Institute of Physical Chemistry of the Czech Academy of Sciences (Czech Republic)

14:10 - 14:30

High-sensitivity optical tomography of gas jet for laser plasma accelerator

Vojtěch Janota, ELI Beamlines, ELI ERIC (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); **U. Chaulagain, M. Lamač, M. Raclavský**, ELI Beamlines, ELI ERIC (Czech Republic); **J. Nejdí**, ELI Beamlines, ELI ERIC (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic)

14:30 - 14:50

Bayesian optimization for ultrafast X-ray generation from dual-stage laser-plasma accelerators

Dominik Čáp, ELI Beamlines, ELI ERIC (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); **Orsolya Morvai**, ELI Beamlines, ELI ERIC (Czech Republic) and Charles Univ. (Czech Republic); **Uddhab Chaulagain**, ELI Beamlines, ELI ERIC (Czech Republic); **Jaroslav Nejdí**, ELI Beamlines, ELI ERIC (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); **Marcel Lamač**, ELI Beamlines, ELI ERIC (Czech Republic)

14:50 - 15:10

Resonant betatron X-ray generation using chirped laser pulses

Orsolya Morvai, ELI Beamlines, ELI ERIC (Czech Republic) and Charles Univ. (Czech Republic); **Dominik Čáp, Jaroslav Nejdí**, ELI Beamlines, ELI ERIC (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); **Uddhab Chaulagain, S. V. Bulanov, Marcel Lamač**, ELI Beamlines, ELI ERIC (Czech Republic)

Coffee Break: 15.10 to 15.40

15:40 to 16:40 | Virgo

Session 4: Optical Sensors and Detectors for Smart Society

Session Chair: **Alexandr Dejneka**, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

15:40 - 16:00

Plasmon-enhanced fluorescence imaging biosensor for single molecule detection

Katharina Schmidt, Naoto Asai, Danube Private Univ. (Austria); **Gizem Aktug**, Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Jakub Dostalek**, Danube Private Univ. (Austria) and Institute of Physics of the Czech Academy of Sciences (Czech Republic)

16:00 - 16:20

Facile fabrication of large-area biofunctionalized metallic nanostructures for high-performance affinity plasmonic biosensors

Dario Cattozzo Mor, Institute of Physics of the Czech Academy of Sciences (Czech Republic) and Danube Private Univ. (Austria); **Adam Benjamin Plšek, Prasanth Asokan**, Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Van Truc Vu**, National Central Univ. (Taiwan); **Gizem Aktug**, Institute of Physics of the Czech Academy of Sciences (Czech Republic) and Charles Univ. (Czech Republic); **Ladislav Fekete, Zdeněk Hubička**, Institute of Physics of the Czech Academy of Sciences (Czech Republic); **Chun Jen Huang**, National Central Univ. (Taiwan); **Jakub Dostalek**, Institute of Physics of the Czech Academy of Sciences (Czech Republic) and Danube Private Univ. (Austria)

16:20 - 16:40

FAST optical fluorescence telescopes: analysis of miniarray sensitivity

Zuzana Svozilíková for the FAST collaboration, Institute of Physics of the Czech Academy of Sciences (Czech Republic) and Joint Lab. of Optics, Palacký Univ. (Czech Republic)

16:40 to 16:45 | Virgo

Closing Remarks

Alexandr Dejneka, Institute of Physics of the Czech Academy of Sciences (Czech Republic)

INDUSTRY EVENTS

With a laser focus—attend offsite events highlighting the business side of the optics and photonics industry, with company visits to the Crytur, HiLASE Laser Centre, and ELI Beamlines Facility near Prague.

Optics + Optoelectronics Exhibition

8 April 2025 10:00 - 17:00
9 April 2025 10:00 - 17:00
10 April 2025 10:00 - 13:00

Visit the exhibition and connect and network with suppliers and clients at the SPIE Optics + Optoelectronics Exhibition

Lab Tour: Synthetic Crystal Manufacturing and Processing at Crytur

11 April 2025 • 09:00 - 15:00 CEST | Offsite location



Registered attendees are invited to visit Crytur, the integrated provider of opto-electronic solutions for science and hi-tech industrial applications. Transportation will be provided.

The projected time of the shuttle departure is 9:00 hrs on Friday from the conference venue. Information about the departure location and any departure time updates will be available at the SPIE registration desk.

Tour duration: 6 hours (including travel if no delays).

Crytur is one of the world's leading companies in synthetic crystal manufacturing and processing with a strong focus on niche applications and client specific projects built on high expertise and close cooperation in research and development. Crytur follows the tradition of crystal growing and processing reaching back to 1935. During the past decades, Crytur has gained worldwide recognition as a provider of integrated crystal-based solutions for science and industry.

Lab Tour: HiLASE Laser Centre and ELI Beamlines Facility

11 April 2025 • 09:00 - 13:00 CEST | Offsite location



Registered attendees are invited to visit HiLASE Laser Centre and ELI Beamlines Facility in nearby Dolni Brezany. Shuttle bus will be provided.

Registration for the tour will be possible onsite at the SPIE Registration desk. Information about the departure location and any departure time updates will be available at the SPIE registration desk. Tour duration: approx. 2.5 hours (excludes travel time). Please note that number of participants is limited.

Bus departure: 9:00 hrs (return to the venue at cca 13:00 hrs)

ELI Beamlines Facility is a leading laser research centre and part of The Extreme Light Infrastructure ERIC, pan-European research Infrastructure hosting the world's most intense lasers. ELI provides unique tools of support for scientific excellence in Europe. ELI Beamlines has developed and operates four leading edge high-power femtosecond laser systems reaching unprecedented intensities. ELI Beamlines offers to its users unique femtosecond sources of X-rays and accelerated particles. These beamlines enable pioneering research not only in physics and material science but also in life science, laboratory astrophysics, chemistry with strong application potential.

SOCIAL AND NETWORKING EVENTS

Connect with your colleagues at various events and receptions offered onsite.



Lunches Monday–Thursday

Clarion Hotel, Veduta Restaurant

7 April 2025 12:00 - 14:00
8 April 2025 12:00 - 14:00
9 April 2025 12:00 - 14:00
10 April 2025 12:00 - 14:00

This new offer provides a food buffet in the hotel's Veduta Restaurant at EUR 28/person. Tickets available via registration.

SPIE Member Luncheon

7 April 2025 • 12:00 - 14:00 | Kepler

SPIE Members, come enjoy a special Member Lunch (limited number so first come, first served) and meet members of the SPIE Executive Committee.

Welcome Reception

7 April 2025 • 18:00 - 20:00 | Clarion Hotel, Conference Foyer

Join your colleagues for food and beverages as we welcome each other to SPIE Optics + Optoelectronics 2025.

SPONSORED BY



Career Speed Mentoring

9 April 2025 • 14:00 - 15:00 | Quadrant

Students and Early Career attendees! Looking to get advice on critical career choices, life in academia, industry, start-ups and more? Join us for this fun and casual speed-mentoring session.



See full details and updates at spie.org/eoo or on the SPIE App

► 2027 | MARK YOUR CALENDAR

SPIE. OPTICS+ OPTOELECTRONICS

5 - 8 April 2027 | Clarion Congress Hotel Prague | Prague, Czech Republic

**The meeting that continues to play
host to the most recent advances in
laser technology worldwide.**

spie.org/eoo
#SPIEOptoelectronics

CONFERENCE SCHEDULE

Emerging Technologies

CONF. 13526
SPONSORED BY
THE IMAGINGSOURCE®
TECHNOLOGY BASED ON STANDARDS

TIME	CONF. 13523 Metamaterials XV Room: Leo	CONF. 13524 Nonlinear Optics and Applications XIV Room: Leo	CONF. 13525 Photon Counting and Quantum Optics 2025 Room: Stella (Mon-Tue AM), Quadrant (Tue PM)	CONF. 13526 Real-time Processing of Image, Depth and Video Information 2025 Room: Quadrant	CONF. 13527 Optical Sensors 2025 Room: Virgo	
MONDAY 7 APRIL						
MORNING		09:00 SESSION 1: New Materials	08:30 SESSION 1: Photon Counting I	08:40 SESSION 1: Low-Power Edge Devices and RISC-V Platforms	09:10 SESSION 1: Optical Components and Systems I	
	COFFEE BREAK—check your conference listings for exact break times for all breaks					
		11:00 SESSION 2: Fundamental Effects	11:00 SESSION 2: Photon Counting II	11:00 SESSION 2: Applications of Artificial Intelligence and Deep Learning	11:00 SESSION 2: Optical Components and Systems II	
					11:40 SESSION 3: Physical Sensing I	
AFTERNOON	LUNCH BREAK					
		13:50 SESSION 3: Applications	13:50 SESSION 3: Photon Counting III	13:50 SESSION 3 Innovations in Imaging Technologies and Sensors	13:50 SESSION 4: Physical Sensing II	
	COFFEE BREAK					
MONDAY PLENARY SESSION 16:15 - 18:00 NADIR SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics Presentation of SPIE Fellowship New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation), Philip Walther, Univ. of Vienna (Austria) Large-scale optical machine learning exploiting disorder (Plenary Presentation), Sylvain Gigan, Lab. Kastler Brossel (France)						

CONFERENCE CHAIRS



Saša Bajt
Deutsches Elektronen-Synchrotron, (Germany)



Pavel Bakule
ELI Beamlines, ELI ERIC, (Czech Republic)



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



Mike Dunne
SLAC National Accelerator Lab., (United States)

2025 OPTICS + OPTOELECTRONICS TECHNICAL COMMITTEE

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)
Pavel Bakule, ELI Beamlines (Czech Republic)
Francesco Baldini, Istituto di Fisica Applicata Nello Carrara (Italy)
Mario Bertolotti, Univ. degli Studi di Roma La Sapienza (Italy)
Stepan S. Bulanov, Lawrence Berkeley National Lab. (United States)
Thomas J. Butcher, STFC Rutherford Appleton Lab. (United Kingdom)
Matthias F. Carlsohn, Computer Vision & Bildkommunikation (Germany)
Pavel Cheben, National Research Council Canada (Canada)
Jiří Čtyroký, Institute of Photonics and Electronics of the CAS (Czech Republic)

Antonio Fimia, Univ. Miguel Hernández de Elche (Spain)
Gabriele M. Grittani, ELI Beamlines (Czech Republic)
Stéphane Guizard, CEA-DRF-IRAMIS, Lab. des Solides Irradiés (France)
Constantin L. Haefner, Fraunhofer-Institut für Lasertechnik ILT (Germany)
Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany)
Jiri Homola, Institute of Photonics and Electronics of the CAS (Czech Republic)
Miroslav Hrabovský, Palacký Univ. Olomouc (Czech Republic)
RenéH udec, Astronomical Institute of the CAS (Czech Republic)

CONF. 13528 Smart Materials for Opto-Electronic Applications 2025 Room: Aquarius	CONF. 13529 Holography: Advances and Modern Trends IX Room: Stella	CONF. 13530 Integrated Optics: Design, Devices, Systems, and Applications VIII Room: Zodiac	CONF. 13531 EUV and X-ray Optics: Synergy between Laboratory and Space IX Room: Tycho	CONF. 13532 High-power, High-energy Lasers and Ultrafast Optical Technologies II Room: Kepler
---	---	---	--	--

MONDAY 7 APRIL

08:25 SESSION 1: Light-sensitive Materials and Actuators			08:30 SESSION 1: Astronomical X-ray Optics I	
10:35 SESSION 2: Materials, Systems and Devices for Energy Harvesting			10:40 SESSION 2: Laboratory X-ray/ EUV Optics 11:40 SESSION 3: Integrated Devices	
14:00 SESSION 3: Characterization Techniques and their Implementation in Smart Materials and Devices 15:30 SESSION 4: Simulation of New Materials and Devices	13:00 SESSION 1: Advanced Holography: Special Session Honoring John (Seán) Sheridan		13:40 SESSION 4: Astronomical X-ray Optics II	

MEMBERS, Mingle, Munch, and Master from SPIE Maestros

All SPIE Members are invited to join us for a free lunch (first come, first served) and an engaging panel discussion featuring the 2025 SPIE officers.

Monday, 7 April
12:00–14:00
Kepler Room



Peter de Groot
President



Jennifer Barton
Immediate Past President



Julie Bentley
President-Elect



Cather Simpson
Vice President



Jim McNally
*Secretary/
Treasurer*

MinSup Hur, Ulsan National Institute of Science and Technology (Korea, Republic of)
Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom)
Libor Juha, Institute of Physics of the CAS (Czech Republic)
Vladimír Kuzmiak, Institute of Photonics and Electronics of the CAS (Czech Republic)
Gian Domenico Licciardo, Univ. degli Studi di Salerno (Italy)
Robert A. Lieberman, Lumoptix, LLC (United States)
Victor Armand Malka, Weizmann Institute of Science (Israel)
Daniele Margarone, ELI Beamlines (Czech Republic)
Carmen S. Menoni, Colorado State Univ. (United States)
Iñigo Molina-Fernández, Univ. de Málaga (Spain)
Izabela Naydenova, Technological Univ. Dublin (Ireland)
Jaroslav Nejd, ELI Beamlines (Czech Republic)
Giuseppe Nenna, ENEA (Italy)
Charlotte A. J Palmer, Queen's Univ. Belfast (United Kingdom)
Luc Patthey, Paul Scherrer Institut (Switzerland)
Lucia Petti, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic)
Ivan Prochazka, Czech Technical Univ. in Prague (Czech Republic)
Ivo Rendina, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)
Bedrich Rus, ELI Beamlines (Czech Republic)
Domenico Sagnelli, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)
Viktor J. Schneider, Leibniz Univ. Hannover (Germany)
Roman Sobolewski, Univ. of Rochester (United States)
Kęstutis Staliūnas, Univ. Politècnica de Catalunya (Spain)
Tomasz Stefaniuk, Univ. of Warsaw (Poland)
Kai Tiedtke, Deutsches Elektronen-Synchrotron (Germany)
Thomas Tschentscher, European XFEL GmbH (Germany)
Marco Zangrando, Elettra-Sincrotrone Trieste S.C.p.A. (Italy)
Anatoly V. Zayats, King's College London (United Kingdom)
Alexei M. Zheltikov, Texas A&M Univ. (United States)

CONFERENCE SCHEDULE

Emerging Technologies

TIME	CONF. 13523 Metamaterials XV Room: Leo	CONF. 13524 Nonlinear Optics and Applications XIV Room: Leo	CONF. 13525 Photon Counting and Quantum Optics 2025 Room: Stella (Mon-Tue AM), Quadrant (Tue PM)	CONF. 13526 Real-time Processing of Image, Depth and Video Information 2025 Room: Quadrant	CONF. 13527 Optical Sensors 2025 Room: Virgo	
TUESDAY 8 APRIL						
MORNING	TUESDAY PLENARY SESSION 08:50 - 10:30 Room: Nadir Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation), Emma Hume, Istituto Nazionale di Ottica-CNR (Italy) Advancements in attosecond technology and applications (Plenary Presentation), Francesca Calegari, Deutsches Elektronen-Synchrotron (Germany)					
	COFFEE BREAK					
		11:00 SESSION 4: Laser Dynamics and Nonlinear Effects	11:00 SESSION 4: Quantum Optics I	11:10 SESSION 4: Hybrid and Multi-Modal Data Processing	11:00 SESSION 5: Fiber Optic (Bio) Sensing I	
AFTERNOON	LUNCH/EXHIBITION BREAK					
	13:30 SESSION 1: Hyperbolic Materials		ROOM CHANGE: Quadrant 13:30 SESSION 5: Quantum Optics II	13:30 SESSION 5: Processing for Extreme and Adverse Conditions	13:40 SESSION 6: Session 6: Fiber Optic (Bio) Sensing II	
				14:30 The Imaging Source Europe Best Paper Award Presentation	14:40 SESSION 7: Plasmonic Biosensing I	
	COFFEE BREAK					
	16:10 SESSION 2: Topological Photonics		15:30 SESSION 6: Quantum Optics III		15:50 SESSION 8: Plasmonic Biosensing II	
EVENING 17:30 - 19:00 Conference Foyer	POSTER SESSION					
WEDNESDAY 9 APRIL						
MORNING						
	09:00 SESSION 3: Dielectric Metasurfaces				09:00 SESSION 9: Chemical Sensing and Biosensing I	
	COFFEE BREAK					
	SESSION 3 (continued):				10:50 SESSION 10: Chemical Sensing and Biosensing II	
AFTERNOON	LUNCH/EXHIBITION BREAK					

	CONF. 13528 Smart Materials for Opto-Electronic Applications 2025 Room: Aquarius	CONF. 13529 Holography: Advances and Modern Trends IX Room: Stella	CONF. 13530 Integrated Optics: Design, Devices, Systems, and Applications VIII Room: Zodiac	CONF. 13531 EUV and X-ray Optics: Synergy between Laboratory and Space IX Room: Tycho	CONF. 13532 High-power, High-energy Lasers and Ultrafast Optical Technologies II Room: Kepler
TUESDAY 8 APRIL					
	11:00 SESSION 5: Innovative Photonic/ Plasmonic Materials and Structures I		11:00 SESSION 1: Photonic Platforms and Novel Materials I	11:00 SESSION 5: Refractive, Diffractive and Multilayer X-ray Optics	11:00 SESSION 1: Technology Development for PW Lasers
	13:55 SESSION 6: Innovative Photonic/ Plasmonic Materials and Structures II		14:00 SESSION 2: Photonic Platforms and Novel Materials II		13:40 SESSION 2: OPA/OPCPA
	15:45 SESSION 7: Novel Structures and their Applications	15:30 SESSION 1: Digital Holographic Microscopy I	15:50 SESSION 3: Photonic Platforms and Novel Materials III 17:00 SESSION 4: Simulation and Design I		16:00 SESSION 3: Pulse Compression Techniques
WEDNESDAY 9 APRIL					
	08:50 SESSION 8: Advanced Printing Technologies and Additive Manufacturing	08:50 SESSION 2: Holographic Recording Materials I	08:30 SESSION 5: Simulation and Design II	11:00 SESSION 1: Astronomical X-ray Optics I	11:00 SESSION 4: Laser Beam and Pulse Diagnostics
	10:35 SESSION 9: Synthesis/ Fabrication of New Materials 10:55 SESSION 10: Smart Materials and Devices	10:30 SESSION 3: Holographic Recording Materials II	10:40 SESSION 6: Devices I		

CONFERENCE SCHEDULE

Emerging Technologies

TIME	CONF. 13523 Metamaterials XV Room: Leo	CONF. 13524 Nonlinear Optics and Applications XIV Room: Leo	CONF. 13525 Photon Counting and Quantum Optics 2025 Room: Stella (Mon-Tue AM), Quadrant (Tue PM)	CONF. 13526 Real-time Processing of Image, Depth and Video Information 2025 Room: Quadrant	CONF. 13527 Optical Sensors 2025 Room: Virgo	
WEDNESDAY 9 APRIL (CONTINUED)						
AFTERNOON	WEDNESDAY PLENARY SESSION 13:30 - 15:10 Nadir Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF High repetition rate femtosecond X-ray studies of dynamically compressed matter Justin S. Wark, Univ. of Oxford (United Kingdom) One (hollow) fibre to rule them all (Plenary Presentation), Francesco Poletti, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)					
	15:40 SESSION 4: Ultrafast Carrier Dynamics, Hybrid Plasmonic-dielectric Metamaterials				15:40 SESSION 11: Gas Sensing	
	COFFEE BREAK					
EVENING 17:40 - 19:15 Conference Foyer	POSTER SESSION					
THURSDAY 10 APRIL						
MORNING	08:40 SESSION 5: Flat Optics and Metadevices					
	COFFEE BREAK					
	11:00 SESSION 6: Bound in Continuum States					
AFTERNOON	LUNCH BREAK					
	13:20 SESSION 7: Metamaterials for Heat Flow					
	COFFEE BREAK					
	15:20 SESSION 8: Plasmonics					

SPIE. DIGITAL LIBRARY

INCLUDED WITH REGISTRATION

Presentations on the Digital Library

The Optics + Optoelectronics conference proceedings papers and presentations are published in the SPIE Digital Library. All paid conference registrations include 50 downloads for ongoing access.

	CONF. 13528 Smart Materials for Opto-Electronic Applications 2025 Room: Aquarius	CONF. 13529 Holography: Advances and Modern Trends IX Room: Stella	CONF. 13530 Integrated Optics: Design, Devices, Systems, and Applications VIII Room: Zodiac	CONF. 13531 EUV and X-ray Optics: Synergy between Laboratory and Space IX Room: Tycho	CONF. 13532 High-power, High-energy Lasers and Ultrafast Optical Technologies II Room: Kepler
WEDNESDAY 9 APRIL (CONTINUED)					
		15:40 SESSION 4: Holographic Optical Elements I	15:30 SESSION 7: Devices II	13:40 SESSION 2: Astronomical X-ray Optics II	15:40 SESSION 5: High Energy PW Systems
				15:50 SESSION 3: Multilayer X-ray Optics	
THURSDAY 10 APRIL					
		08:30 SESSION 5: Holographic Optical Elements II	08:30 SESSION 8: Simulation and Design III	08:50 SESSION 5: Laboratory X-ray/ EUV Optic	08:40 SESSION 6: Advanced Technologies for High-power Lasers
		10:50 SESSION 6: Holographic Recording Materials III	10:40 SESSION 9: Systems and Applications I	11:10 SESSION 6: Integrated Devices 11:30 SESSION 7: Refractive and Diffractive X-ray Optics	10:50 SESSION 7: High Average- power Laser Systems
		12:10 SESSION 7: Advanced Holography	13:50 SESSION 10: Systems and Applications II		13:40 SESSION 8: Advances in High- repetition Rate Laser Technology

CONFERENCE SCHEDULE

Extreme Light Sources

CONF. 13535
SPONSORED BY



	CONF. 13533 Optics Damage and Materials Processing by EUV/X-ray Radiation (XDam9) Room: Veduta	CONF. 13534 Laser Acceleration of Electrons, Protons, and Ions VIII Room: Taurus (Mon-Tue), Kepler (Wed)	CONF. 13535 Research Using Extreme Light: Entering New Frontiers with Petawatt-Class Lasers VI Room: Nadir	CONF. 13536 X-Ray Free-Electron Lasers: Advances in Source Development and Instrumentation VII Room: Tycho	CONF. 13537 Compact Radiation Sources from EUV to Gamma-rays: Development and Applications II Room: Taurus	
MONDAY 7 APRIL						
MORNING	10:30 SESSION 1 Damage Mechanisms	08:30 SESSION 1: Electron Acceleration I				
	COFFEE BREAK					
		10:40 SESSION 2: Electron Acceleration II	10:30 SESSION 1: Extreme Light Infrastructure Facilities			
AFTERNOON	LUNCH BREAK					
	13:35 SESSION 2: 13:35	13:30 SESSION 3: Electron Acceleration III	13:50 SESSION 2: Ultrarelativistic Regimes of Laser-Matter and Laser-Vacuum Interaction			
	14:50 ROUND TABLE DISCUSSION: Contamination of Optics					
	COFFEE BREAK					
	MONDAY PLENARY SESSION 16:15 - 18:00 NADIR SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics Presentation of SPIE Fellowship Large-scale optical machine learning exploiting disorder (<i>Plenary Presentation</i>), Sylvain Gigan, Lab. Kastler Brossel (France)					
TUESDAY 8 APRIL						
MORNING	TUESDAY PLENARY SESSION 08:50 - 10:30 Room: Nadir Laser-plasma interaction studies for advanced direct-drive ignition (<i>Plenary Presentation</i>), Emma Hume, Istituto Nazionale di Ottica-CNR (Italy) Advancements in attosecond technology and applications (<i>Plenary Presentation</i>), Francesca Calegari, Deutsches Elektronen-Synchrotron (Germany)					
	COFFEE BREAK					
	11:00 SESSION 3: Radiation Processing	11:00 SESSION 4 Applications I	11:10 SESSION 3: Laser Acceleration of Particles I			
AFTERNOON	LUNCH/EXHIBITION BREAK					
	13:40 SESSION 4: Techniques/Instrumentation	13:40 SESSION 5: Applications II	13:50 SESSION 4: Laser Acceleration of Particles II	13:20 SESSION 1: Updates on Facilities and New FEL sources	13:30 SESSION 1: Plasma-based X-ray Lasers	
	COFFEE BREAK					
	15:40 SESSION 5: Materials Response	16:00 SESSION 6: Ion Acceleration I	16:00 SESSION 5: Nuclear physics with ultraintense lasers	15:40 SESSION 2: Advanced Lasing Sources and Techniques	15:45 SESSION 2: HHG from Gas Targets I	
EVENING 17:30 - 19:00 Conference Foyer	POSTER SESSION					

CONF. 13538
Coherent and Incoherent Radiation Sources based on Laser-driven Relativistic Plasma Waves
Room:
Quadrant (Wed AM) & Aquarius (Wed PM-Thur)

09:00
SESSION 1:
Material Studies,
Elemental Analysis,
Radiolysis I

13:50
SESSION 3:
Dosimetry,
Radiobiology,
Radiotherapy I

11:00
SESSION 4:
Dosimetry,
Radiobiology,
Radiotherapy II

13:25
SESSION 5:
Energetic Source
Development

16:10
ALPA Roundtable
Discussion

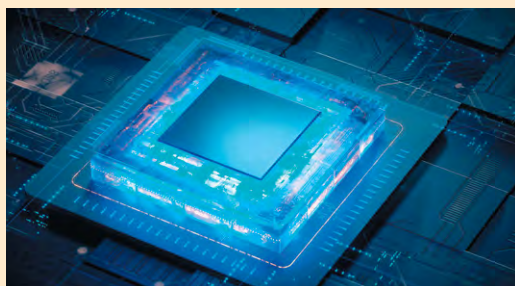
Application tracks

Application tracks enable attendees to group and explore presentations in the conference programmes to more easily plan their event schedule around the topic of interest. Application track filters span across all conferences at an SPIE event. The ability to group presentations has the reciprocal benefit of helping authors' presentations be more easily found. See website for a full listing of presentations in each of these tracks: spie.org/eoo



Sustainability

Papers that highlight the use of optics and photonics for renewable energy, natural resource management, sustainable and green manufacturing, and greenhouse gas mitigation in support of the UN's Sustainable Development Goals.



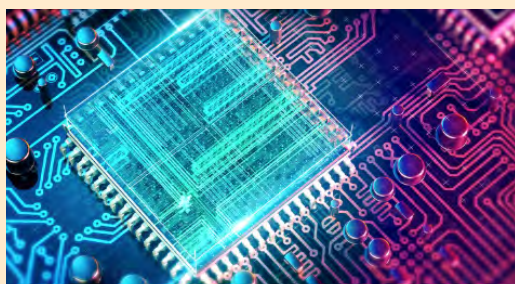
AI/ML

Papers that highlight the use of artificial intelligence, machine learning, and deep learning to create and implement intelligent systems across multiple sectors, technologies, and applications.



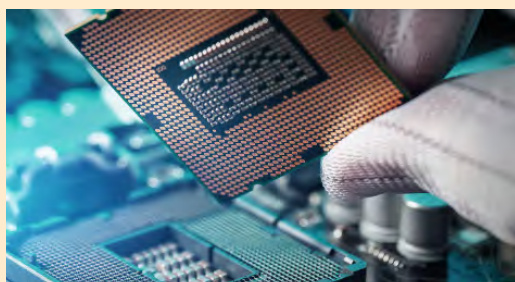
EU-funded research programmes

Papers presenting research supported by current EU-funded programmes, initiatives, and innovation projects.



Photonic Chips

Papers that highlight advances in materials, design, fabrication, integration, testing and packaging of photonic components at the chip level.



Microelectronics

Papers that highlight advances in materials, design, fabrication, integration, and applications of silicon or compound semiconductor microelectronics for use in the security and defense sectors and the commercial marketplace at the chip level.

CONFERENCE SCHEDULE

Extreme Light Sources

	CONF. 13533 Optics Damage and Materials Processing by EUV/X-ray Radiation (XDam9) Room: Veduta	CONF. 13534 Laser Acceleration of Electrons, Protons, and Ions VIII Room: Taurus (Mon-Tue), Kepler (Wed)	CONF. 13535 Research Using Extreme Light: Entering New Frontiers with Petawatt-Class Lasers VI Room: Nadir	CONF. 13536 X-Ray Free-Electron Lasers: Advances in Source Development and Instrumentation VII Room: Tycho	CONF. 13537 Compact Radiation Sources from EUV to Gamma-rays: Development and Applications II Room: Taurus	
WEDNESDAY 9 APRIL						
MORNING	COFFEE BREAK					
	10:30 SESSION 6: Optical Elements/ Materials	ROOM CHANGE: KEPLER 08:30 SESSION 7: Ion Acceleration II	08:40 SESSION 6: Laser-produced Secondary Sources and Applications	08:30 SESSION 3: Attosecond FEL Radiation Pulses	08:40 SESSION 1: XUV from Highly Ionized Matter and Applications	
	COFFEE BREAK					
			10:40 SESSION 7: Laser-produced Secondary Sources and Applications II	10:50 SESSION 4: Physical and Virtual Diagnostics of FEL Beams	10:30 SESSION 2: HHG and Nonlinear Laser Propagation in Gase	
AFTERNOON	LUNCH/EXHIBITION BREAK					
	WEDNESDAY PLENARY SESSION 13:30 - 15:10 Nadir Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOE High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation), Justin S. Wark, Univ. of Oxford (United Kingdom) One (hollow) fibre to rule them all (Plenary Presentation), Francesco Poletti, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)					
	COFFEE BREAK					
	15:40 SESSION 7: Theory/Computer Simulations		15:40 SESSION 8: Ultraintense Laser-Matter Interaction and Laser Technologies	15:40 SESSION 5: X-ray Optics and Wavefront Sensing	15:40 SESSION 3: Application of Ultrashort Coherent XUV Pulses	
	16:55 ROUND TABLE DISCUSSION: Theory/Computer Simulations					
EVENING 17:40 - 19:15 Conference Foyer	POSTER SESSION					
THURSDAY 10 APRIL						
MORNING				08:30 SESSION 6: FEL Science Applications I	08:30 SESSION 4: X-ray Sources based on Relativistic Laser-Matter Interaction I	
	COFFEE BREAK					
				10:50 SESSION 7: FEL Science Applications II	10:50 SESSION 5: X-ray Sources from Relativistic Electron Beams	
AFTERNOON	LUNCH/EXHIBITION BREAK					
					13:50 SESSION 6: X-ray Sources based on Relativistic Laser-Matter Interaction II	
	COFFEE BREAK					
					15:40 SESSION 7: Applications of Inco- herent X-ray Sources	

SPIE.MEMBERSHIP

THANK YOU FOR MAKING US
The World's Largest
Optics + Photonics Society

TOGETHER, WE THRIVE.



Stay connected with our global community.

Leverage your Membership: spie.org/membership



CONF. 13538
Coherent and In-
coherent Radiation
Sources based
on Laser-driven
Relativistic Plasma
Waves
Room:
Quadrant (Wed
AM) & Aquarius
(Wed PM-Thur)

10:30
SESSION 1:
Electron-driven
Radiation Sources

15:40
SESSION 2:
Compton
Scattering and
QED

08:50
SESSION 3:
Plasma Photonics

10:50
SESSION 4:
High Harmonics
and Attosecond

13:50
SESSION 5:
Plasma Wave and
Radiation



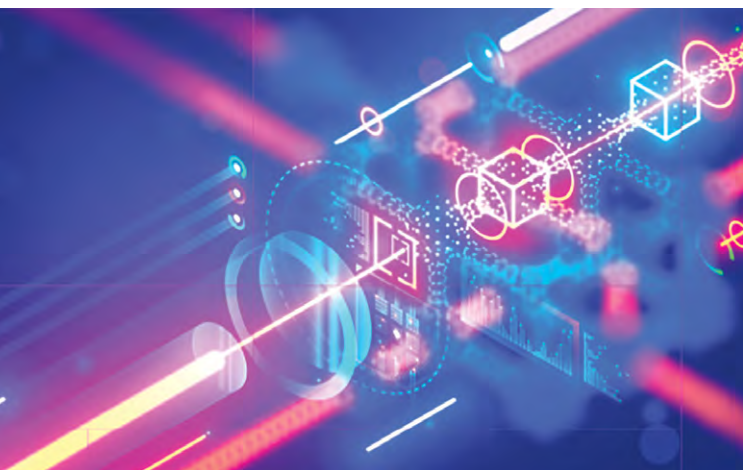
SPIE Optics and Optoelectronics Exhibition Directory

TUESDAY 8 APRIL 10.00 - 17.00
WEDNESDAY 9 APRIL 10.00 - 17.00
THURSDAY 10 APRIL 10.00 - 13.00

Exhibitors are listed in alphabetical order with full contact information and booth location. Full company descriptions, product announcements, and other information are available on the SPIE App and on spie.org.

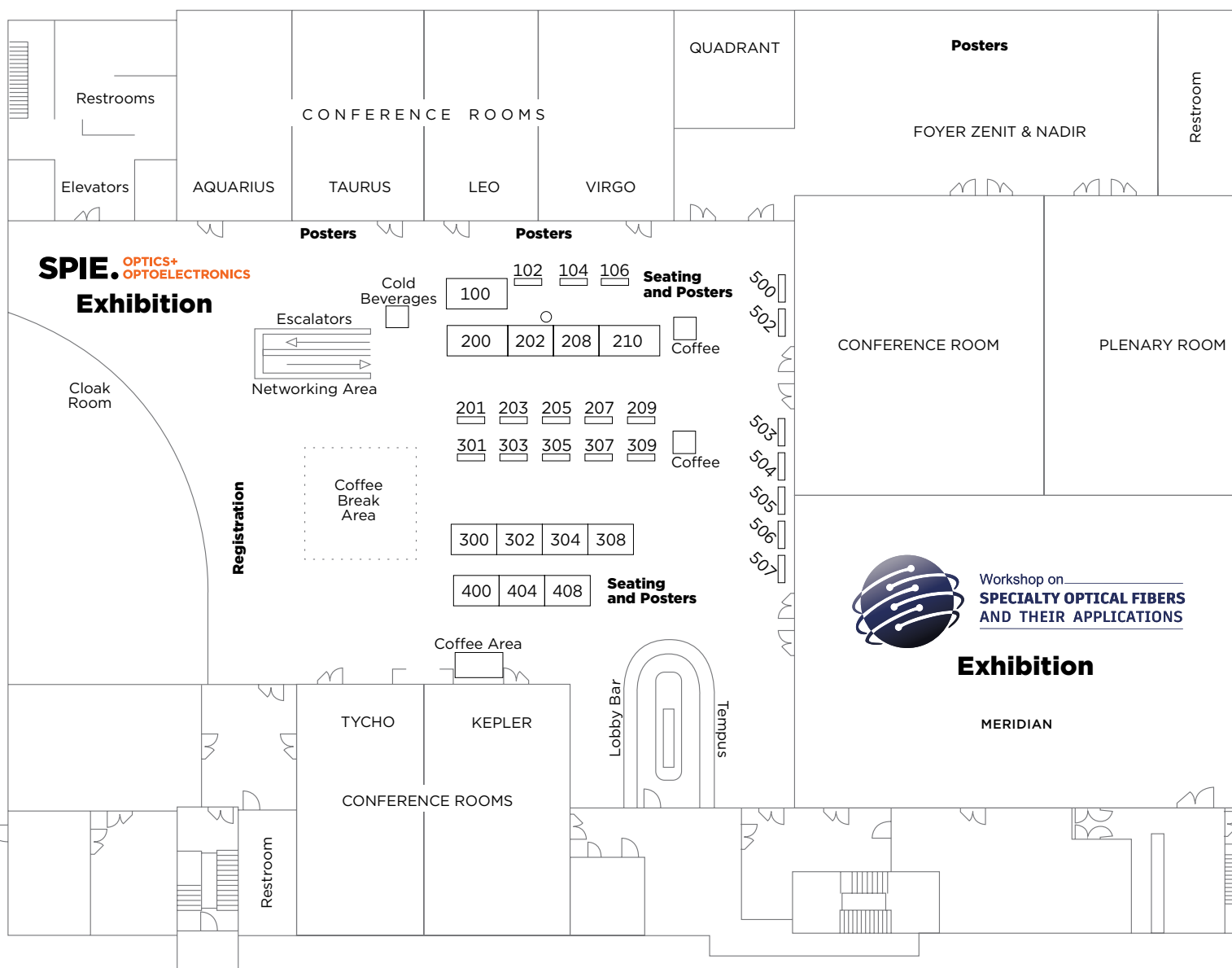
FEATURED TECHNOLOGIES

- » Laser components and accessories,
- » Fiber optics, industrial sensing and measurement
- » Cameras and imaging systems
- » LED, OLED, non-laser light sources
- » Nanotechnology
- » Materials processing
- » Optomechanical components and devices
- » Spectroscopy equipment
- » Detectors and sensor



See full details and updates at
spie.org/eoo or on the
SPIE App

EXHIBITOR FLOOR PLAN



EXHIBITOR BOOTH LISTING

100 Argotech a.s.	208 Cycle	304 New Imaging Technologies	503 Photon Technology Italy
102 n2-Photonics GmbH	209 Inprentus, Inc.	305 OptoSigma	504 Northrop Grumman SYNOPTICS
104 EKSPLA	210 Mitutoyo Europe GmbH	307 scia Systems GmbH	505 OPTIM WAFER SERVICES
106 Electro Optics	300 HOLOEYE Photonics AG	308 CeramOptec GmbH	506 HiLASE Centre
200 Photonic Cleaning Technologies	301 cronologic GmbH & Co. KG	309 Flexcompute, Inc.	507 Heraeus Covantics
201 LAYERTEC GmbH	302 The Extreme Light Infrastructure (ELI ERIC)	400 MIT, spol. s r.o.	
202 Light Conversion	303 SOLCERA	404 optics.org	
203 OZ OPTICS LTD		408 ACKTAR (ACM Coatings GmbH)	
205 LIOP-TEC GmbH		500 Crytur spol. s r.o	
207 AMPLITUDE		502 Santec Corporation	

EXHIBITOR LISTING

ACKTAR (ACM Coatings GmbH) #408

SPIE. CORPORATE MEMBER

Jakobsring 3, Naumburg (Saale), 06618 Germany
+49 3445 781565-0; fax +49 34463 62134 9
info@acktar.de; www.acktar.com

Featured Product: Acktar Black Coatings, Foil & optomechanical components

Acktar Black Coatings is a global leader in light absorption, ultra black materials, and blackening of optomechanical components. Our solutions have three general applications: 1. suppress stray light 2. absorb laser power 3. create high emissivity. We serve a wide range of photonics markets, including industrial vision and sensors, life science, analytics, medical, lasers, semiconductors, and space.

AMPLITUDE #207

SPIE. CORPORATE MEMBER

Cité de la Photonique, 11 Avenue de Canteranne, Pessac,
33600 France
info@amplitude-laser.com; www.amplitude-laser.com

Amplitude is a global leader in ultrafast laser design and manufacturing, driving advancements in industrial processes, medical treatments, and Nobel-caliber science. Our diverse portfolio includes diode-pumped, fiber femtosecond, and high-intensity Ti:Sapphire lasers. With a worldwide presence and a dedicated team, we deliver sustainable and impactful solutions for a brighter future.

Argotech a.s. #100

Holubova 978, Náchod, 547 01 Czech Republic
+420 778 437 750
info@argotech.cz; www.argotech.cz

Argotech a.s. is an independent private company located in the Czech Republic in Central Europe. We focus on providing assembly, development and engineering services in the fields of fiberoptics, semiconductor photonics, microelectronics and micromechanics. At our facility, we offer the entire back-end assembly process chain, from wafer level to full optical assembly of customised semiconductor packaging solutions.

SPONSOR

CeramOptec GmbH #308

Siemensstr 44, Bonn, 53121 Germany
+49 228 979 670
sales@ceramoptec.com; www.ceramoptec.com

Featured Product: Specialty optical fibers and customized fiber optic assemblies

CeramOptec is one of the world's leading companies for specialty optical fibers and customized fiber optic assemblies. The product range includes preforms, fibers, cable and bundle assemblies for a wide variety of applications. CeramOptec brings value to customers in various markets, from industrial to medical lasers, semiconductor and spectroscopy. Our optical fiber solutions can also be found in aerospace, chemical and mining industries.

cronologic GmbH & Co. KG #301

Jahnstr. 49, Frankfurt am Main, 60318 Germany
+49 69 173 20 256 0
support@cronologic.de; www.cronologic.de

Featured Product: Nidigo6G-12 ADC; 6,4 Gbps, 12 bits, 5.2 GB/s. & xHPTDC8-PCIe 8-channel TDC, 13 ps bin size, DPR: 5 ns

cronologic provides tailored data acquisition solutions designed for high-speed and high-precision signal processing and analysis. With a focus on extremely precise timing and high-speed analog signal recording, our versatile time-to-digital converters (TDCs) and analog-to-digital converters (ADCs) meet diverse needs. We also craft custom designs for unique requirements, ensuring excellence at scale.

CRYTUR spol s.r.o. #500

Na Lukách 2283, Turnov, 511 01 Czech Republic
+420 481 319 511
sales@crytur.cz; www.crytur.cz

Featured Product: Laser rods - Nd, Er, Tm, Yb, Ho doped YAG and YAP, Ti:Sapphire, Laser optics, Q-switched laser heads

Crytur is one of the world leaders in crystal manufacturing and processing with a strong focus on proprietary research and customised solutions. We provide laser crystal rods (YAG, YAP) with various doping options (Nd, Er, Yb, Tm, Ho), Ti:S, laser optics and Q-switches as well as custom laser q-switched laser heads. All our manufacturing is done in-house - from growth to cutting polishing, coating and high precision CNC machining while maintaining strict process control and precise measuring.

Cycle #208

Luruper Chaussee 1, Hamburg, 23547 Germany
+49 40 29848610
contact@cyclelasers.com; www.cyclelasers.com

Featured Product: BOMPD, BOC, ESYNC femtosecond synchronization modules. PULSE timing distribution system

Cycle develops and manufactures optical frequency and time (F&T) generation and distribution systems known for their unprecedented precision. Our systems are utilized in particle accelerators, high-power laser facilities and ground-based space telescopes. We excel at transforming advanced research into reliable, high-performance products tailored both for scientific and industrial applications.

EKSPLA #104

Savanoriu Ave 237, Vilnius, Lithuania, LT-02300
+370 5 264 9629
ekspla@ekspla.com; www.ekspla.com

EKSPLA presents femtosecond, picosecond and nanosecond high intensity lasers and amplifiers. Broad knowledge in high energy laser technologies and more than 30 years of experience enables us to offer unique solutions. Lasers feature flash-lamp for ultra-high pulse energy or diode pumping for high average power outputs. Innovative solutions for pulse shaping, precise synchronization between different laser sources and flexibility in customization enables to match these systems to numerous experiments of modern fundamental science.

PROMOTIONAL PARTNER

Electro Optics #106

4 Signet Ct, Cambridge, CB5 8LA United Kingdom
+44 1223 221030
sales@europascience.com; www.electrooptics.com

Electro Optics is the leading resource for the photonics industry, delivering in-depth analysis, technical insights, and the latest innovations in optics and photonics. Our marketing solutions include targeted digital campaigns, sponsored content, webcasts, and print advertising, ensuring maximum visibility among researchers, engineers, and key decision-makers shaping the future of photonics technology.

Flexcompute, Inc. #309

SPIE. CORPORATE MEMBER

182 Main St, Watertown, MA, 02472-4427 United States
info@flexcompute.com; www.flexcompute.com

At Flexcompute, innovation is not just a principle—it's the foundation of everything we do. Born from the minds of engineers at MIT and Stanford, we push the boundaries of what's possible in simulation technology. With our GPU-native technology, seamlessly integrated into existing workflows, we enable teams to innovate faster, reduce costs, and minimize risks—bringing better products to market in less time. Our mission is to make hardware innovation as easy as software. Learn more at flexcompute

Heraeus Covantics

#507

SPIE. CORPORATE MEMBER

Reinhard-Heraeus-Ring 29, Kleinostheim, 63801 Germany
+49 6181 35-0
covantics@heraeus.com; www.heraeus-covantics.com/

HHeraeus Covantics is a technology leader specializing in the manufacturing and processing of the industry's highest purity quartz, fused silica and other high-end materials such as ceramics and composites. With locations in Europe, USA and Asia, Heraeus Covantics manufactures semi-finished products, complex system components and custom-tailored solutions made of quartz glass, fused silica and ceramic materials. They are used in the data transmission and telecommunication industry, the production of specialty optical fibers for industrial and medical applications, semiconductor manufacturing and optical applications, among others.

HiLASE Centre

#506

Institute of Physics of the CAS vvi, Za Radnici 828,
Dolní Brezany, 25241 Czech Republic
+420 314 007 700
info@hilase.cz; www.hilase.cz

HiLASE Centre, part of the FZU – Institute of Physics of the Czech Academy of Sciences and a Centre of Excellence, conducts top-class international research. We combine excellence in fundamental research with technological innovation to push laser technologies beyond current limits, finding new applications and contributing to economic growth and sustainability. Our unique high-energy diode-pumped solid-state lasers outperform traditional systems in power, efficiency, stability, and compactness.

HOLOEYE Photonics AG

#300

SPIE. CORPORATE MEMBER

Volmerstr. 1, Berlin, 12489 Germany
+49 30 4036 9380
contact@holoeeye.com; www.holoeye.com

HOLOEYE supplies products and services in the fields of Spatial Light Modulators, a broad range of standard Diffractive Optical Elements as well as customized design and fabrication services for Diffractive Optics and LCOS microdisplay components. HOLOEYE offers highly specialized, most flexible and diversified standard solutions for academic and industrial R&D and provides the highest level of component customization, custom developments, and volume production for industrial integration.

SPONSOR

Inprentus, Inc.

#209

51 E Kenyon Rd, Champaign, IL, 61820 United States
+1 217 239 9862
info@inprentus.com; www.inprentus.com

Featured Product: Custom Blazed Diffraction Gratings

Inprentus designs and manufactures custom blazed diffraction gratings. The company was founded in 2012 to commercialize an innovative, nano-scale scribing technology particularly suited to the manufacture of diffractive optics. Inprentus is the world leader in blazed grating innovation and serves a variety of markets including augmented reality, spectrometer, semi-conductor, defense, research, and more.



See full details and updates at
spie.org/eoo or on the
SPIE App

LAYERTEC GmbH

#201

SPIE. CORPORATE MEMBER

Ernst-Abbe-Weg 1, Mellingen, 99441 Germany
+49 36453 744 0; fax +49 36453 744 40
contact@sales.layertec.de; www.layertec.de

Featured Product: High-Precision Large Optics – Custom-Made Components for Laser Fusion.

LAYERTEC develops, manufactures, and globally supplies high-performance laser components. Our coatings range from high power, broadband, and ultrafast applications to filters, polarizers, and custom designs for fs, ps, ns, and cw lasers. We produce large-scale optics up to 2000 mm. With 45 coating chambers and technologies like magnetron sputtering, IBS, IAD, and thermal evaporation, we offer solutions from prototypes to high-volume production with 400 experts.

Light Conversion

#202

SPIE. CORPORATE MEMBER

Keramik? St. B, Vilnius, LT-10233 Lithuania
sales@lightcon.com; www.lightcon.com

Featured Product: CARBIDE series: femtosecond lasers combining high average power and excellent power stability

LIGHT CONVERSION is the world-leading manufacturer of industrial femtosecond lasers PHAROS and CARBIDE. Company designs and manufactures wavelength-tunable femtosecond optical parametric amplifiers with TOPAS and ORPHEUS series products, complete spectroscopy systems HARPIA, microscopy dedicated CRONUS laser sources, as well as optical parametric chirped-pulse amplification (OPCPA) systems. All together the portfolio forms a best-in-class set of devices for femtosecond applications.

LIOP-TEC GmbH

#205

Industriestr. 4, Radevormwald, 42477 Germany
+49 2195 689690; fax +49 2195 6898913
info@liop-tec.com; www.liop-tec.com

Featured Product: optomechanics, mirror mounts, mounts for big optics, stressfree surfaces, pulsed ns dye laser

LIOP-TEC GmbH is a small high-tech – company founded in 2012. At our premises in Radevormwald, Germany, we develop, manufacture and distribute two main lines of products, opto-mechanical and fine-mechanical products as well as tunable laser systems, in particular pulsed dye laser systems and accessories. Opto-mechanical components comprise our well-known highly stable and very precise mirror mounts for laser beam steering applications both in R&D and in the laser industry.

MIT, spol. s r.o.

#400

Klanova 71/56, Prague, 14700 Czech Republic
+420 241712548
info@mit-laser.com; www.mit-laser.cz

Business, consulting and maintenance services in the area of laser technology, photonics and micromechanics.

Mitutoyo Europe GmbH

#210

Borsigstr 8-10, Neuss, 41469 Germany
+49 2137 1020
info@mitutoyo.de; www.mitutoyo.eu

Mitutoyo - at the top of the metrology industry worldwide. Our high-quality products can be classified under small hand tools, coordinate measuring machines, form measurement, optical measuring systems, sensor systems, material testing, digital scale and DRO systems, and various supportive metrology software.

EXHIBITOR LISTING

n2-Photonics GmbH

#102

SPIE. CORPORATE MEMBER

Hans-Henny-Jahnn-Weg 53, Hamburg, 22085 Germany
+49 40 6077 3472 0
info@n2-photonics.de; www.n2-photonics.de

Featured Product: Spectral broadening and pulse compression unit MIKS.

Our add-on module shortens the pulses of your industrial laser. We enable new micro-machining applications with ultrashort laser pulses in 100-10 fs range. Our extremely robust industrial-grade technology is characterized by simple installation and reliable 24/7 operation. Check the performance at our booth, we will have a live demonstration by shortening a Carbide laser <50 fs pulse duration.

New Imaging Technologies

#304

SPIE. CORPORATE MEMBER

Bat D 1er Etage, 1-4 impasse de la noisette, Verrières le Buisson, 91370 France
+33 1 64 47 88 58
info@new-imaging-technologies.com; www.new-imaging-technologies.com

Featured Product: Premium French-made SWIR InGaAs Sensors and Cameras from

New Imaging Technologies (NIT) is a French SME pioneer in SWIR & Wide Dynamic Range solutions (120dB) in the field of sensors and camera engineering. NIT masters all the steps from image sensor design to complete camera engineering. NIT offers a complete range of SWIR InGaAs sensors & cameras, from line-scan, qVGA to Full HD resolution, for a variety of applications where performance, cost, quality, and reliability are of premium choice. NIT is part of Lynred.

Northrop Grumman SYNOPTICS

#504

1201 Continental Blvd, Charlotte, NC, 28273-6320 United States
+1 704 588 2340
stsynopticssales@ngc.com;
www.northropgrumman.com/space/synoptics

Featured Product: Faraday Rotators, available in TGG or KTF materials, designed for low to high-power applications.

SYNOPTICS, a Northrop Grumman Company is the world's leading manufacturer of crystals for use in solid-state lasers. Products are used in applications for the military, medical, industrial and scientific markets. Materials include Nd:YAG, CTH:YAG, Er:YAG, Undoped YAG, Nd:YLF, Alexandrite, Ruby, TGG, KTF, Cr4+:YAG, Co:Spinel, Yb:LuAG, and Yb:YAG in addition to diffusion bonding of garnets & contract crystal growth. Faraday Rotators, available in TGG & KTF materials standard & custom sizes.

PROMOTIONAL PARTNER

optics.org

#404

Ffordd Pengam, 2 Alexandra Gate, Cardiff, CF24 2SA United Kingdom
+44 29 2089 4747; fax +44 29 2089 4750
sales@optics.org; www.optics.org



optics.org is the No.1 online resource for professionals working and using photonics based technologies. Targeted towards OEM markets optics.org delivers the latest photonics business news, market trends and product applications. You can also find the latest photonics jobs, events and a comprehensive buyers guide. Visit optics.org to day to get the information you need or to get your products to market. Contact the optics.org sales team for promotion in the SPIE Photonics West show daily

OPTIM WAFER SERVICES

#505

Z.I les Pradeaux, Gréasque, 13850 France
+33 44212 6150

enquiries@optimws.com; www.optimwafer services.com

Featured Product: OPTIM offers Wafer, Substrate or Individual Die processing and engineering services.

OPTIM Wafer Services offers individually tailored solutions for each customer's requirements in wafer surface processing, cleaning and handling substrates. We have been providing wafer processing services offering a local, high quality, reliable, value for money service to our customers for over thirty years. As well as providing unrivaled technical support. We are dynamic and flexible to our customer's ensuring we provided exactly what is required.

OptoSigma

#305

SPIE. CORPORATE MEMBER

Fürstenrieder Str 279a, München, 81377 Germany
+49 151 1230 1488

g.sales@optosigma-europe.com; www.optosigma.com

Featured Product: High-Precision Fiber Alignment System with Piezo Control

OptoSigma specializes in producing a wide range of precision optical components and systems, including lenses, mirrors, prisms, filters, beamsplitters, optical mounts, and translation stages. These products cater to industries such as semiconductor, aerospace, defense, biomedical, and scientific research, supporting applications like laser systems, imaging, spectroscopy, metrology, and microscopy.

OZ OPTICS LTD

#203

SPIE. CORPORATE MEMBER

219 Westbrook Rd, Ottawa, ON, K0A 1L0 Canada
+1 613 831 0981

sales@ozoptics.com; www.ozoptics.com

Fiber Optic Test Equipment, Power Meters, Smart Detector Heads, Fault Finders, Smart Patchcords, Optical Power Monitors, Fixed/Tunable Filters, Optical Delay Lines, High Power Patchcords, Visual Fault Locators, Light Sources, Attenuators, High-Speed Polarization Controllers/Scramblers, PDL Emulators. Switches, PLCs. Benchtop family: ER Meters, Backreflection Meters, Fiber Length Meters

Photon Technology Italy

#503

SPIE. CORPORATE MEMBER

Via Giacinto Gigante 174, Napoli, 80128 Italy
+39 0332960148

info@snsdpd.com; www.snsdpd.com

Featured Product: Superconductive Nanowire Single Photon Detectors (SNSPD), cryostats (T <2.7 K), electronics.

Photon Technology Italy is committed to advancing and commercializing cutting-edge superconducting nanowire single-photon detectors (SNSPDs), cryogenic technologies, and related innovative solutions. Our SNSPDs achieve system detection efficiencies exceeding 98%, dark count rates below 1 cps, and timing jitter under 40 ps at wavelengths of up to 3 µm.

Photonic Cleaning Technologies #200**SPIE.** CORPORATE MEMBER

Bldgs 1 & 2, 1895 Short Ln, Platteville, WI,
53818-8977 United States
+1 608 467 5396

sales@photoniccleaning.com; www.photoniccleaning.com

Featured Product: First Contact Polymers® Apply. Dry. Peel.
For atomically clean optics and substrates. No residue!

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.

Santec Corporation #502**SPIE.** CORPORATE MEMBER

99 Park Drive, Milton Park, Abingdon, OX14 4RY United Kingdom

+44 20 3176 1550

santec-emea@santec.com; www.santec.com

Featured Product: Optical Power Meter, Return Loss Meter, Backlight Reflection Meter, LCOS Spatial Light Modulator

Santec Corporation is a global photonics company and a leading manufacturer of optical components, tunable lasers, optical test and measurement products, and biophotonics, with a focus on R&D and innovation. Santec has 40 years of experience in the optics industry and has a deep knowledge of the key manufacturing processes to build lasers, instruments and components that meet the stringent demands for excellence by our customers.

scia Systems GmbH #307**SPIE.** CORPORATE MEMBER

Clemens-Winkler-Str. 6c, Chemnitz, 09116 Germany
+49 371 33561 0; fax +49 371 33561 200
info@scia-systems.com; www.scia-systems.com/

Featured Product: High quality multilayer deposition & superior uniformity by ion beam sputtering with scia Coat 200

scia Systems is a full range supplier for precise surface processing equipment, based on advanced ion beam and plasma technologies. The systems are applicable for optical thin film coatings, etching, figuring and cleaning processes, especially for the MEMS, microelectronics and precision optics industries. The process equipment of scia Systems is flexible and modular in design, thus can be configured easily for high volume production and for research applications.

SOLCERA #303

Zone Industrielle No 1 Rue de l'industrie, Evreux, 27000 France

+33 2 3229 4200

info@solcera.com; www.solcera.com

Solcera's CERA4VIEW® is a transparent spinel ceramic for optical applications, functional from near UV 300 nm to mid-wave infrared 5500 nm. It offers exceptional mechanical and thermal strength, six times more resistant than glass, and operates up to 1000°C. Solcera also develops YAG polycrystalline laser ceramics, for high-power laser applications and other IR and RF transparent materials, such as ZnS MgF2 Al2O3 Si3N4. Our subsidiary Vitron offers FLIR & CLEAR grade rZnS and chalcogenide glasses.

SPONSOR**The Extreme Light Infrastructure (ELI ERIC) #302**

Za Radnicí 835, Dolní Břežany,

252 41, Czech Republic

Tel.: +420 266 051 666

info@eli-laser.eu; www.eli-laser.eu



The Extreme Light Infrastructure (ELI) is a research facility with the world's largest and most advanced collection of high-power lasers. As an international user facility dedicated to multi-disciplinary science and research applications ELI provides access to world-class high-power, high-repetition-rate laser systems and enables cutting-edge research in physical, chemical, materials, and medical sciences, as well as breakthrough technological innovations.

SPIE EVENT POLICIES

Acceptance of policies and registration conditions

The following policies and conditions apply to all SPIE events, both online and in person. As a condition of registration, you will be required to acknowledge and accept the SPIE policies and conditions contained herein.

SPIE has established a confidential reporting system for all SPIE event participants to raise concerns about possible unethical or inappropriate behavior within our community. When at an SPIE event, you may contact any SPIE staff with concerns. If you feel that you are in immediate danger, please dial the local emergency number for police intervention.

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.

Anti-harassment policy

It is SPIE policy that all employees, volunteers, and participants are entitled to respectful treatment. Any form of bullying, discrimination, harassment, sexual or otherwise, is unacceptable and will not be tolerated. This policy applies to all locations and situations where SPIE business is conducted and to all SPIE-sponsored activities and events.

Attendee registration and admission policies

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 of 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.

Badge Scanning

Exhibitors or co-sponsors may request to scan your registration badge to collect your contact information. When you allow your badge to be scanned, you are agreeing to receive communications from them. You will be subject to those entities' communications and privacy policies and must opt-out with them directly if you no longer wish to receive information from them. SPIE is not responsible for their use of your contact information obtained when you volunteer your badge to be scanned.

Be well agreement

You acknowledge that attending an event involves some risk of exposure to illness. You voluntarily assume this risk and agree not to hold SPIE or its affiliates liable for any illness you may contract. You also agree not to attend the event if you feel ill or have reason to suspect you may have a communicable illness.

SPIE will provide hand sanitizer locations and disposable face masks upon request.

Capture and use of a person's image

SPIE reserves the right to take photographs and capture video at our events. By attending an SPIE event, you grant full permission to SPIE to capture, store, use, and/or reproduce your image or likeness and create derivative works of these images and recordings in any SPIE media now known or later developed for any legitimate SPIE purpose, including but not limited to promotional use. You hereby release, hold harmless, and forever discharge SPIE and their officers, directors, employees, and representatives from all damages, claims, demands, causes of action and liability related to said use.

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.

Event and course cancellation by SPIE

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

Family-friendly policy

Conference events: all conference technical and networking events require a badge for admission. Registered attendees may bring children with them if 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.

Exhibition hall: everyone who attends the exhibition must be registered and have a badge. Badges for children are free and available onsite at the registration desk. Children under 14 years of age must be accompanied by an adult at all times. Guardians are asked to help maintain a professional, disturbance-free exhibition environment. Children under 18 are not allowed in the exhibition area during exhibition move-in and move-out.

Identification requirement

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.

For online events, SPIE requires individuals to register with their legal identity.

Laser-pointer safety policy

SPIE events are subject to the applicable laser safety rules and regulations of the host location. SPIE supplies industry-standard Class 2 presentation laser pointers for all conference and other meeting rooms. For safety reasons, SPIE requests that presenters use provided laser pointers. The use of a personal laser pointer represents the user's acceptance of liability for any damage or injuries to the presenter or others.

No smoking policy

Attendees will observe all non-smoking regulations that are publicly posted by the facilities used by the event.

Online commenting policy

SPIE moderates all comments posted in an online event. We encourage robust discussion, the exchange of scientific ideas, and the sharing of multiple, diverse perspectives. We expect the discussion to be consistent with the norms of scholarly research community interactions at events. Online event participants should report any comments or content that falls short of those community norms. We will remove comments, content, or people that are considered inappropriate by SPIE standards or that:

- are defamatory, libelous, obscene, indecent, abusive, or threatening to others
- infringe the copyright, trademark, or other rights of a third party
- upload viruses or are a cybersecurity hazard
- are off-topic or inappropriately commercial in nature
- are in violation of any applicable laws or regulations

Payment policy

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.

Recording policy

Conferences and poster sessions: audio and video recordings are prohibited without prior written consent of SPIE and the presenter. Consent forms are available at Speaker Check-in, SPIE Registration, or the Chair Services Desk. Individuals not complying with this policy will be asked to surrender their recording media and leave the conference room. Refusal to comply with such requests is grounds for expulsion from the event. Please see the SPIE code of conduct.

Courses: audio and video recordings are prohibited without explicit permission from SPIE and the instructor. Individuals not complying with this policy will be asked to surrender their recording media and leave the classroom. Refusal to comply with such requests is grounds for expulsion from the event.

Exhibition: attendees may not record interviews on the exhibition floor nor record or photograph exhibitor booth displays and/or products without explicit permission from SPIE and on-site company representatives. Consent forms are available at Exhibitor Assistance. Individuals not complying with this policy will be asked to surrender their recording media and leave the exhibition hall. Refusal to comply with such requests is grounds for expulsion from the event.

SPIE Conferences app connect feature

The connect feature in the SPIE Conferences app is a personal networking tool that allows individuals to share their contact information with other attendees via their phones while using the SPIE app. This tool should not be used for systematic scanning of badges for managing sales leads. Inappropriate use is a violation of event policy.

SPIE Journals

Submit your next paper to an SPIE journal.
Members get 25% off Open Access charges.

SPIE Conferences app lead retrieval feature

The lead retrieval feature in the SPIE Conferences app is a lead generation tool that allows attendees to share their contact information with SPIE exhibitors. Exhibitor representatives using the lead retrieval app may scan attendee badges in the exhibition or supporting company events after receiving permission from an attendee. It should not be used in the technical conference area. The lead retrieval feature will be disabled for exhibitor representatives who exceed reasonable use or are in violation of other SPIE event policies. Attendees should report inappropriate use by notifying staff or contacting support via the help link in the app.

SPIE Conferences app messaging policy

The SPIE Conferences app supports attendee-to-attendee messaging to facilitate professional networking among meeting participants. This feature should not be used to push high-volume solicitations, and messaging will be disabled for attendees who exceed reasonable use or are in violation of other SPIE event policies. Attendees should report inappropriate use via the app reporting feature. SPIE will also monitor for high-volume patterns suggesting improper use.

Unauthorized solicitation

Unauthorized solicitation in the exhibition hall is prohibited. Any non-exhibiting organization observed to be distributing information or soliciting business in the aisles, or in another company's booth, will be asked to leave immediately.

Unsecured items

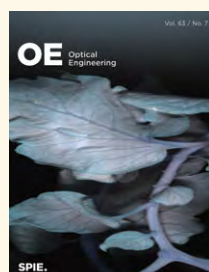
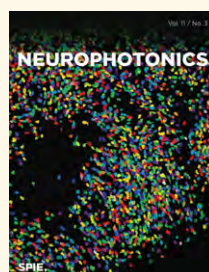
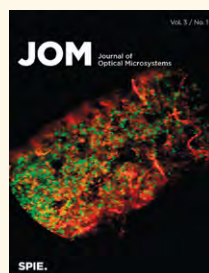
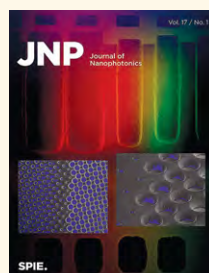
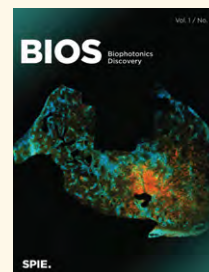
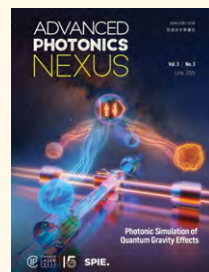
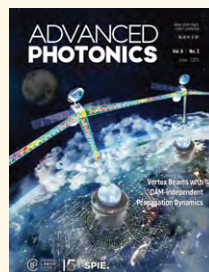
Personal belongings should not be left unattended in meeting rooms or public areas. Unattended items are subject to removal by security. SPIE is not responsible for items left unattended.

Wireless internet service

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 kinds of computer damage.

SPIE International Headquarters: PO Box 10, Bellingham, WA 98227-0010
USA • Tel: +1 360 676 3290 • Fax: +1 360 647 1445
customerservice@spie.org • www.SPIE.org

SPIE Europe Offices: 2 Alexandra Gate, Ffordd Pengam, Cardiff, CF24 2SA UK •
Tel: +44 29 2089 4747 • Fax: +44 29 2089 4750
info@spieeurope.org • www.SPIE.org



SPIE journals are part of the **SPIE Digital Library**,
the world's largest collection of
optics and photonics applied research.

SPIEDigitalLibrary.org/journals

CONFERENCE 13523

Metamaterials XV

8 - 10 April 2025 | Leo

Conference Chair(s): **Vladimír Kuzmiak**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Tomasz Stefaniuk**, Univ. of Warsaw (Poland); **Kęstutis Staliūnas**, Univ. Politècnica de Catalunya (Spain)

Program Committee: **Tomasz J. Antosiewicz**, Univ. of Warsaw (Poland); **Alessandro Belardini**, Sapienza Univ. di Roma (Italy); **Che Ting Chan**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Costantino De Angelis**, CSMT Gestione Scarl (Italy); **F. Javier García de Abajo**, ICFO - Institut de Ciències Fotòniques (Spain); **Maria Kafesaki**, Foundation for Research and Technology-Hellas (Greece); **Yuri S. Kivshar**, The Australian National Univ. (Australia); **Alexey V. Krasavin**, King's College London (United Kingdom); **Andrei V. Lavrinenko**, DTU Fotonik (Denmark); **Peter Markos**, Comenius Univ. in Bratislava (Slovakia); **Ekmel Özbay**, Bilkent Univ. (Turkey); **Concita Sibilia**, Univ. degli Studi di Roma La Sapienza (Italy); **Mario Silveirinha**, Univ. Técnica de Lisboa (Portugal); **Martin Wegener**, Karlsruher Institut für Technologie (Germany); **Piotr Wróbel**, Univ. of Warsaw (Poland); **Nikolay I. Zheludev**, Optoelectronics Research Ctr. (United Kingdom)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

SESSION 1: HYPERBOLIC MATERIALS

8 April 2025 • 13:30 - 15:40 | Leo

Session Chair(s): **Vladimír Kuzmiak**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

13523-1 • 13:30 - 14:10

Progress of photonic-crystal surface-emitting Lasers (PCSELs) (Keynote Presentation)

Author(s): **Susumu Noda**, Kyoto Univ. (Japan)

13523-2 • 14:10 - 14:40

Anisotropic polar metamaterials for infrared photonics (Invited Paper)

Author(s): **Maria Cristina Larciprete**, Sapienza Univ. di Roma (Italy)

13523-3 • 14:40 - 15:00

Hyperbolic metamaterial platform for refractometric sensing

Author(s): **João P. M. Carvalho**, **Miguel A. S. Almeida**, Univ. do Porto (Portugal), INESC TEC (Portugal); **João P. Mendes**, INESC TEC (Portugal); **Luís C. C. Coelho**, Univ. do Porto (Portugal), INESC TEC (Portugal); **José M. M. de Almeida**, Univ. de Trás-os-Montes e Alto Douro (Portugal), INESC TEC (Portugal)

13523-4 • 15:00 - 15:20

Hyperbolic metamaterial nanoparticles as optical sensors

Author(s): **Olga Kochanowska**, **Piotr Wróbel**, **Tomasz J. Antosiewicz**, Univ. of Warsaw (Poland)

13523-5 • 15:20 - 15:40

Dry synthesis of disordered plasmonic systems

Author(s): **Denis Garoli**, Istituto Italiano di Tecnologia (Italy)

Coffee Break 15:40 - 16:10

SESSION 2: TOPOLOGICAL PHOTONICS

8 April 2025 • 16:10 - 17:30 | Leo

Session Chair(s): **Susumu Noda**, Kyoto Univ. (Japan)

13523-7 • 16:10 - 16:30

Complete polarization-to-spatial photon state conversion enabled by cascaded metasurfaces

Author(s): **Shiu Hei Lam**, Friedrich-Schiller-Univ. Jena (Germany); **Jinyong Ma**, The Australian National Univ. (Australia); **Thomas Pertsch**, Friedrich-Schiller-Univ. Jena (Germany); **Andrey A. Suhorukov**, The Australian National Univ. (Australia)

13523-8 • 16:30 - 16:50

Bulk-radiation correspondence in square photonic lattices

Author(s): **Xinyi Yuan**, Aalto Univ. (Finland); **Malgrey Loïc**, Ecole Normale Supérieure de Lyon (France), Ecole Centrale de Lyon (France); **Helgi Sigurðsson**, Univ. of Iceland (Iceland); **Hai Son Nguyen**, Ecole Centrale de Lyon (France); **Grazia Salerno**, Aalto Univ. (Finland)

13523-9 • 16:50 - 17:10

Spin-decoupled metasurfaces for the generation of self-accelerating vector beams

Author(s): **Andrea Vogliardi**, **Gianluca Ruffato**, **Daniele Bonaldo**, Univ. degli Studi di Padova (Italy); **Simone Dal Zilio**, Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche (Italy); **Filippo Romanato**, Univ. degli Studi di Padova (Italy)

13523-10 • 17:10 - 17:30

Dielectric metasurfaces with a full 2π -phase difference in a low transmission region by encircling a phase singular point

Author(s): **Yeonsang Park**, **Jaewon Jang**, **Hyeonjeong Kang**, **Minsu Park**, Institute of Quantum Systems, Chungnam National Univ. (Korea, Republic of)

Wednesday 9 April 2025

SESSION 3: DIELECTRIC METASURFACES

9 April 2025 • 9:00 - 11:50 | Leo

Session Chair(s): **Konstantinos Makris**, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States)

13523-15 • 9:00 - 9:30

"Listening" to nanostructures' absorption: photo-acoustic spectroscopy with widely tuneable wavelength, polarization, direction, frequency and spatial mapping (Invited Paper)

Author(s): **Emilija Petronijevic**, **Claudia Skubisz**, **Grigore Leahu**, **Roberto Li Voti**, **Concita Sibilia**, **Alessandro Belardini**, Sapienza Univ. of Rome (Italy)

13523-16 • 9:30 - 10:00

Emerging fabrication technologies for non-absorbing dielectric metasurfaces (Invited Paper)

Author(s): **Lina Grineviciute**, Ctr. for Physical Sciences and Technology (Lithuania)

13523-17 • 10:00 - 10:20

Light trapping by non-Hermitian thin films

Author(s): **Kestutis Staliunas**, Univ. Politècnica de Catalunya (Spain)

Coffee Break • 10:20 - 10:50

13523-18 • 10:50 - 11:10

Metasurface mapping by photoacoustic spectroscopy

Author(s): **Claudia Skubisz**, **Emilija Petronijevic**, **Grigore Leahu**, Sapienza Univ. di Roma (Italy); **Tiziana Cesca**, **Carlo Scian**, **Giovanni Mattei**, Univ. degli Studi di Padova (Italy); **Roberto Li Voti**, **Concita Sibilia**, **Alessandro Belardini**, Sapienza Univ. di Roma (Italy)

13523-19 • 11:10 - 11:30

Universal metasurfaces for perfect transmission through phase compensation design

Author(s): **Eun-Joo Lee**, **Jun Young Kim**, **Young-Bin Kim**, **Sun-Kyung Kim**, Kyung Hee Univ. (Korea, Republic of)

13523-20 • 11:30 - 11:50

Fabrication of optical geometric phase elements in sapphire by ultrashort pulses

Author(s): **Edvinas Aleksandravicius**, **Indrė Meškėlaitė**, **Gabrielius Kontenis**, Vilnius Univ. (Lithuania); **Kestutis Staliunas**, Vilnius Univ. (Lithuania), ICREA - Institutió Catalana de Recerca i Estudis Avançats (Spain), Univ. Politècnica de Catalunya (Spain); **Darius Gailevičius**, Vilnius Univ. (Lithuania)

Lunch/Exhibition Break 11:50 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): Justin S. Wark, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): Francesco Poletti, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 4: ULTRAFAST CARRIER DYNAMICS, HYBRID PLASMONIC-DIELECTRIC METAMATERIALS

9 April 2025 • 15:40 - 17:30 | Leo

Session Chair(s): Kestutis Staliunas, Univ. Politècnica de Catalunya (Spain)

13523-11 • 15:40 - 16:10

Hybrid plasmonic-dielectric metamaterials for controlling hot-electron processes and chirality (*Invited Paper*)

Author(s): Anastasiia Zaleska, Yuanyang Xie, Jingyi Wu, Alexey V. Krasavin, Anton Y. Bykov, Anatoly V. Zayats, King's College London (United Kingdom)

13523-12 • 16:10 - 16:40

Real-time surface plasmon polariton propagation in silver nanowires (*Invited Paper*)

Author(s): Wenhua Zhao, Max-Born-Institut (Germany), Humboldt Univ. (Germany); **Álvaro Rodríguez Echarri**, Max-Born-Institut (Germany), AMOLF, Ctr. for Nanophotonics (Netherlands); **Kurt Busch**, Humboldt-Univ. zu Berlin (Germany)

13523-13 • 16:40 - 17:10

Focusing and control of amplification in non-Hermitian multimode system (*Invited Paper*)

Author(s): Konstantinos Makris, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States)

13523-14 • 17:10 - 17:30

Opto-mechanical chiral microrobot for out-of-plane rotation

Author(s): Alaa M. Ali, Institut Franche-Comte Electronique Mecanique Thermique et Optique, Univ. de Franche-Comté, CNRS (France); **Edison Gerena**, Institut des Systèmes Intelligents et Robotiques, Sorbonne Univ., CNRS (France); **Julio Andrés Iglesias Martínez, Gwenn Ulliac, Brahim Lemkalli, Abdenbi Mohand Ousaid**, Institut Franche-Comte Electronique Mecanique Thermique et Optique, Univ. de Franche-Comté, CNRS (France); **Sinan Haliyo**, Institut des Systèmes Intelligents et Robotiques, Sorbonne Univ., CNRS (France); **Aude Bolopion, Muamer Kadic**, Institut Franche-Comte Electronique Mecanique Thermique et Optique, Univ. de Franche-Comté, CNRS (France)

POSTERS-WEDNESDAY

9 April 2025 • 17:40 - 19:15 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Wednesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13523-41 • 17:40 - 19:15

Nanostructured quantum cascade detector for photon sorting

Author(s): **Benoît Pezeshgi**, ONERA (France); **Isabelle Sagnes**, **Konstantinos Pantzas**, Ctr. de Nanosciences et de Nanotechnologies (France); **Julien Jaeck**, **Baptiste Fix**, ONERA (France)

13523-42 • 17:40 - 19:15

Thin layers of vanadium dioxide as electrical modulators of the optical signal amplitude

Author(s): **Michał P. Nowak**, Wojskowa Akademia Techniczna im. Jarosława Dąbrowskiego (Poland); **Tomasz Stefaniuk**, Univ. of Warsaw (Poland); **Tomasz Wojciechowski**, Institute of Physics (Poland), International Research Ctr. MagTop (Poland); **Marcin Jakubaszek**, **Przemysław Wachulak**, **Piotr Nyga**, Wojskowa Akademia Techniczna im. Jarosława Dąbrowskiego (Poland)

13523-43 • 17:40 - 19:15

IP-Dip chiral plasmonic structures

Author(s): **Ivana Lettrichova**, **Dušan Pudiš**, **Peter Gašo**, **Daniel Jandura**, **Jana Durisova**, **Terezia Nyarjasova**, **Sofiia Nechaieva**, Univ. of Žilina (Slovakia)

13523-44 • 17:40 - 19:15

A freeform metasurface-based RGB-NIR color router for highly efficient image sensors

Author(s): **Hanin Ayash**, imec (Belgium), Karlsruher Institut für Technologie (Germany), Aix-Marseille Univ. (France); **Farhan Ali**, imec (Belgium)

13523-45 • 17:40 - 19:15

Design and analysis of minimal area all-optical 2D photonic crystal-based AND gate

Author(s): **Nitish Kumar**, **Mohd M. Khan**, Indian Institute of Information Technology, Guwahati (India); **Soibam Aruna Chanu**, **Ramesh Kumar Sonkar**, Indian Institute of Technology Guwahati (India)

13523-46 • 17:40 - 19:15

Dual-layer metasurfaces for the manipulation of structured beams

Author(s): **Daniele Bonaldo**, **Andrea Vogliardi**, **Gianluca Ruffato**, Univ. degli Studi di Padova (Italy); **Simone Dal Zilio**, Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche (Italy); **Vittorio Apolloni**, **Marco Ferrari**, **Filippo Romanato**, Univ. degli Studi di Padova (Italy)

13523-47 • 17:40 - 19:15

Proximity effect correction in lithography using a U-net neural network

Author(s): **Kim Yumi**, **Hyoseok Park**, **Yeonsang Park**, Institute of Quantum Systems, Chungnam National Univ. (Korea, Republic of)

13523-48 • 17:40 - 19:15

Solution-processed chalcogenide phase change metasurfaces

Author(s): **Mahirah Zaini**, **Abbas Sheikh Ansari**, **Joshua Perkins**, **Avik Mandal**, **Ahmed H. Elfarash**, **Behrad Gholipour**, Univ. of Alberta (Canada)

13523-49 • 17:40 - 19:15

Photothermal spatial light modulator

Author(s): **Yevhenii Shaidiuk**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic), Institute of Physics of NAS (Ukraine); **Kateřina Jiřiková**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic); **Vítězslav Lužný**, **Łukasz Bujak**, **Marek Piliarik**, Institute of Photonics and Electronics of the CAS (Czech Republic)

13523-50 • 17:40 - 19:15

Numerical study to explore non-local behavior for near-field light-matter interaction in a two-dimensional hyperbolic metamaterial

Author(s): **Amitrajit Nag**, **Jaydeep K. Basu**, Indian Institute of Science, Bengaluru (India)

13523-51 • 17:40 - 19:15

Optical control of subwavelength metallic filaments in memristor systems

Author(s): **Katarzyna Brańko**, **Alexander Korneluk**, **Tomasz Stefaniuk**, Univ. of Warsaw (Poland)

13523-52 • 17:40 - 19:15

Wrinkled radiative cooling metastructures for efficient thermal management

Author(s): **Urszula Malecka**, **Patrycja Wytrych**, **Alexander Korneluk**, **Przemysław Słota**, **Katarzyna Brańko**, **Tomasz Stefaniuk**, Univ. of Warsaw (Poland)

13523-53 • 17:40 - 19:15

TiO₂/SiO₂ metasurfaces for the enhancement of THG with pump wavelengths in the UV-A

Author(s): **Diogo Poeta**, **Rafael Vilarinho**, **Hedieh Mahmoodnia**, **Carlos Calaza**, **Helder Fonseca**, **Adelaide Miranda**, **Pieter De Beule**, INL - International Iberian Nanotechnology Lab. (Portugal)

13523-54 • 17:40 - 19:15

Cross talking metasystems for asymmetric diffraction engineering

Author(s): **Abbas Sheikh Ansari, Ashwin K. Iyer, Behrad Gholipour**, Univ. of Alberta (Canada)

13523-55 • 17:40 - 19:15

Tunable polarization response of anisotropic plasmonic nanostructures fabricated with nanosphere lithography

Author(s): **Maksymilian Ogorzałek, Piotr Wróbel**, Faculty of Physics, University of Warsaw (Poland)

Thursday 10 April 2025

SESSION 5: FLAT OPTICS AND METADEVICES

10 April 2025 • 8:40 - 10:30 | Leo

Session Chair(s): **Emilija Petronijevic**, Sapienza Univ. di Roma (Italy)

13523-21 • 8:40 - 9:10

Energy transfer in two-dimensional van der Waals heterostructures (*Invited Paper*)

Author(s): **Maciej Molas**, Univ. of Warsaw (Poland)

13523-22 • 9:10 - 9:30

Nanophotonics with transition metal dichalcogenide nanoparticles and metasurfaces

Author(s): **Tomasz J. Antosiewicz**, Univ. of Warsaw (Poland)

13523-23 • 9:30 - 9:50

A NIR multilevel a-Si flat optics technology platform on 200mm transparent wafers with DUV lithography

Author(s): **Bruno Figeys, Patrick Choulart**, imec (Belgium); **Ugo Stella**, Leonardo (Italy); **Aurelie Humbert, Roelof Jansen, Xavier Rottenberg**, imec (Belgium)

13523-24 • 9:50 - 10:10

Filamented optical memristor systems as building blocks in creating programmable metamaterials

Author(s): **Alexander Korneluk, Tomasz Stefaniuk**, Univ. of Warsaw (Poland)

13523-25 • 10:10 - 10:30

W-band frequency selective surface design using digital metasurfaces and active learning techniques

Author(s): **Jaehyeon Park, Young-Bin Kim, Sun-Kyung Kim, Eungkyu Lee**, Kyung Hee Univ. (Korea, Republic of)

Coffee Break 10:30 - 11:00

SESSION 6: BOUND IN CONTINUUM STATES

10 April 2025 • 11:00 - 12:10 | Leo

Session Chair(s): **Tomasz Stefaniuk**, Univ. of Warsaw (Poland)

13523-26 • 11:00 - 11:30

Non-Hermitian mode cleaning in waveguides and amplifiers (*Invited Paper*)

Author(s): **Muriel Botey Cumella, Mohammad Nayeem Akhter, Ramon Herrero, Kestutis Staliunas**, Univ. Politècnica de Catalunya (Spain)

13523-27 • 11:30 - 11:50

Properties of the symmetry-protected and Fabry-Perot bound in the continuum states in waveguide arrays

Author(s): **Vladimír Kuzmiak**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic); **Jiří Petráček**, Institute of Physical Engineering, Brno Univ. of Technology (Czech Republic), CEITEC - Central European Institute of Technology (Czech Republic)

13523-29 • 11:50 - 12:10

Addressing the impact of gain and loss models in the noise generated in coupled non-Hermitian photonic waveguides

Author(s): **Osmerly Hernandez, Iñigo Liberal**, Univ. Pública de Navarra (Spain)

Lunch/Exhibition Break 12:10 - 13:20

SESSION 7: METAMATERIALS FOR HEAT FLOW

10 April 2025 • 13:20 - 15:00 | Leo

Session Chair(s): **Henri Benisty**, Institut d'Optique Graduate School (France)

13523-30 • 13:20 - 13:40

Multiphysical numerical investigations on optical, thermal and mechanical properties of radiative structures

Author(s): **Tomasz Stefaniuk, Urszula Malecka, Patrycja Wytrych, Katarzyna Brańko, Alexander Korneluk**, Univ. of Warsaw (Poland)

13523-31 • 13:40 - 14:00

Thermal emission in coupled Fabry Perot ultrarefractory metasurfaces

Author(s): **Jules Lackner, Baptiste Fix**, ONERA (France); **Alain Bosseboeuf**, Ctr. de Nanosciences et de Nanotechnologies (France); **Patrick Bouchon**, ONERA (France); **Nathalie Bardou**, Ctr. de Nanosciences et de Nanotechnologies (France)

13523-32 • 14:00 - 14:20

Harnessing coherent perfect absorption for noise management

Author(s): **Douglas Oña, Angel Ortega-Gomez, Osmerly Hernandez, Iñigo Liberal**, Univ. Pública de Navarra (Spain)

13523-33 • 14:20 - 14:40

Heat transfers in terahertz nanostructured membrane: from near-field imaging of electromagnetic mode to THz imagery

Author(s): **Cyprien Brulon**, R&D Vision (France); **Baptiste Fix, Patrick Bouchon**, ONERA (France)

13523-34 • 14:40 - 15:00

Ellipsometric study of polyhedral oligomeric silsesquioxanes for radiative cooling metamaterials

Author(s): **Patrycja Wytrych, Alexander Korneluk, Urszula Malecka, Tomasz Stefaniuk**, Univ. of Warsaw (Poland)

Coffee Break 15:00 - 15:20

SESSION 8: PLASMONICS

10 April 2025 • 15:20 - 17:30 | Leo

Session Chair(s): **Kestutis Staliunas**, Univ. Politècnica de Catalunya (Spain)

13523-35 • 15:20 - 15:50

Electrically injected metamaterial grating DFB laser diodes exploiting electromagnetically induced transparency (Invited Paper)

Author(s): **Henri Benisty**, Lab. Charles Fabry, Institut d'Optique Graduate School, Univ. Paris-Saclay, CNRS (France); **Natalia Dubrovina, Yaoyao Liang, Quentin Gaimard, Vincent Brac de la Perrière**, Ctr. de Nanosciences et de Nanotechnologies, Univ. Paris-Saclay, CNRS (France); **Kamel Merghem**, Télécom SudParis, Institut Polytechnique de Paris (France); **André de Lustrac**, Lab. Energétique Mécanique Electromagnétisme, Univ. Paris Nanterre (France); **Abderrahim Ramdane, Anatole Lupu**, Ctr. de Nanosciences et de Nanotechnologies, Univ. Paris-Saclay, CNRS (France)

13523-36 • 15:50 - 16:10

Polymer brush grafted plasmonic nanostructures with enhanced optical chirality

Author(s): **Piotr Wróbel, Maksymilian Ogorzałek**, Univ. of Warsaw (Poland); **Monika Spasovová, Nicholas Scott Lynn**, Czech Academy of Sciences (Czech Republic)

13523-37 • 16:10 - 16:30

Investigation of strong coupling in a nanocavity plexcitonic system based on quasi-2D perovskite

Author(s): **Małgorzata Jakubowska, Maria Kamińska, Piotr Wróbel**, Univ. of Warsaw (Poland)

13523-38 • 16:30 - 16:50

Enhancing absorption in LWIR photodetectors by exciting Sommerfeld-Zenneck or SPP modes

Author(s): **Andrzej Janaszek, Piotr Wróbel**, Univ. of Warsaw (Poland); **Maciej Dems**, Institute of Physics, Lodz Univ. of Technology (Poland); **Ömer Ceylan, Yasar Gürbüz**, Sabanci Univ. (Turkey); **Łukasz Kubiszyn, Józef Piotrowski**, VIGO Photonics S.A. (Poland); **Rafał Kotyński**, Univ. of Warsaw (Poland)

13523-39 • 16:50 - 17:10

Nonlinear effects in multi-resonant GaAs plasmonic metamaterials for SHG and DFG

Author(s): **Hugo Pitot-Belin, Baptiste Fix, Thomasz Matthia**, ONERA (France); **Nathalie Bardou, Christophe Dupuis**, Ctr. de Nanosciences et de Nanotechnologies (France); **Patrick Bouchon**, ONERA (France)

13523-40 • 17:10 - 17:30

Multiresonant void plasmonic cavities and their interaction with molecules

Author(s): **Katarzyna Kluczyk-Korch, Tomasz J. Antosiewicz**, Univ. of Warsaw (Poland)

CONFERENCE 13524

Nonlinear Optics and Applications XIV

7 - 8 April 2025 | Leo

Conference Chair(s): **Mario Bertolotti**, Univ. degli Studi di Roma La Sapienza (Italy); **Anatoly V. Zayats**, King's College London (United Kingdom); **Alexei M. Zheltikov**, Texas A&M Univ. (United States)

Program Committee: **Javier Aizpurua**, Centro de Fisica de Materiales (Spain); **Kiyoshi Asakawa**, Univ. of Tsukuba (Japan); **Sophie Brasselet**, Institut Fresnel (France); **Paolo Di Porto**, Sapienza Univ. di Roma (Italy); **Reinhard Kienberger**, Max-Planck-Institut für Quantenoptik (Germany); **Yuri S. Kivshar**, The Australian National Univ. (Australia); **Jan Perina**, Palacky Univ. (Czech Republic); **Mark I. Stockman**, Georgia State Univ. (United States); **Humeyra Caglayan**, Technische Univ. Eindhoven (Netherlands)

Monday 7 April 2025

SESSION 1: NEW MATERIALS

7 April 2025 • 9:00 - 10:30 | Leo

Session Chair(s): **Mario Bertolotti**, Sapienza Univ. di Roma (Italy)

13524-1 • 9:00 - 9:20

Two-photon sub-monolayer manipulation and enhancement of diamond surfaces

Author(s): **Richard P. Mildren**, **Mojtaba Moshkani**, Macquarie Univ. (Australia)

13524-2 • 9:20 - 9:40

VOC photoionization via tuneable monochromatic VUV

Author(s): **Rafael Vilarinho**, **Hedieh Mahmoodnia**, **Christian Maibohm**, INL - International Iberian Nanotechnology Lab. (Portugal); **Diogo Poeta**, INL - International Iberian Nanotechnology Lab. (Portugal), Faculty of Physics, Bielefeld University (Germany); **José Fernandes**, **Carlos Calaza**, INL - International Iberian Nanotechnology Lab. (Portugal); **Ana Gómez-Varela**, Instituto de Materiais (iMATUS), Universidade de Santiago de Compostela (Spain); **Martín López-García**, Instituto de Óptica, IO-CSIC (Spain); **Adelaide Miranda**, **Pieter De Beule**, INL - International Iberian Nanotechnology Lab. (Portugal)

13524-3 • 9:40 - 10:00

Towards achieving Kerr combs in tantalum pentoxide microresonators

Author(s): **Kristians Draguns**, Institute of Atomic Physics and Spectroscopy, Univ. of Latvia (Latvia); **Jānis Alnis**, **Aigars Atvars**, Univ. of Latvia (Latvia)

13524-4 • 10:00 - 10:30

Design and characterization of MoS₂-based devices for enhanced second-order nonlinear optical response (*Invited Paper*)

Author(s): **Marco Centini**, **Alessandro Bile**, **Maria Cristina Larciprete**, **Emilija Petronijevic**, **Alessandro Belardini**, Sapienza Univ. di Roma (Italy)

Coffee Break 10:30 - 11:00

SESSION 2: FUNDAMENTAL EFFECTS

7 April 2025 • 11:00 - 12:40 | Leo

Session Chair(s): **Marco Centini**, Sapienza Univ. di Roma (Italy)

13524-5 • 11:00 - 11:40

Nonlinear generation of orbital angular momentum in metasurfaces (Keynote Presentation)

Author(s): **Martina Morassi**, Ctr. de Nanosciences et de Nanotechnologies (France); **Aurélien Lemaitre**, Institut de Recherche en Informatique et Systèmes Aléatoires (France); **Nikolaos Efremidis**, Univ. of Crete (Greece); **Aloyse Degiron**, **Giuseppe Leo**, Lab. Matériaux et Phénomènes Quantiques (France)

13524-6 • 11:40 - 12:00

Nonlinear propagation of linearly polarized Bessel beams for orbital-angular-momentum modulation

Author(s): **Nicolas Marsal**, **Delphine Wolfersberger**, **Yue Chai**, CentraleSupélec (France)

13524-7 • 12:00 - 12:20

Nonlinear activation functions for machine learning via SHG on PPTFLN

Author(s): **Gunho Jason Gabriel Jun, Philipp Lohmann, Wolfram H. P. Pernice**, Kirchhoff-Institut für Physik, Ruprecht-Karls-Univ. Heidelberg (Germany)

13524-8 • 12:20 - 12:40

Partial coherence analysis in the phase space

Author(s): **Andrea A. Garcia Guzman, Gabriel Martinez-Niconoff**, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico)

Lunch Break 12:40 - 14:00

SESSION 3: APPLICATIONS

7 April 2025 • 14:00 - 15:30 | Leo

Session Chair(s): **Eugenio Del Re**, Sapienza Univ. di Roma (Italy)

13524-9 • 14:00 - 14:20

Terahertz second harmonic generation driven by the unidirectional spin Hall magnetoresistance

Author(s): **Sergey Kovalev**, Technische Univ. Dortmund (Germany); **Ruslan Salikhov, Igor Ilyakov**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Anneke Reinold**, Technische Univ. Dortmund (Germany); **Jan Deinert, Thales de Oliveira, Alexej Ponomaryov, Gulloo Prajapati**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Patrick Pilch, Ahmed Ghalgaoui, Max Koch**, Technische Univ. Dortmund (Germany); **Jürgen Faßbender, Jürgen Lindner**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Zhe Wang**, Technische Univ. Dortmund (Germany)

13524-10 • 14:20 - 14:40

Advanced accelerator-driven THz radiators: achieving high power and continuous tunability

Author(s): **Tinglian Zhang, Rasmus Ischebeck**, Paul Scherrer Institut (Switzerland); **Uwe Niedermayer**, Technical University of Darmstadt (Germany); **Thomas Schietinger**, PSI Center for Accelerator Science and Engineering (Switzerland); **Pavle Juranic**, Paul Scherrer Institut (Switzerland)

13524-11 • 14:40 - 15:00

Laser filament shattering of distilled water and seawater droplets

Author(s): **Jessica Pena, Justin Rieman**, U.S. Naval Research Lab. (United States); **Kellen Paulsen**, Bucknell Univ. (United States); **Alexander Englesbe, Michael Helle**, U.S. Naval Research Lab. (United States)

13524-13 • 15:00 - 15:30

Physically and/or functionally reconfigurable optical systems: controlling light through ion and electron migration *(Invited Paper)*

Author(s): **Tomasz Stefaniuk**, Univ. of Warsaw (Poland)

Coffee Break 15:30 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): Philip Walther, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): Sylvain Gigan, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): Emma Hume, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): Francesca Calegari, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 4: LASER DYNAMICS AND NONLINEAR EFFECTS

8 April 2025 • 11:00 - 13:00 | Leo

Session Chair(s): Tomasz Stefaniuk, Univ. of Warsaw (Poland)

13524-14 • 11:00 - 11:30

Giant refraction and enhanced nonlinear optical response in KTN:Li ferroelectric supercrystals (Invited Paper)

Author(s): Eugenio Del Re, Ludovica Falsi, Sapienza Univ. di Roma (Italy); **Feifei Xin**, Nankai Univ. (China); **Aharon J. Agranat**, The Hebrew Univ. of Jerusalem (Israel); **Paolo Di Porto**, Sapienza Univ. di Roma (Italy)

13524-15 • 11:30 - 11:50

Highly efficient second and third harmonic generation of a 7J, 10 Hz Yb:YAG laser

Author(s): **Huzefa Aliasger**, HiLASE Ctr. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Ondřej Novák**, Zbyněk Hubka, HiLASE Ctr. (Czech Republic); **Ondřej Schreiber**, Narran s.r.o. (Czech Republic); **Martin Divoký**, **Martin Hanuš**, **Petr Navrátil**, HiLASE Ctr. (Czech Republic); **Tomáš Paliesek**, HiLASE Ctr. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Jan Pilař**, HiLASE Ctr. (Czech Republic); **Ondřej Denk**, HiLASE Ctr. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Patricie Severová**, **Vitalii Uvarov**, **Martin Smrž**, **Tomáš Mocek**, HiLASE Ctr. (Czech Republic)

13524-16 • 11:50 - 12:10

Radiation-pressure induced periodic and quasi-periodic route to chaos in whispering gallery mode silica microspheres

Author(s): **Snigdha Thekke Thalakkal**, **Davor Ristic**, **Vlasta Mohaček Grošev**, **Mile Ivanda**, Ruder Boškovic Institute (Croatia); **Maurizio Ferrari**, **Alessandro Chiasera**, Istituto di Fotonica e Nanotecnologie, Consiglio Nazionale delle Ricerche (Italy)

13524-17 • 12:10 - 12:30

Polarization dynamics of multipulsing mode-locked fiber laser

Author(s): **Hani J. Khashi**, **Sergey Sergeyev**, Aston Univ. (United Kingdom)

13524-18 • 12:30 - 13:00

Harmonic generation at the nanoscale in strategic materials for nanophotonics *(Invited Paper)*

Author(s): **Crina M. Cojocaru**, **Shroddha Mukhopadhyay**, Univ. Politècnica de Catalunya (Spain); **Maria Antonietta Vincenti**, Univ. degli Studi di Brescia (Italy); **Michael Scalora**, U.S. Army Combat Capabilities Development Command (United States); **Jose F. Trull**, Univ. Politècnica de Catalunya (Spain)

POSTERS-TUESDAY

8 April 2025 • 17:30 - 19:00 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Tuesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13524-19 • 17:30 - 19:00

Modeling of a cross-cascade picosecond synchronously pumped Raman laser

Author(s): **Milan Frank**, **Michal Jelinek**, **David Vyhliđal**, **Václav Kubeček**, Czech Technical Univ. in Prague (Czech Republic)

13524-20 • 17:30 - 19:00

1.7 W optical parametric oscillator tunable between 1.48-1.61 μ m and 3.14-3.77 μ m for generation of 10 picosecond pulses at 70 MHz

Author(s): **Vojtěch Grossmann**, **Milan Frank**, **Michal Jelinek**, **David Vyhliđal**, **Václav Kubeček**, Czech Technical Univ. in Prague (Czech Republic)

13524-21 • 17:30 - 19:00

Detection of Faraday rotation in silica colloidal photonic crystals through image-based detection

Author(s): **Leandro Mazzei**, **Rik Strobbe**, **Thierry Verbiest**, **Koen Clays**, **Yovan de Coene**, KU Leuven (Belgium)

13524-22 • 17:30 - 19:00

Estimation of uncertainty on carrier frequency precision in optics and optoelectronic systems

Author(s): **Patrice Salzenstein**, **Alaa Ali**, FEMTO-ST (France)

13524-23 • 17:30 - 19:00

Investigation into feasibility of lens with miniaturization of materials and power supply

Author(s): **Maxim V. Pogurmiski**, FAREXPORT Ltd. (Russian Federation); **Martine Comte**, Consultant (Switzerland); **Alaa Ali**, **Patrice Salzenstein**, FEMTO-ST (France)

13524-24 • 17:30 - 19:00

Reflective structures writing assisted by a spatial light modulator with femtosecond laser pulses

Author(s): **Zhibzema E. Munkueva**, Institute of Automation and Electrometry (Russian Federation); **Alexandr V. Dostovalov**, Institute of Automation and Electrometry (Russian Federation), Novosibirsk State Univ. (Russian Federation); **Alexey G. Kuznetsov**, Institute of Automation and Electrometry (Russian Federation); **Polina A. Elizarova**, Institute of Automation and Electrometry (Russian Federation), Novosibirsk State Univ. (Russian Federation); **Alexey Y. Kokhanovskiy**, ITMO Univ. (Russian Federation); **Alexandr A. Revyakin**, **Denis S. Kharenko**, **Sergey A. Babin**, Institute of Automation and Electrometry (Russian Federation), Novosibirsk State Univ. (Russian Federation)

13524-25 • 17:30 - 19:00

Interfacial sensing of liquid-air interfaces using thermal lens spectroscopic measurements

Author(s): **Subhajit Chakraborty, Amit Kumar Mishra, Ashwini Kumar Rawat, Debabrata Goswami**, Indian Institute of Technology Kanpur (India)

13524-26 • 17:30 - 19:00

Exploring nonlinear optical properties of silver nanoparticles fabricated with Brownea grandiceps leaf extract

Author(s): **Mary Joseph, Edwin Jose**, Christ College (India); **Benoy Anand**, St. Joseph's College (India); **Reji Philip**, Raman Research Institute (India)

13524-27 • 17:30 - 19:00

Extending pulse repetition rate up to 12 GHz in soliton fiber lasers via double harmonic mode-locking

Author(s): **Valerya A. Ribenek, Pavel Itrin, Dmitry A. Korobko, Igor Yavtushenko, Pavel Mironov**, Ulyanovsk State Univ. (Russian Federation); **Andrei A. Fotiadi**, Univ. de Mons (Belgium)

13524-28 • 17:30 - 19:00

Stabilizing high-order harmonic mode-locking in Er/Yb-doped fiber lasers with sub-MHz fundamental frequency through optoacoustic resonance

Author(s): **Alexander Sudin, Igor Volkov, Sergey Ushakov, Konstantin Nishchev**, Ogarev Mordovia State Univ. (Russian Federation); **Pavel Mironov, Aleksei Abanin, Dmitry A. Korobko**, Ulyanovsk State Univ. (Russian Federation); **Andrei A. Fotiadi**, Univ. de Mons (Belgium)

13524-29 • 17:30 - 19:00

Long-range interpulse attraction in soliton fiber laser

Author(s): **Dmitry A. Korobko, Valerya A. Ribenek, Pavel Itrin, Maxim Pribylov, Aleksei Tregubov**, Ulyanovsk State Univ. (Russian Federation); **Andrei A. Fotiadi**, Univ. de Mons (Belgium)

13524-30 • 17:30 - 19:00

Typical spectral features of multisoliton complexes in fiber laser

Author(s): **Dmitry A. Korobko, Valerya A. Ribenek, Pavel Itrin, Galina Tertyshnikova**, Ulyanovsk State Univ. (Russian Federation); **Andrei A. Fotiadi**, Univ. de Mons (Belgium)

13524-31 • 17:30 - 19:00

Broadband optical frequency comb generator on the base of fiber Bragg grating with controlled parameters

Author(s): **Aleksei S. Abramov, Dmitry A. Korobko, Pavel Mironov**, Ulyanovsk State Univ. (Russian Federation); **Andrei A. Fotiadi**, Ulyanovsk State Univ. (Russian Federation), Univ. de Mons (Belgium)

CONFERENCE 13525

Photon Counting and Quantum Optics 2025

7 - 8 April 2025 | Stella (Mon-Tue AM), Quadrant (Tue PM)

Conference Chair(s): **Ivan Prochazka**, Czech Technical Univ. in Prague (Czech Republic); **Roman Sobolewski**, Univ. of Rochester (United States); **Valery Zwiller**, KTH Royal Institute of Technology (Sweden); **Josef Vojtech**, CESNET z.s.p.o. (Czech Republic)

Program Committee: **Josef Blazej**, Czech Technical Univ. in Prague (Czech Republic); **Ralph B. James**, Savannah River National Lab. (United States); **Ulrich Schreiber**, Technische Univ. München (Germany)

Monday 7 April 2025

SESSION 1: PHOTON COUNTING I

7 April 2025 • 8:30 - 10:30 | Stella

Session Chair(s): **Roman Sobolewski**, Univ. of Rochester (United States)

13525-1 • 8:30 - 9:00

New research trends in superconducting nanowire single-photon detectors (*Invited Paper*)

Author(s): **Marco Colangelo**, Northeastern Univ. (United States)

13525-2 • 9:00 - 9:30

Single photon detection from near- to mid-infrared wavelengths with superconducting nanowire devices (*Invited Paper*)

Author(s): **Robert H. Hadfield**, Univ. of Glasgow (United Kingdom)

13525-3 • 9:30 - 9:50

Micro-transfer printable SNSPDs to enable versatile applications on diverse quantum photonic platforms

Author(s): **Linus Kraemer**, Kirchhoff-Institut für Physik, Ruprecht-Karls-Univ. Heidelberg (Germany); **Lin Jin**, Physikalisches Institut Univ. Münster (Germany); **Isaac Luntadila Lufungula**, Univ. Gent (Belgium), imec (Belgium); **Simone Ferrari**, **Wolfram H. P. Pernice**, Kirchhoff-Institut für Physik, Ruprecht-Karls-Univ. Heidelberg (Germany)

13525-4 • 9:50 - 10:10

Scalable high-fidelity photon detection using a 20-channel spatially multiplexed SNSPD array

Author(s): **Oliver P. Page**, **Simone Ferrari**, **Wolfram H. P. Pernice**, Ruprecht-Karls-Univ. Heidelberg (Germany)

13525-5 • 10:10 - 10:30

Cross-talk in SPAD arrays as background to two-photon interference

Author(s): **Sergei Kulkov**, Czech Technical Univ. in Prague (Czech Republic); **Andrei Nomerotski**, Czech Technical Univ. in Prague (Czech Republic), Institute of Physics of the CAS, v.v.i. (Czech Republic); **Lada Radmacherova**, Czech Technical Univ. in Prague (Czech Republic); **Peter Svihra**, Czech Technical Univ. in Prague (Czech Republic), Institute of Physics of the CAS, v.v.i. (Czech Republic); **Ermanno Bernasconi**, **Tommaso Milanese**, **Claudio Bruschini**, **Edoardo Charbon**, EPFL (Switzerland)

Coffee Break 10:30 - 11:00

SESSION 2: PHOTON COUNTING II

7 April 2025 • 11:00 - 12:50 | Stella

Session Chair(s): **Josef Blazej**, Czech Technical Univ. in Prague (Czech Republic)

13525-6 • 11:00 - 11:30

High performance and broadband nanoscale thermoelectric single-photon detector (*Invited Paper*)

Author(s): **Astghik A. Kuzanyan**, **Vahan Nikoghosyan**, **Armen Kuzanyan**, Institute for Physical Research, NAS RA (Armenia)

13525-7 • 11:30 - 11:50

Integration of cryogenic on-chip resistors for enhanced readout and modulation precision of quantum detectors and actuators

Author(s): **Kilian Welz, Wolfram H. P. Pernice, Ravi Pradip, Simone Ferrari, Oliver P. Page**, Kirchhoff-Institut für Physik, Ruprecht-Karls-
Univ. Heidelberg (Germany)

13525-8 • 11:50 - 12:10

Space qualified four channel Si SPAD detector

Author(s): **Matěj Stavinoha, Ivan Procházka, Josef Blažej**, Czech Technical Univ. in Prague (Czech Republic)

13525-9 • 12:10 - 12:30

Microcavity Integration with 2D Paul trap

Author(s): **Ivan Hudák, Vineet Kumar, Niklas Lausti**, Charles Univ. (Czech Republic); **Pavel Honzátko**, Institute of Photonics and Electronics
of the CAS, v.v.i. (Czech Republic) (Czech Republic); **Michal Hejduk**, Charles Univ. (Czech Republic)

13525-10 • 12:30 - 12:50

All-fiber microendoscopic polarization sensing at single-photon level aided by deep learning

Author(s): **Martin Bielač, Dominik Vařinka, Miroslav Jeřek**, Palacký Univ. Olomouc (Czech Republic)

Lunch Break 12:50 - 13:50

SESSION 3: PHOTON COUNTING III

7 April 2025 • 13:50 - 16:00 | Stella

Session Chair(s): **Robert H. Hadfield**, Univ. of Glasgow (United Kingdom)

13525-11 • 13:50 - 14:20

Single photon detectors based on superconducting nano/microstrips for applications at short-wavelength infrared (*Invited Paper*)

Author(s): **Loredana Parlato**, Univ. degli Studi di Napoli Federico II (Italy); **Carla Cirillo**, Institute for Superconductors, Innovative Materials,
and Devices, Consiglio Nazionale delle Ricerche (Italy); **Pasquale Ercolano, Ciro Bruscino, Martina Peluso, Mikkel Ejrnaes**, Univ. degli Studi
di Napoli Federico II (Italy); **Daniela Salvoni**, Photon Technology Italy SRL (Italy); **Chengjun Zhang**, Univ. degli Studi di Napoli Federico II
(Italy), Photon Technology Italy S.r.L. (Italy); **Francesco Colangelo**, Univ. degli Studi di Salerno (Italy); **Francesco Avitabile**, Institute for
Superconductors (Italy); **Zahra Makhdoumi Kakhaki, Carmine Attanasio**, Univ. degli Studi di Salerno (Italy); **Giovanni Piero Pepe**, Univ.
degli Studi di Napoli Federico II (Italy)

13525-12 • 14:20 - 14:40

Superconducting nanostrip single-photon detectors for quantum key distribution applications

Author(s): **Martina Peluso, Ciro Bruscino**, Univ. degli Studi di Napoli Federico II (Italy); **Marco Venturini**, ThinkQuantum S.r.l. (Italy);
Pasquale Ercolano, Syed Muhammad Junaid Bukhari, Univ. degli Studi di Napoli Federico II (Italy); **Chengjun Zhang**, Photon Technology
Italy SRL (Italy), Univ. degli Studi di Napoli Federico II (Italy); **Mikkel Ejrnaes**, Istituto Superconduttori, Materiali Innovativi e Dispositivi,
Consiglio Nazionale delle Ricerche (Italy); **Hao Li, Lixing You**, Shanghai Institute of Microsystem and Information Technology (China);
Simone Capeleto, ThinkQuantum S.r.l. (Italy); **Daniela Salvoni**, Photon Technology Italy SRL (Italy); **Loredana Parlato, Giovanni Piero Pepe**,
Univ. degli Studi di Napoli Federico II (Italy)

13525-13 • 14:40 - 15:00

Electrical testing of SNSPD-SFQ two-photon coincidence correlator

Author(s): **Roman Sobolewski, Ivan Komissarov**, Univ. of Rochester (United States); **Amir J. Salim, Jason Walter, Daniel Yohannes, Oleg
Mukhanov**, SeeQC, Inc. (United States); **Andrei Talalaevski, Elie Track**, HYPRES, Inc. (United States); **Tim Rambo, Aaron Miller**, Quantum
Opus, LLC (United States)

13525-14 • 15:00 - 15:20

Linearity and scalability of photon counting: toward accurate multiparameter photonic sensing

Author(s): **Miroslav Jeřek**, Palacký Univ. Olomouc (Czech Republic)

13525-15 • 15:20 - 15:40

Microchannel plate based photon counting at UV wavelengths for astronomy applications

Author(s): **Serena Farina, Michela Uslenghi, Giorgio Toso, Luca Schettini, Mauro Fiorini, Salvatore Incorvaia**, Istituto Nazionale di
Astrofisica, INAF (Italy); **Leonardo Nassi, Adele Ciavarella-Ciavarella, Giacomo Borghi, Marco Carminati, Carlo Fiorini**, Politecnico di
Milano (Italy); **Maria Guglielmina Pelizzo**, Univ. degli Studi di Padova (Italy); **Alain Jody Corso**, CNR-Istituto di Fotonica e Nanotecnologie
(Italy)

13525-16 • 15:40 - 16:00

Device-agnostic single-emitter super-resolution using deep learning

Author(s): **Dominik Vařinka, Filip Juran, Jaromír Behal, Miroslav Jeřek**, Palacký Univ. Olomouc (Czech Republic)

Coffee Break 16:00 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): Philip Walther, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): Sylvain Gigan, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): Emma Hume, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): Francesca Calegari, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 4: QUANTUM OPTICS I

8 April 2025 • 11:00 - 12:30 | Stella

Session Chair(s): Josef Vojtech, CESNET z.s.p.o. (Czech Republic)

13525-17 • 11:00 - 11:30

Experimental noiseless quantum amplification of coherent states of light by two-photon addition and subtraction (*Invited Paper*)

Author(s): Michal Neset, Jiří Fadrný, Martin Bielač, Jaromír Fiurášek, Miroslav Ježek, Jan Bílek, Palacký Univ. Olomouc (Czech Republic)

13525-18 • 11:30 - 11:50

Experimental study on integrating QKD and timing signals in the Prague Metropolitan Network

Author(s): Elisabeth Andriantsarazo, CESNET z.s.p.o. (Czech Republic); **Michal Špaček**, Czech Technical University (Czech Republic)

13525-19 • 11:50 - 12:10

Automated polarization basis adjustment and security monitoring in quantum communication via coincidence entropies

Author(s): **Tomáš Novák, Josef Vojtěch**, CESNET z.s.p.o. (Czech Republic); **Josef Blažej**, Czech Technical Univ. in Prague (Czech Republic)

13525-20 • 12:10 - 12:30

Frequency-resolved observation of the Hanbury Brown-Twiss effect

Author(s): **Sergei Kulkov**, Czech Technical Univ. in Prague (Czech Republic); **Andrei Nomerotski**, Czech Technical Univ. in Prague (Czech Republic), Institute of Physics of Materials of the CAS, v.v.i. (Czech Republic); **Lada Radmacherova**, Czech Technical Univ. in Prague (Czech Republic); **Peter Svihra**, Czech Technical Univ. in Prague (Czech Republic), Institute of Physics of Materials of the CAS, v.v.i. (Czech Republic); **Ermanno Bernasconi, Tommaso Milanese, Claudio Bruschini, Edoardo Charbon**, EPFL (Switzerland)

Lunch/Exhibition Break 12:30 - 13:30

SESSION 5: QUANTUM OPTICS II

8 April 2025 • 13:30 - 15:00 | Stella

Session Chair(s): **Valery Zwiller**, KTH Royal Institute of Technology (Sweden)

13525-21 • 13:30 - 14:00

Towards generation of entangled photon in system of two interacting semiconductor position-based qubits *(Invited Paper)*

Author(s): **Krzysztof Pomorski**, Warsaw Univ. of Life Sciences-SGGW (Poland)

13525-22 • 14:00 - 14:20

Effect of temporal fluctuation of control pulse on the evolution of a two-level system single-photon source

Author(s): **Amitrajit Nag, Jaydeep K. Basu**, Indian Institute of Science, Bengaluru (India)

13525-23 • 14:20 - 14:40

High-temperature superfluorescence in hybrid perovskite thin films: mechanism and prospects

Author(s): **Boris D. Fainberg**, Holon Institute of Technology (Israel); **Vladimir Osipov**, Institute for Advanced Study in Mathematics, Harbin Institute of Technology (China), Suzhou Research Institute, Harbin Institute of Technology (China)

13525-24 • 14:40 - 15:00

Single photon emission with colloidal quantum dots

Author(s): **Parna Roy, Anshu Pandey**, Indian Institute of Science, Bengaluru (India)

Coffee Break 15:30 - 16:00

SESSION 6: QUANTUM OPTICS III

8 April 2025 • 15:30 - 17:10 | Quadrant

Session Chair(s): **Ivan Procházka**, Czech Technical Univ. in Prague (Czech Republic)

13525-25 • 15:30 - 15:50

Tailoring photon correlations via structured light

Author(s): **Vincenzo D'Ambrosio**, Univ. degli Studi di Napoli Federico II (Italy)

13525-26 • 15:50 - 16:10

Towards quantitative fluorescence microscopy using photon-number-resolving detectors

Author(s): **Nicolas Dalbec-Constant, Guillaume S. Thekkadath, Duncan England, Andrew Proppe, Philip Bustard, Frederic Bouchard, Ben Sussman**, National Research Council Canada (Canada)

13525-28 • 16:10 - 16:30

Quantum key distribution at high secret key rates with hybrid photonic integrated circuits

Author(s): **Simon Thamm, Julius Römer, Linus Kürpick**, Ruprecht-Karls-Univ. Heidelberg (Germany); **Wolfram H. P. Pernice**, Ruprecht-Karls-Univ. Heidelberg (Germany), Univ. Münster (Germany)

13525-29 • 16:30 - 16:50

The minimum-error quantum estimation with multiprojector measurements

Author(s): **Martin Bielač, Dominik Koutný, Michal Neset, Miroslav Ježek**, Palacký Univ. Olomouc (Czech Republic)

13525-30 • 16:50 - 17:10

Enhancing optical resolution using quantum approach

Author(s): **Hyunsoo Choi**, Sungkyunkwan University (Korea, Republic of)

POSTERS-TUESDAY

8 April 2025 • 17:30 - 19:00 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Tuesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13525-32 • 17:30 - 19:00

Trap-loss fluorescence spectroscopy of Cs MOT with 319nm single-step Rydberg excitation and its application to measurement of the background electric field

Author(s): Junmin Wang, Xiao-Kai Hou, Yue-Wei Wang, Wen-Jing Su, Yi-Rong Wei, Jun He, Institute of Opto-Electronics, Shanxi Univ. (China), State Key Lab. of Quantum Optics and Quantum Optics Devices (China)

13525-33 • 17:30 - 19:00

Sensing and imaging with single organic molecules and their clusters at room temperature

Author(s): Anežka Dostálová, Dominik Vašínska, Robert Stárek, Miroslav Ježek, Palacký Univ. Olomouc (Czech Republic)

13525-34 • 17:30 - 19:00

Implementation of a rapid data processing quantum imaging system with high contrast

Author(s): Chungheon Baek, Young-Ho Ko, Electronics and Telecommunications Research Institute (Korea, Republic of)

CONFERENCE 13526

Real-time Processing of Image, Depth and Video Information 2025

7 April 2025 | Quadrant

Conference Chair(s): **Gian Domenico Licciardo**, Univ. degli Studi di Salerno (Italy); **Matthias F. Carlsohn**, Computer Vision & Bildkommunikation (Germany)

Conference Co-Chair(s): **Viktor J. Schneider**, Leibniz Univ. Hannover (Germany)

Program Committee: **Elouardi Abdelhafid**, Paris-Saclay Univ. (France); **Julian Rasmus Bankwitz**, Ruprecht-Karls-Univ. Heidelberg (Germany); **Miguel Bordallo Lopez**, Univ. of Oulu (Finland); **Guillermo Botella**, Univ. Complutense de Madrid (Spain); **Ellen Daly**, The Open Univ. (United Kingdom); **Chiou-Shann Fuh**, National Taiwan Univ. (Taiwan); **Dominique Ginhac**, Univ. de Bourgogne (France); **Gwanggil Jeon**, Incheon National Univ. (Korea, Republic of); **Sergio R. Goma**, Qualcomm Inc. (United States); **M. Hassaballah**, South Valley Univ. (Egypt); **Koorosh Khodabandehloo**, Univ. of Southern Queensland (Australia); **Tomasz Kryjak**, AGH Univ. of Science and Technology (Poland); **Antonio Sanz Montemayor**, Univ. Rey Juan Carlos (Spain); **Amos Omondi**, SUNY Korea (Korea, Republic of); **Danilo Pau**, STMicroelectronics SRL (Italy); **Luis Salgado**, Univ. Polit cnica de Madrid (Spain); **Sergio Saponara**, Univ. di Pisa (Italy); **Leonel Sousa**, Instituto Superior T cnico (Portugal); **Stephan C. Stilkerich**, Infineon Technologies AG (Germany)

INFORMATION

Best Paper Award

Sponsored by
The Imaging Source Europe GmbH

The Real-time Processing of Image, Depth and Video Information conference will offer a Best Paper Award, established in 2023. Eligibility is extended to all speakers who are present to deliver their research work at the Optics + Optoelectronics Conference on Real-time Processing of Image, Depth and Video Information. Papers will be judged based on clarity of presentation, scientific merit, and potential innovative impact. The Best Paper Award will include a cash reward and an award certificate.

Monday 7 April 2025

SESSION 1: LOW-POWER EDGE DEVICES AND RISC-V PLATFORMS

7 April 2025 • 8:40 - 10:30 | Quadrant

Session Chair(s): **Matthias F. Carlsohn**, Computer Vision & Bildkommunikation (Germany)

13526-1 • 8:40 - 9:10

Self-supervised event representations: towards accurate, real-time perception on SoC FPGAs (*Invited Paper*)

Author(s): **Kamil Jeziorek**, **Tomasz Kryjak**, AGH Univ. of Krakow (Poland)

13526-2 • 9:10 - 9:30

Towards real-time LiDAR processing on RISC-V-based ASIPs: fast trigonometric approximations via parabolic synthesis

Author(s): **Viktor J. Schneider**, **Sven Sch newald**, **Holger Blume**, Leibniz Univ. Hannover (Germany)

13526-3 • 9:30 - 9:50

In-memory computing accelerator for real-time image processing on the edge

Author(s): **Andrea Fasolino**, **Rosalba Liguori**, **Luigi Di Benedetto**, **Alfredo Rubino**, **Gian Domenico Licciardo**, Univ. degli Studi di Salerno (Italy)

13526-4 • 9:50 - 10:10

Beyond von Neumann: fundamental limitations of current compute architectures for real-time image processing

Author(s): **Sergio R. Goma**, Alkemista Group (United States)

13526-5 • 10:10 - 10:30

Implementation of a despeckling in SAR and OCT images using lightweight CNN

Author(s): **Alma Venegas-Argueta**, Instituto Politécnico Nacional (Mexico); **Jose Agustin Almaraz-Damian**, Ctr. de Investigación Científica y de Educación Superior de Ensenada (Mexico); **Beatriz P. Garcia-Salgado**, **Volodymyr I. Ponomaryov**, **Rogelio Reyes-Reyes**, **Clara Cruz-Ramos**, Instituto Politécnico Nacional (Mexico)

Coffee Break 10:30 - 11:00

SESSION 2: APPLICATIONS OF ARTIFICIAL INTELLIGENCE AND DEEP LEARNING

7 April 2025 • 11:00 - 12:20 | Quadrant

Session Chair(s): **Gian Domenico Licciardo**, Univ. degli Studi di Salerno (Italy)

13526-6 • 11:00 - 11:20

Intelligent video surveillance for early drowning detection using deep learning

Author(s): **Abdussalam Elhanashi**, **Sergio Saponara**, **Pierpaolo Dini**, Univ. di Pisa (Italy); **Qinghe Zheng**, Shandong Management Univ. (China); **Nawal Almutairi**, King Saud Univ. (Saudi Arabia); **Ali Eshtiba**, College of Engineering Technology-Janzour (Libya); **Bisser Raytchev**, **Victor Parque**, Hiroshima University (Japan)

13526-7 • 11:20 - 11:40

Vision for the blind: a deep learning approach to object recognition and accessibility

Author(s): **Maher Alrahhah**, **Talal Bonny**, **Mohammad Alshabi**, Univ of Sharjah (United Arab Emirates)

13526-8 • 11:40 - 12:00

Automatic classification of skin lesions based on semantic segmentation

Author(s): **Paolo Sommella**, Univ. degli Studi di Salerno (Italy); **Matteo Ferro**, Spring Off srl (Italy); **Giuseppe Di Leo**, **Vincenzo Gallo**, **Marco Carratù**, Univ. degli Studi di Salerno (Italy)

13526-9 • 12:00 - 12:20

Deepfakes image detection using a SVM algorithm based on texture features analysis

Author(s): **Luis E. Bobadilla-Cervantes**, **Volodymyr I. Ponomaryov**, **Rogelio Reyes-Reyes**, **Clara Cruz-Ramos**, **Beatriz P. Garcia-Salgado**, Instituto Politécnico Nacional (Mexico)

Lunch Break 12:20 - 13:50

SESSION 3: INNOVATIONS IN IMAGING TECHNOLOGIES AND SENSORS

7 April 2025 • 13:50 - 15:50 | Quadrant

Session Chair(s): **Sergio R. Goma**, Qualcomm Technologies, Inc. (United States)

13526-10 • 13:50 - 14:10

Bird protection at wind turbines using 3D tracking

Author(s): **Robert Schütze**, **Mona Strauss**, **Claudia Baulig**, **Philipp von Olshausen**, **Alexander Reiterer**, Fraunhofer-Institut für Physikalische Messtechnik IPM (Germany)

13526-11 • 14:10 - 14:30

A handheld multi-sensory scanner system with real-time mapping and data processing for building survey applications

Author(s): **Mona Strauss**, **Annette Schmitt**, **Philipp von Olshausen**, **Alexander Reiterer**, Fraunhofer-Institut für Physikalische Messtechnik IPM (Germany)

13526-12 • 14:30 - 14:50

Real-time crosstalk compensation in multi-zone time-of-flight sensors

Author(s): **Andrea Fasolino**, **Rosalba Liguori**, **Luigi Di Benedetto**, **Alfredo Rubino**, **Gian Domenico Licciardo**, Univ. degli Studi di Salerno (Italy); **Danilo Pau**, STMicroelectronics SRL (Italy)

13526-13 • 14:50 - 15:10

Simultaneous measurement of color and depth images at 1,000 fps based on a parallel-bus pattern

Author(s): **Leo Miyashita**, **Masatoshi Ishikawa**, Tokyo Univ. of Science (Japan)

13526-14 • 15:10 - 15:30

Research on UV image processing technology for high voltage line inspection

Author(s): **YaFeng Qiu**, **Beidou Ma**, **Xingjie Li**, **Rongguo Fu**, Nanjing Univ. of Science and Technology (China)

13526-15 • 15:30 - 15:50

Artificial intelligence for real-time processing of high-contrast images for exoplanet detections during active wavefront sensing and control

Author(s): **Christine L. Page**, Massachusetts Institute of Technology (United States); **Susan F. Redmond**, Caltech (United States); **Saikrishna Manojkumar**, Massachusetts Institute of Technology (United States); **Leonid Pogorelyuk**, Rensselaer Polytechnic Institute (United States); **Cheyenne D'Cruz**, Penguin Coding School (United States); **Samantha N. Hasler**, **Zoe Wong**, **Ajay S. Gill**, Massachusetts Institute of Technology (United States); **Laurent A. Pueyo**, **Emiel H. Por**, Space Telescope Science Institute (United States); **Iva Laginja**, Observatoire de Paris (France); **Raphaël Pourcelot**, **Bryony F. Nickson**, **Ananya Sahoo**, **Meiji M. Nguyen**, **Rémi Soummer**, **Marshall D. Perrin**, Space Telescope Science Institute (United States); **Bijan Nemati**, Tellus1 Scientific, LLC (United States); **Evana Gizzi**, NASA Goddard Space Flight Ctr. (United States); **Rebecca Oppenheimer**, American Museum of Natural History (United States); **Chuchu Fan**, **Kerri L. Cahoy**, Massachusetts Institute of Technology (United States)

Coffee Break 15:50 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): **Philip Walther**, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): **Sylvain Gigan**, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:10

SESSION 4: HYBRID AND MULTI-MODAL DATA PROCESSING

8 April 2025 • 11:10 - 12:10 | Quadrant

Session Chair(s): **Viktor J. Schneider**, Leibniz Univ. Hannover (Germany)

13526-16 • 11:10 - 11:30

Hybrid deep learning with optical 4f correlator: simulation and performance analysis

Author(s): **Maryam Dehbashizadeh Chehrehghan, Ripalta Stabile**, Technische Univ. Eindhoven (Netherlands)

13526-18 • 11:30 - 11:50

Comparative analysis of real-time surface image texture reconstruction for avatars in virtual scenes development

Author(s): **Hei Yee Liu, Wei Ting Kuo, Yuk Ming Tang**, The Hong Kong Polytechnic Univ. (Hong Kong, China); **Xiaowen Fu**, The Hong Kong Polytechnic University (Hong Kong, China)

13526-19 • 11:50 - 12:10

A photoluminescence-based defect detection system for solar cell in wide illumination ranges

Author(s): **Yunsheng Qian, Wenwen Pan, YaChen Liu, Changan Chen**, Nanjing Univ. of Science and Technology (China)

Lunch/Exhibition Break 12:10 - 13:30

SESSION 5: PROCESSING FOR EXTREME AND ADVERSE CONDITIONS

8 April 2025 • 13:30 - 14:30 | Quadrant

Session Chair(s): **Volodymyr I. Ponomaryov**, Instituto Politécnico Nacional (Mexico)

13526-20 • 13:30 - 13:50

A hyper-attentive lightweight vision model for obstacle detection in adverse foggy conditions

Author(s): **Shovakar Bhattacharjee**, Indian Institute of Technology Madras (India)

13526-21 • 13:50 - 14:10

Satellite material segmentation using multispectral imaging for space domain awareness

Author(s): **Kimmy Chang, Jonathan Z. Gazak, Justin Fletcher**, U.S. Space Force (United States)

13526-22 • 14:10 - 14:30

The image fusion algorithm of single-photon LiDAR and medium wave infrared thermal imager for far weak small target

Author(s): **Jianing Zhang, Rongguo Fu**, Nanjing Univ. of Science and Technology (China); **Peng Wang**, Jiangsu shuguang opto-electronics co., Ltd (China); **Chunfeng Zhang**, jiangsu shuguang opto-electronics co., Ltd (China); **Liangcheng Tao, Zhongyu Liu, Xiaoyu Zhu, Xiaoman Zhu, Sen Luo, Junjie Gao, Zequn Zhang, Jun Zhu**, Nanjing Univ. of Science and Technology (China)

THE IMAGING SOURCE EUROPE BEST PAPER AWARD PRESENTATION

8 April 2025 • 14:30 - 14:50 | Quadrant

Best Paper Award presented by **Matthias Carlsohn**, Computer Vision & Bildkommunikation (Germany)

Award Sponsor:

The Imaging Source Europe GmbH (Germany)

POSTERS-TUESDAY

8 April 2025 • 17:30 - 19:00 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Tuesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13526-23 • 17:30 - 19:00

Chaotic system-based image watermarking for medical data protection

Author(s): **Wafaa Al Nassan, Talal Bonny**, Univ of Sharjah (United Arab Emirates)

13526-24 • 17:30 - 19:00

Enhancing lung cancer detection with hybrid CNN models

Author(s): **Maher Alrahhah, Talal Bonny, Mohammad Alshabi**, Univ of Sharjah (United Arab Emirates)

CONFERENCE 13527

Optical Sensors 2025

7 - 9 April 2025 | Virgo

Conference Chair(s): **Francesco Baldini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Jiri Homola**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Robert A. Lieberman**, Lumoptix, LLC (United States)

Program Committee: **Eduard Brynda**, Institute of Macromolecular Chemistry of the ASCR, v.v.i. (Czech Republic); **Stefania Campopiano**, Univ. degli Studi di Napoli Parthenope (Italy); **Michael T. Canva**, Univ. de Sherbrooke (Canada); **Artur Dybko**, Warsaw Univ. of Technology (Poland); **Pedro Jorge**, INESC Porto (Portugal); **Aleksandra Lobnik**, Univ. of Maribor (Slovenia); **Maria J. Marin**, Univ. of East Anglia (United Kingdom); **Boris Mizaikoff**, Univ. Ulm (Germany); **Jürgen Popp**, Leibniz-Institut für Photonische Technologien e.V. (Germany); **Terro Soukka**, Univ. of Turku (Finland)

Monday 7 April 2025

SESSION 1: OPTICAL COMPONENTS AND SYSTEMS I

7 April 2025 • 10:20 - 12:00 | Virgo

Session Chair(s): **Francesco Baldini**, Istituto di Fisica Applicata "Nello Carrara" (Italy)

13527-1 • 10:20 - 10:40

Ultra-compact multi-wavelength laser combiner using spectral beam combining

Author(s): **Zhen Wang**, Robert Bosch GmbH (Germany), Karlsruher Institut für Technologie (Germany); **Jakob Schwanke**, Institut für Technische Optik (Germany), Univ. Stuttgart (Germany), Robert Bosch GmbH (Germany); **Dominik Theobald**, Robert Bosch GmbH (Germany); **Alois Herkommer**, Institut für Technische Optik (Germany), Univ. Stuttgart (Germany); **Uli Lemmer**, Karlsruher Institut für Technologie (Germany)

13527-2 • 10:40 - 11:00

Design of compact and affordable NIR-SWIR spectrometers based on colloidal quantum dot photodiodes and metasurfaces

Author(s): **Vladimir Pejovic**, **Bruno Figeys**, **Renaud Puybaret**, **Itai Lieberman**, **David Cheyns**, **Pawel Malinowski**, imec (Belgium)

13527-3 • 11:00 - 11:20

Optoelectronic-driven traffic management: integrating AI and visible light communication for smarter cities

Author(s): **Gonçalo Galvão**, Instituto Superior de Engenharia de Lisboa (Portugal); **Manuela Vieira**, UNINOVA (Portugal); **Manuel Augusto Vieira**, UNINOVA (Portugal), Instituto Superior de Engenharia de Lisboa (Portugal); **Mário Véstias**, Instituto Superior de Engenharia de Lisboa (Portugal), INESC INOV-Lab. (Portugal); **Paula Louro**, Instituto Superior de Engenharia de Lisboa (Portugal), UNINOVA (Portugal)

13527-4 • 11:20 - 11:40

Development and evaluation of dual- and single-core QCL-based standoff spectrometers for rapid and nondestructive substance identification

Author(s): **Marko Haertelt**, **Yuri V. Flores**, **Stefan Hugger**, **Bernd Rothenberger**, Fraunhofer-Institut für Angewandte Festkörperphysik IAF (Germany); **Markus Schwarzenberg**, Fraunhofer-Institut für Photonische Mikrosysteme IPMS (Germany); **Christian Ulrich**, **Wenka Schweikert**, Fraunhofer-Institut für Chemische Technologie ICT (Germany); **Andre Merten**, Fraunhofer-Institut für Photonische Mikrosysteme IPMS (Germany); **Frank Schnürer**, Fraunhofer-Institut für Chemische Technologie ICT (Germany)

13527-8 • 11:40 - 12:00

The MUSKETEER project: milk adulteration detection using speckle pattern and machine learning

Author(s): **Irene Bassi**, **Valentina Bello**, Univ. degli Studi di Pavia (Italy); **Cristina Nuzzi**, **Simone Pasinetti**, Univ. degli Studi di Brescia (Italy); **Sabina Merlo**, Univ. degli Studi di Pavia (Italy)

Lunch Break 12:00 - 13:30

SESSION 2: PHYSICAL SENSING I

7 April 2025 • 13:30 - 14:30 | Virgo

Session Chair(s): **Francesco Baldini**, Istituto di Fisica Applicata "Nello Carrara" (Italy)

13527-9 • 13:30 - 13:50

Evaluating material effects on direct ToF-based LiDAR for optical tactile applications

Author(s): **Ilze Aulika**, Institute of Solid State Physics, Univ. of Latvia (Latvia)

13527-10 • 13:50 - 14:10

Development of ion-exchanged waveguides with low-bend radii and crossing angles in commercial thin glass for co-packaged optical sensors in glass core substrate

Author(s): **Maurice Haffner**, **Julian Schwietering**, **Hashem Al-Shami**, **Henning Schröder**, **Jackson Kocis**, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration IZM (Germany)

13527-51 • 14:10 - 14:30

Mid-infrared laser-based sensors for environmental monitoring applications

Author(s): **Mohammad Khaled Shakfa**, Khalifa Univ. (United Arab Emirates); **Ali Elkhazraji**, King Abdullah Univ. of Science and Technology (Saudi Arabia); **Marco Marangoni**, Politecnico di Milano (Italy); **Aamir Farooq**, King Abdullah Univ. of Science and Technology (Saudi Arabia)

SESSION 3: PHYSICAL SENSING II

7 April 2025 • 14:30 - 15:50 | Virgo

Session Chair(s): **Jirí Homola**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

13527-13 • 14:30 - 14:50

Improvement in the performance of white light interferometry system

Author(s): **Neeraj Kumar**, **Harm Visscher**, **Adriaan Zuiderweg**, **Nitish Kumar**, Mitutoyo Research Ctr. Europe B.V. (Netherlands); **Ken Motohashi**, Mitutoyo Corp. (Japan)

13527-14 • 14:50 - 15:10

Optical coherence tomography vs. scanning electron microscopy in the assessment of the different types of fractures of metallic materials - in the frame of COST Action 21159

Author(s): **Gheorghe Hutiu**, Univ. "Aurel Vlaicu" din Arad (Romania); **Virgil-Florin Duma**, Univ. Politehnica Timisoara (Romania); **Dorin Demian**, Univ. "Aurel Vlaicu" din Arad (Romania); **Adrian Bradu**, **Adrian Podoleanu**, Univ. of Kent (United Kingdom)

13527-15 • 15:10 - 15:30

Vehicle-sensor-based pavement surface condition monitoring based on an optical fibre computing framework

Author(s): **Xiang Wang**, **Fan Ye**, **Zhaojie Sun**, **Shirin Malihi**, **Fumiya Iida**, Univ. of Cambridge (United Kingdom)

13527-16 • 15:30 - 15:50

High-throughput microplastic sizing and quantification in water using static light scattering and machine learning

Author(s): **Sara Abbasi**, **Mehrdad Lotfi Choobbari**, **Heidi Ottevaere**, Vrije Univ. Brussel (Belgium)

Coffee Break 15:50 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): **Philip Walther**, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): **Sylvain Gigan**, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 4: FIBER OPTIC (BIO)SENSING I

8 April 2025 • 11:00 - 12:30 | Virgo

Session Chair(s): **Jirí Homola**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

13527-17 • 11:00 - 11:30

Lab on fiber optrodes: towards theranostics tools for precision medicine (Invited Paper)

Author(s): **Andrea Cusano**, Univ. degli Studi del Sannio (Italy)

13527-18 • 11:30 - 11:50

Flammable vapor fiber-optic sensor based on a porous cholesteric liquid crystal film

Author(s): **Soyeon Ahn**, **Na Hyeon Hwang**, **Min Su Kim**, **Ji Su Kim**, **Sung Yoon Cho**, **Na-Hyun Bak**, Chungnam National Univ. (Korea, Republic of); **Moon-Deock Kim**, **Jong-Hyun Kim**, **Min Yong Jeon**, Chungnam National Univ. (Korea, Republic of), Institute of Quantum System (Korea, Republic of)

13527-20 • 11:50 - 12:10

Analysis of shape sensing accuracy employing distributed fiber sensing

Author(s): **Francesco Falcetelli**, Univ. degli Studi di Bologna (Italy), Consiglio Nazionale delle Ricerche (Italy); **Leonardo Rossi**, Consiglio Nazionale delle Ricerche (Italy); **Raffaella Di Sante**, Univ. degli Studi di Bologna (Italy); **Gabriele Bolognini**, Istituto per la Microelettronica e Microsistemi (Italy)

13527-92 • 12:10 - 12:30

Sapphire-based Fabry-Pérot pressure and temperature sensor system for harsh-environment applications

Author(s): **Stefan Kefer**, WIKA Alexander Wiegand SE & Co. KG (Germany); **Ralf Pechstedt**, **Krzysztof Herdzik**, **Dmitrij Siskin**, WIKA Optical Sensing Ltd. (United Kingdom)

Lunch/Exhibition Break 12:30 - 13:40

SESSION 5: FIBER OPTIC (BIO)SENSING II

8 April 2025 • 13:40 - 14:40 | Virgo

Session Chair(s): **Andrea Cusano**, Univ. degli Studi del Sannio (Italy)

13527-21 • 13:40 - 14:00

Robustness of shape reconstruction based on strain sensing with multi-core fibers

Author(s): **Leonardo Rossi**, Consiglio Nazionale delle Ricerche (Italy); **Francesco Falcetelli**, **Raffaella Di Sante**, Univ. degli Studi di Bologna (Italy); **Gabriele Bolognini**, Consiglio Nazionale delle Ricerche (Italy)

13527-22 • 14:00 - 14:20

Short-range quasi-distributed high spatial resolution tactile deformation sensing device

Author(s): **Jure Javornik**, **Denis Donlagić**, Univ. of Maribor (Slovenia)

13527-23 • 14:20 - 14:40

Fiber optic sensing for hardware anomaly detection

Author(s): **Alex Conway**, **Brian Jenkins**, **Hau Ngo**, **Daniel Opila**, U.S. Naval Academy (United States)

SESSION 6: PLASMONIC BIOSENSING I

8 April 2025 • 14:40 - 15:20 | Virgo

Session Chair(s): **Andrea Cusano**, Univ. degli Studi del Sannio (Italy)

13527-24 • 14:40 - 15:00

Development of a plasmonic nanobiosensor for sensitive tyramine detection: an optical route for food safety monitoring

Author(s): **Maria Grazia Manera**, **Adriano Colombelli**, Istituto per la Microelettronica e Microsistemi (Italy); **Monica Bianco**, Istituto di Nanotecnologia (Italy); **Daniela Lospinosa**, Istituto per la Microelettronica e Microsistemi (Italy); **Annalisa De Girolamo**, **Maria Varsalona**, **Vincenzo Lippolis**, Istituto di Scienze delle Produzioni Alimentari (Italy); **Roberto Rella**, Istituto per la Microelettronica e Microsistemi (Italy); **Valentina Arima**, Istituto di Nanotecnologia (Italy)

13527-25 • 15:00 - 15:20

Infrared sensing based on Tamm plasmon resonance for hydrogen detection

Author(s): **Miguel Almeida**, **João P. M. Carvalho**, Univ. do Porto (Portugal), INESC TEC (Portugal); **Isabel Pastoriza-Santos**, Univ. de Vigo (Spain); **José M. M. Almeida**, Univ. do Porto (Portugal), INESC TEC (Portugal), Univ. de Trás-os-Montes e Alto Douro (Portugal); **Luís C. C. Coelho**, Univ. de Porto (Portugal), INESC TEC (Portugal)

Coffee Break 15:20 - 15:50

SESSION 7: PLASMONIC BIOSENSING II

8 April 2025 • 15:50 - 17:30 | Virgo

Session Chair(s): **Jirí Homola**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

13527-26 • 15:50 - 16:10

Biochemical sensing with active Joule-assisted surface plasmon resonance enhancement

Author(s): **Samuel Kenny**, **Giulia di Fazio**, **Dominic Zerulla**, Univ. College Dublin (Ireland)

13527-27 • 16:10 - 16:30

Optimizing plasmonic nanocrystals for enhanced fluorescence: new trends in optical sensing technologies

Author(s): **Maria Grazia Manera**, **Daniela Lospinosa**, **Adriano Colombelli**, **Arianna Creti**, **Mauro Lomascolo**, **Roberto Rella**, Istituto per la Microelettronica e Microsistemi (Italy)

13527-28 • 16:30 - 16:50

Micro-curvature effects on SERS enhancement in curved substrates

Author(s): **Mehdi Feizpour**, **Sara Abbasi**, **Heidi Ottevaere**, Vrije Univ. Brussel (Belgium)

13527-29 • 16:50 - 17:10

Chromatin inversion in rodent retina with refractive index-based surface plasmon sensor

Author(s): **Ipsita Chakraborty**, **Andreas Offenhäusser**, Forschungszentrum Jülich GmbH (Germany)

13527-30 • 17:10 - 17:30

Development of SERS sensor chips on a large area for sensitive detection of chemical & biological molecules

Author(s): **Mohd Asif**, **Vaibhav Chaturvedi**, **Merbin John**, **Umang Chaturvedi**, **Kamal Kumar**, **Anuj Dhawan**, Indian Institute of Technology Delhi (India)

POSTERS-TUESDAY

8 April 2025 • 17:30 - 19:00 | Conference Foyer

13527-44 • 17:30 - 19:00

Influence of grating parameters on the performance of an ECDL emitting in the blue spectral region

Author(s): **Khaled Gasmí, Abdulaziz Aljalal, Watheq Al-Basheer**, King Fahd Univ. of Petroleum & Minerals (Saudi Arabia)

13527-45 • 17:30 - 19:00

Raman spectroscopy studies on Imatinib-sensitive and -resistant chronic myeloid leukemia cells

Author(s): **Rahul Mojdra**, Advanced Ctr. for Treatment, Research & Education in Cancer (India), Homi Bhabha National Institute (India); **Arti Hole**, Advanced Ctr. for Treatment, Research & Education in Cancer (India); **Rukmini Govekar**, Advanced Ctr. for Treatment, Research & Education in Cancer (India), Homi Bhabha National Institute (India); **C. Murali Krishna**, Advanced Ctr. for Treatment, Research & Education in Cancer (India)

13527-46 • 17:30 - 19:00

Advancing canine healthcare: Raman spectroscopy and multivariate analysis for skin cancer detection

Author(s): **Arti Hole, Mithila Bhujbai, Aaishwarya Ghanawat, Kiran Bendale, Poonam Gera, Pradeep Chaudhari, C. Murali Krishna**, Advanced Ctr. for Treatment, Research & Education in Cancer (India)

13527-47 • 17:30 - 19:00

Finite element analysis of fast-rotating polygonal mirrors for laser scanning

Author(s): **Eduard-Sebastian Csukas**, Univ. Politehnica Timisoara (Romania), Continental (Romania); **Virgil-Florin Duma**, Univ. "Aurel Vlaicu" din Arad (Romania), Univ. Politehnica Timisoara (Romania)

13527-48 • 17:30 - 19:00

AI method in SPR spectra analysis

Author(s): **Ying-Feng Chang, Yu-Chung Wang, Sin-You Chen**, Chang Gung Univ. (Taiwan); **Li-Chen Su**, Ming Chi Univ. of Technology (Taiwan); **Kwei-Jay Lin**, Chang Gung Univ. (Taiwan)

13527-49 • 17:30 - 19:00

Active plasmonic colorimetric biosensor for detecting lung cancer proteins

Author(s): **Ming-Jung Tai, Nan-Fu Chiu**, National Taiwan Normal Univ. (Taiwan)

13527-50 • 17:30 - 19:00

Advanced NIR SPR sensor with organic photodetectors for biomedical application

Author(s): **Li-Chen Su, Meng-Chi Li, Bo-Cheng Chen, Chen-Kai Chang, Yu-Ching Huang**, Ming Chi Univ. of Technology (Taiwan)

13527-52 • 17:30 - 19:00

Rapid sensing of food adulterant in aquatic products employing surface enhanced Raman spectroscopy (SERS)-based optical sensor

Author(s): **Sibashish Chakraborty, Satish K. Dubey**, Indian Institute of Technology Delhi (India)

13527-53 • 17:30 - 19:00

Comparison of SPR response of D-shaped fiber in the detection of water salinity using a grating of different SPR active materials: simulation study

Author(s): **Ahmed Kreta**, The American Univ. in Cairo (Egypt), May Univ. in Cairo (Egypt); **Sara Shafaay, Mohamed A. Swillam**, The American Univ. in Cairo (Egypt)

13527-54 • 17:30 - 19:00

Development of an SPR-Raman biosensor for early lung cancer biomarker detection

Author(s): **Jou-Chen Lin, Nan-Fu Chiu**, National Taiwan Normal Univ. (Taiwan)

13527-55 • 17:30 - 19:00

Speech enhancement in FBG-based throat microphones: a tailored long short-term memory recurrent neural network approach

Author(s): **Rituparna Jana, Akash Chandra, Nithin V. George, Arup Lal Chakraborty**, Indian Institute of Technology Gandhinagar (India)

13527-56 • 17:30 - 19:00

Tunable ultrasensitive chiral metamaterial biosensor for infrared applications

Author(s): **Hager Mohamed**, The American Univ. in Cairo (Egypt); **Abdelrahman Ghanim, A. M. Farmawy**, The American Univ. in Cairo (Egypt), Ain Shams Univ. (Egypt); **Mohamed A. Swillam**, The American Univ. in Cairo (Egypt)

13527-57 • 17:30 - 19:00

Tunable plasmonic graphene terahertz metasurfaces for sensing applications

Author(s): **Maira Khafagy**, The American Univ. in Cairo (Egypt); **Abdelrahman Ghanim**, The American Univ. in Cairo (Egypt), Ain Shams Univ. (Egypt); **Mohamed A. Swillam**, The American Univ. in Cairo (Egypt)

13527-58 • 17:30 - 19:00

Optimization of local backside released micro-ring resonators for sensing applications using silicon photonic integrated circuits in an SOI technology

Author(s): **Tabea Fünning**, Anna Peczek, Aleksandra Kroh, Christian Mai, IHP GmbH (Germany); **Martin Paul**, Technische Hochschule Wildau (Germany); **Florian Thomsen**, IHP GmbH (Germany); **Robert Tannenber**, Bundesanstalt für Materialforschung und -prüfung (Germany); **Christoph Schumann**, Technische Hochschule Wildau (Germany); **Michael G. Weller**, Bundesanstalt für Materialforschung und -prüfung (Germany); **Andreas Mai**, IHP GmbH (Germany); **Patrick C. Steglich**, Technische Hochschule Wildau (Germany)

13527-59 • 17:30 - 19:00

Design and optimization of integrated multimode interferometers (MMIs) for dual-polarization photonic biosensors for biomedical applications in a silicon-on-insulator platform

Author(s): **Christoph Schumann**, Technische Hochschule Wildau (Germany); **Tabea Fünning**, IHP GmbH (Germany); **Martin Paul**, Technische Hochschule Wildau (Germany); **Robert Tannenber**, Bundesanstalt für Materialforschung und -prüfung (Germany); **Patrick C. Steglich**, Technische Hochschule Wildau (Germany)

13527-60 • 17:30 - 19:00

Automatic detection and characterization of random telegraph noise in sCMOS sensors

Author(s): **Arda Ozdogru**, Czech Technical Univ. in Prague (Czech Republic); **Sergey Karpov**, **Asen Christov**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Stanislav Vitek**, Czech Technical Univ. in Prague (Czech Republic)

13527-61 • 17:30 - 19:00

Highly sensitive multiplexed on-chip sensor

Author(s): **Mukesh Yadav**, **Dag Roar Hjelm**, **Astrid Aksnes**, Norwegian Univ. of Science and Technology (Norway)

13527-62 • 17:30 - 19:00

Early lung cancer detection based on exosome SPR-Raman biosensors in cord blood samples

Author(s): **Jou-Chen Lin**, National Taiwan Normal Univ. (Taiwan); **Grace Shiahuy Chen**, Department of Applied Chemistry, Providence University (Taiwan); **Chang-Lun Huang**, Division of Thoracic Surgery, Department of Surgery, Changhua Christian Hospital (Taiwan); **Tien-Hsiung Ku**, Department of Applied Chemistry, Providence University (Taiwan), Department of Anesthesiology, Changhua Christian Hospital (Taiwan), Artificial Intelligence Development Center, Changhua Christian Hospital (Taiwan); **Nan-Fu Chiu**, National Taiwan Normal Univ. (Taiwan)

13527-63 • 17:30 - 19:00

Detection of salmonella bacterium using surface plasmon resonance-wavelength interrogation setup

Author(s): **Sara Elsayed**, **Ahmed Kreta**, **Karim El-Seherawy**, **Mostafa Hassan**, **Baraah Hasanin**, **Heba Refaat**, **Shimaa Ahmed**, **Ahmed Moustafa**, **Mohamed A. Swillam**, The American Univ. in Cairo (Egypt)

13527-64 • 17:30 - 19:00

Development of SPR biosensors for quantitative detection of SARS-CoV-2 via recombinase polymerase amplification

Author(s): **Nan-Fu Chiu**, **Ying-Hao Wang**, **Ming-Jung Tai**, National Taiwan Normal Univ. (Taiwan); **Tien-Hsiung Ku**, Department of Anesthesiology, Changhua Christian Hospital (Taiwan)

13527-65 • 17:30 - 19:00

Machine learning-based analysis of autofluorescence photobleaching kinetics for basal cell carcinoma classification and diagnostics

Author(s): **Alexey Lihachev**, Univ. of Latvia (Latvia); **Dmitrijs Bliznuks**, Riga Technical Univ. (Latvia); **Emilija Vija Plorina**, **Ilze Lihacova**, Univ. of Latvia (Latvia); **Norbert Kiss**, Semmelweis Univ. (Hungary); **Vilen Jumut**, Riga Technical Univ. (Latvia)

13527-66 • 17:30 - 19:00

Bulk and localized plasmonic sensing in UV spectral regime using arrays of aluminum nanostructures having narrow-gaps between the nanostructures

Author(s): **Vaibhav Chaturvedi**, **Mohd Asif**, **Umang Chaturvedi**, **Anuj Dhawan**, Indian Institute of Technology Delhi (India)

13527-67 • 17:30 - 19:00

Integrated polymer ring resonator sensor for environmental monitoring

Author(s): **Lase Milgrave**, **Janis Alnis**, Univ. of Latvia (Latvia); **Arturs Bundulis**, Institute of Solid State Physics (Latvia)

13527-68 • 17:30 - 19:00

Characterization of chrysotile, lizardite, and antigorite Raman spectra by multivariate analysis on serpentinite samples

Author(s): **Giuseppe Bonifazi**, **Giuseppe Capobianco**, **Alice Aurigemma**, **Silvia Serranti**, Sapienza Univ. di Roma (Italy); **Federica Paglietti**, **Sergio Bellagamba**, **Sergio Malinconico**, Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (Italy)

13527-69 • 17:30 - 19:00

Highly sensitive D-shaped SPR fiber-optic biosensor for glucose diagnosis in urine

Author(s): **Ananya Banerjee**, **Rahul Rahul**, **Jaisingh Thanagraj**, Indian Institute of Technology (Indian School of Mines), Dhanbad (India)

13527-70 • 17:30 - 19:00

Detection of hemoglobin concentration to determine anaemia using AI/ML-based SPR fiber-optic biosensor

Author(s): **Rahul Rahul, Ananya Banerjee, Jaisingh Thangaraj**, Indian Institute of Technology (Indian School of Mines), Dhanbad (India)

13527-71 • 17:30 - 19:00

Ultra-narrow linewidth laser stabilization for fiber sensor applications using a polarization-maintaining fiber ring cavity

Author(s): **Ivan Panyae, Pavel Itrin, Dmitry A. Korobko, Maxime Pribylov, Daniil Kachalkin, Aleksei Abanin**, Ulyanovsk State Univ. (Russian Federation); **Andrei A. Fotiadi**, Univ. de Mons (Belgium)

13527-72 • 17:30 - 19:00

Real-time dynamic phase measurement of living microorganisms using interferometric techniques

Author(s): **Meng-Chi Li**, Ming Chi Univ. of Technology (Taiwan); **Kai-Ren Chen**, National Central Univ. (Taiwan); **Li-Chen Su**, Ming Chi Univ. of Technology (Taiwan); **Yi-Chin Chen, Chien-Cheng Kuo**, National Central Univ. (Taiwan)

13527-73 • 17:30 - 19:00

Efficiency of special optical fibers in acoustic sensing

Author(s): **Artem T. Turov**, Ural Branch of the Russian Academy of Sciences (Russian Federation), Perm National Research Polytechnic Univ. (Russian Federation); **Yuri A. Konstantinov, D. Claude**, Ural Branch of the Russian Academy of Sciences (Russian Federation); **Dmitry A. Korobko**, Ulyanovsk State Univ. (Russian Federation); **Andrei A. Fotiadi**, Univ. de Mons (Belgium)

13527-74 • 17:30 - 19:00

Simulation of light modulation using choppers with shafts

Author(s): **Mihai-Stefan Duma**, Univ. Politehnica Timisoara (Romania); **Eduard-Sebastian Csukas**, Univ. Politehnica Timisoara (Romania), Continental Romania (Romania); **Virgil-Florin Duma**, Univ. "Aurel Vlaicu" din Arad (Romania), Univ. Politehnica Timisoara (Romania)

13527-75 • 17:30 - 19:00

On-chip polymer-based temperature sensor with Mach-Zehnder geometry

Author(s): **Lubos Suslik, Peter Gašo, Daniel Jandura, Dusan Kohut, Matej Goraus**, Univ. of Žilina (Slovakia)

13527-76 • 17:30 - 19:00

Model philosophy of Focal Plane Assembly for PLATO Mission

Author(s): **Miriam Pajas Sanz, Ana Belén Balado Margueli, J. Miguel Mas-Hesse, Andrés Manjón Galán, Alberto Rodríguez Amor, Álvaro De Pedraza Gómez, Irene Catalán Fernandez, Paloma I. Gallego Sempere, María Ángeles Alcacera Gil, Chiara Cerruti, Juan Francisco Cabrero Gómez, Ángel Luis Valverde Guijarro, María Teresa Rodrigo Rodríguez**, INTA Instituto Nacional de Técnica Aeroespacial (Spain)

13527-77 • 17:30 - 19:00

Serial flight models production for PLATO Focal Plane Assembly

Author(s): **Paloma I. Gallego Sempere, Ana Belén Balado Margueli, Alberto Rodríguez Amor, J. Miguel Mas-Hesse, María Ángeles Alcacera Gil, Andrés Manjón Galán, Irene Catalán Fernandez, Álvaro De Pedraza Gómez, Juan Francisco Cabrero Gómez, Ángel Luis Valverde Guijarro, María Teresa Rodrigo Rodríguez**, INTA Instituto Nacional de Técnica Aeroespacial (Spain)

13527-78 • 17:30 - 19:00

Biomolecular detection with gold-coated plasmonic nanostructures fabricated via UV-laser interference lithography

Author(s): **Begum Balkan**, Institute of Physics of the CAS, v.v.i. (Czech Republic), Charles Univ. (Czech Republic); **Prasanth Asokan**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Jakub Dostalek**, Institute of Physics of the CAS, v.v.i. (Czech Republic), Danube Private Univ. GmbH (Austria)

13527-79 • 17:30 - 19:00

Particulate and molecular cleanliness control of the FPA for PLATO 2.0 mission

Author(s): **Irene Catalán Fernandez, J. Miguel Mas-Hesse, Ana Belén Balado Margueli, Miriam Pajas, Andrés Manjón Galán, Alberto Rodríguez Amor, Paloma I. Gallego, Álvaro De Pedraza Gómez, Juan Francisco Cabrera Gómez, Luis Miguel González Fernández, María Ángeles Alcacera Gil, Víctor Manuel Fuentetaja**, INTA Instituto Nacional de Técnica Aeroespacial (Spain)

13527-80 • 17:30 - 19:00

Focal plane assemblies for PLATO mission cameras: vibration test approach from prototype to serial-produced flight models

Author(s): **Andrés Manjón Galán, Miriam Pajas, Paloma I. Gallego Sempere, Irene Catalán Fernandez, Alberto Rodríguez Amor, Álvaro De Pedraza Gómez, María Ángeles Alcacera Gil, Ana Belén Balado Margueli, J. Miguel Mas-Hesse**, INTA Instituto Nacional de Técnica Aeroespacial (Spain)

13527-81 • 17:30 - 19:00

Effectiveness evaluation method for the ground satellite station with laser communication capability

Author(s): **Chenyang Li**, China Star Network System Research Institute Co., Ltd. (China)

13527-82 • 17:30 - 19:00

Microwave photonics interrogation approach for extrinsic Fabry-Perot interferometer based on three-cavity optical feedback interferometer

Author(s): **Can Fang, Yuxi Ruan, Yanguang Yu, Qinghua Guo, Haiping Du**, Univ. of Wollongong (Australia)

13527-83 • 17:30 - 19:00

Compressive sensing-based distance and speed measurement with FMCW self-mixing interferometry

Author(s): **Jinyuan Yuan, Ting Zhou**, Xiangtan Univ. (China); **Bin Liu**, Univ. of Wollongong (Australia), Xiangtan Univ. (China); **Yuxi Ruan, Yanguang Yu, Haiping Du**, Univ. of Wollongong (Australia)

13527-84 • 17:30 - 19:00

Strategy toward a portable low-cost diffraction grating-based SPR imaging platform with large-surface-area sensing

Author(s): **Jan Bukáček**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic); **Raphael Gherman, Jean-François Bryche**, Lab. Nanotechnologies Nanosystemes (Canada), Univ. de Sherbrooke (Canada); **Jiří Homola**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic); **Michael Canva**, Lab. Nanotechnologies Nanosystemes (Canada), Univ. de Sherbrooke (Canada)

13527-85 • 17:30 - 19:00

Analysis and improvement of the accumulation algorithm for assessing microorganism activity using laser speckle imaging

Author(s): **Ilya Balmages, Dmitrijs Bliznuks, Mihails Kovalovs, Mihails Fraimans**, Riga Technical Univ. (Latvia); **Alexey Lihachev, Ilze Lihacova**, Univ. of Latvia (Latvia)

13527-86 • 17:30 - 19:00

Enabling flat and miniaturized surface plasmon biosensing with metagrating-integrated lasers

Author(s): **Erik Strandberg**, Chalmers Univ. of Technology (Sweden); **Mindaugas Juodenas**, Kaunas Univ. of Technology (Lithuania); **Hana Šípová-Jungová, Mikael Käll**, Chalmers Univ. of Technology (Sweden)

13527-87 • 17:30 - 19:00

Design of total internal reflection scattering device for visualizing nanoparticles and its interaction with living cell

Author(s): **Cheng-An J. Lin, Tzh-Yin Hou, You-Wei Li, Pin-Jun Liao**, Chung Yuan Christian Univ. (Taiwan)

13527-88 • 17:30 - 19:00

Investigation of water vapor evaporation-diffusion dynamics in mesoporous silica using GASMAS technique

Author(s): **Okky Maryana, Abdulaziz Aljalal, Sameer Qari, Watheq Al-Basheer, Khaled Gasmí**, King Fahd Univ. of Petroleum & Minerals (Saudi Arabia)

13527-89 • 17:30 - 19:00

Optics in tracking integrated micro-concentrator photovoltaics: enhancing design, performance, and scalability

Author(s): **Kareem F. Younes**, Khalifa Univ. (United Arab Emirates); **Matteo Chiesa**, UiT The Arctic Univ. of Norway (Norway)

13527-90 • 17:30 - 19:00

Analysis and description of the transport activities of focal plane assemblies for PLATO ESA mission

Author(s): **Álvaro de Pedraza Gómez, Paloma Inmaculada Gallego, Miriam Pajas Sanz, María de los Ángeles Alcacera Gil, Ana Belén Balado Margeli, Andrés Manjón Galán, Irene Catalán Fernández, Iris Martín Vodopivec**, Instituto Nacional de Técnica Aeroespacial (Spain); **José Miguel Mas-Hesse**, Centro de Astrobiología, INTA-CSIC (Spain)

13527-91 • 17:30 - 19:00

Handling, Cleanliness and Transport of Mechanical Ground Support Equipment integrated with Focal Plane Assemblies for PLATO ESA Mission

Author(s): **Alberto Rodríguez Amor, Paloma Inmaculada Gallego, Miriam Pajas, María de los Ángeles Alcacera, Ana Belén Balado Margueli, Andrés Manjón, Álvaro de Pedraza, Irene Catalán, Iris Martín**, INTA Instituto Nacional de Técnica Aeroespacial (Spain); **José Miguel Mas-Hesse**, Centro de Astrobiología, Instituto Nacional de Técnica Aeroespacial, Consejo Superior de Investigaciones Científicas (Spain); **Ignacio Muñoz Rebate**, INTA Instituto Nacional de Técnica Aeroespacial (Spain)

13527-94 • 17:30 - 19:00

COST Action 21159 PhoBioS: biomedical imaging using OCT vs a range of other techniques

Author(s): **Virgil-Florin Duma**, Univ Politehnica Timisoara (Romania)

13527-95 • 17:30 - 19:00

Optical up-conversion for millimeter-wave imaging using glow discharge detector and photoreceiver module integration

Author(s): **Arun Ramachandra Kurup, Daniel Rozban**, Ariel University (Israel); **Natan Kopeika**, Ben-Gurion University of the Negev (Israel); **Yitzhak Yitzhaky**, Ben-Gurion University of the Negev, Israel (Israel); **Amir Abramovich**, Ariel University (Israel)

13527-96 • 17:30 - 19:00

The development of a monitoring system for the geotechnical condition of mining workings in mines and quarries based on intelligent fiber-optic sensors

Author(s): **Raushan Aimagambetova, Mukasheva Dinara**, Institute of Standardization and Metrology (Kazakhstan)

Wednesday 9 April 2025

SESSION 8: CHEMICAL SENSING AND BIOSENSING I

9 April 2025 • 9:00 - 10:20 | Virgo

Session Chair(s): **Andrés de los Santos Pereira**, Institute of Macromolecular Chemistry of the CAS, v.v.i. (Czech Republic)

13527-31 • 9:00 - 9:20

3D Mueller Matrix imaging for early cancer detection: a novel optical sensing approach using blood film analysis

Author(s): **Igor V. Meglinski**, Aston Univ (United Kingdom); **Yuriy Ushenko**, Chernivtsi National University (Ukraine), Shaoxing University (China); **Alexander Ushenko**, Taizhou Institute of Zhejiang University (China), Chernivtsi National University (Ukraine); **Irina Soltys**, Chernivtsi National University (Ukraine); **Liliya Trifonyuk**, Rivne State Medical Center (Ukraine); **Alexander Olar**, **Valery Sklyarchuk**, **Alexander Dubolazov**, Chernivtsi National University (Ukraine); **Alexander Doronin**, Victoria University of Wellington (New Zealand); **Anton Sdobnov**, **Alexander Bykov**, University of Oulu (Finland)

13527-32 • 9:20 - 9:40

Multichannel real-time detection of biomarkers with highly miniaturized photonic microchips

Author(s): **Robert Tannenberg**, Bundesanstalt für Materialforschung und -prüfung (Germany); **Martin Paul**, HyPhoX GmbH (Germany), Technische Hochschule Wildau (Germany); **Tabea Fünning**, IHP GmbH (Germany); **Christoph Schumann**, Technische Hochschule Wildau (Germany); **Michael G. Weller**, Bundesanstalt für Materialforschung und -prüfung (Germany); **Patrick C. Steglich**, HyPhoX GmbH (Germany), Technische Hochschule Wildau (Germany), IHP GmbH (Germany)

13527-33 • 9:40 - 10:00

Absorption-based detection of urea concentration in hydroalcoholic solutions and white wine with a compact optical setup

Author(s): **Carlo Anelli**, **Vanessa Pellicorio**, **Sabina Merlo**, Univ. degli Studi di Pavia (Italy)

13527-93 • 10:00 - 10:20

Laser speckles to characterize the activity of microorganisms such as bacillus bacteria in cheese

Author(s): **Hirofumi Kadono**, Saitama university (Japan); **Rena Takasaki**, **Ayato Suzuki**, **Takeshi Baba**, **Uma Maheswari Rajagopalan**, Shibaura Institute of Technology (Japan)

Coffee Break 10:20 - 10:50

SESSION 9: CHEMICAL SENSING AND BIOSENSING II

9 April 2025 • 10:50 - 12:20 | Virgo

Session Chair(s): **Jirí Homola**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

13527-34 • 10:50 - 11:20

Antifouling polymer coatings at biosensor interfaces (*Invited Paper*)

Author(s): **Andrés de los Santos Pereira**, **Eduard Brynda**, **Cesar Rodriguez-Emmenegger**, **Ognen Pop-Georgievski**, Institute of Macromolecular Chemistry of the CAS, v.v.i. (Czech Republic)

13527-35 • 11:20 - 11:40

High throughput evanescent-wave biosensor for the early-stage detection of biomarkers in liquid biopsies

Author(s): **Caterina Dallari**, Istituto Nazionale di Ottica (Italy); **Laura Perego**, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); **Lucia Gardini**, **Caterina Credi**, Istituto Nazionale di Ottica (Italy); **Francesco S. Pavone**, Univ. degli Studi di Firenze (Italy)

13527-36 • 11:40 - 12:00

Recent progresses at IFAC-CNR on innovative platforms and intracellular nanosensing for biomedical applications within THE-Tuscany Health Ecosystem

Author(s): **Francesco Baldini**, **Mostafa H. Fytor Abdallah**, **Barbara Adinolfi**, **Gabriele Frigenti**, **Ambra Giannetti**, **Niccolò Marcucci**, **Cosimo Trono**, **Sara Tombelli**, **Paolo Matteini**, **Martina Banchelli**, **Sonia Centi**, **Cristiano D'Andrea**, **Marella De Angelis**, Istituto di Fisica Applicata "Nello Carrara" (Italy); **Cosimo Bartolini**, **Ahtsham Ishaq**, **Stefano Menichetti**, **Gabriella Caminati**, **Francesca Milano**, **Francesca Buo**, Univ. degli Studi di Firenze (Italy); **Ilaria Clemente**, **Luigi Talarico**, **Agnese Magnani**, Univ. degli Studi di Siena (Italy)

13527-37 • 12:00 - 12:20

Multispectral optical sensor for assessing skin's molecular response to induced psychological stress

Author(s): **Victoria Barygina**, **Enrico Baria**, Univ. degli Studi di Firenze (Italy); **Francesco Goretti**, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); **Elena Cravero**, Univ. Campus Bio-Medico di Roma (Italy), Istituto Nazionale di Ottica (Italy); **Francesco S. Pavone**, Univ. degli Studi di Firenze (Italy), LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy), Istituto Nazionale di Ottica (Italy)

Lunch/Exhibition Break 12:20 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 10: GAS SENSING

9 April 2025 • 15:40 - 17:20 | Virgo

Session Chair(s): **Andrés de los Santos Pereira**, Institute of Macromolecular Chemistry of the CAS, v.v.i. (Czech Republic)

13527-39 • 15:40 - 16:00

Ultrathin silicon nanowires: synthesis and applications for optical devices

Author(s): **Dario Morganti**, Consiglio Nazionale delle Ricerche (Italy); **Antonio Alessio Leonardi**, Univ. degli Studi di Messina (Italy); **Maria Josè Lo Faro**, Univ. degli Studi di Catania (Italy); **Francesco Nastasi**, **Fausto Puntoriero**, **Sabrina Conoci**, Univ. degli Studi di Messina (Italy); **Barbara Fazio**, **Alessia Irrera**, Consiglio Nazionale delle Ricerche (Italy)

13527-40 • 16:00 - 16:20

Natural gas and hydrogen-enriched natural gas thermodynamics characterisation via industrial-grade Raman spectroscopy

Author(s): **Fabio Melison**, **Lorenzo Cocola**, CNR-Istituto di Fotonica e Nanotecnologie (Italy); **Elena Meneghin**, **Daniele Rossi**, Pietro Fiorentini SpA (Italy); **Luca Poletto**, CNR-Istituto di Fotonica e Nanotecnologie (Italy)

13527-41 • 16:20 - 16:40

Nanopatterned diffraction gratings for selective detection of toxic volatiles

Author(s): **Aleksandra Hernik**, Technological Univ. Dublin (Ireland), KU Leuven (Belgium); **Masaya Sugihara**, KU Leuven (Belgium), Technological Univ. Dublin (Ireland); **Ajay Padunnappattu**, **Norbert Stock**, Christian-Albrechts-Univ. zu Kiel (Germany); **Rob Ameloot**, KU Leuven (Belgium); **Izabela Naydenova**, Technological Univ. Dublin (Ireland)

13527-42 • 16:40 - 17:00

Enhancement of gas detection performance using UV-activated n-ZnO/AlN SAW sensors for real-time monitoring

Author(s): **Na-Hyun Bak**, **Kedhareswara Sairam Pasupuleti**, **Yun-Hae Shim**, **Moon-Deock Kim**, Chungnam National Univ. (Korea, Republic of)

13527-43 • 17:00 - 17:20

Photoluminescence of cesium lead bromide hybrids for sensing applications

Author(s): **Argyro Klini**, Foundation for Research and Technology-Hellas (Greece); **Ilias Zervakis**, Univ. of Patras (Greece); **Evangelia Vasilaki**, Foundation for Research and Technology-Hellas (Greece), Univ. of Crete (Greece); **Stefania Milanese**, Univ. del Salento (Italy), Istituto per la Microelettronica e Microsistemi (Italy); **Giovanni Morello**, Istituto per la Microelettronica e Microsistemi (Italy), Istituto Italiano di Tecnologia (Italy); **Marco Anni**, Univ. del Salento (Italy); **Maria Vamvakaki**, Foundation for Research and Technology-Hellas (Greece), Univ. of Crete (Greece); **Maria Luisa De Giorgi**, Univ. del Salento (Italy)

CONFERENCE 13528

Smart Materials for Opto-Electronic Applications 2025

7 - 9 April 2025 | Aquarius

Conference Chair(s): Ivo Rendina, Lucia Petti, Domenico Sagnelli, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy); Giuseppe Nenna, ENEA (Italy)

Program Committee: Gaetano Assanto, Univ. degli Studi di Roma Tre (Italy); Maria Alessandra Cutolo, Univ. degli Studi di Napoli Federico II (Italy); Malgosia Kaczmarek, Univ. of Southampton (United Kingdom); Katarzyna Matczyszyn, Wroclaw Univ. of Science and Technology (Poland); Joseph Zyss, École normale supérieure Paris-Saclay (France)

Monday 7 April 2025

SESSION 1: LIGHT-SENSITIVE MATERIALS AND ACTUATORS

7 April 2025 • 8:25 - 10:15 | Aquarius

Session Chair(s): Ivo Rendina, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13528-1 • 8:25 - 8:45

Stimuli-responsive metal-organic frameworks for optoelectronic data processing and in-memory computing

Author(s): Valentin A. Milichko, Univ. de Lorraine (France); Semyon V. Bachinin, ITMO University (Russian Federation)

13528-2 • 8:45 - 9:10

Illuminating microfluidics: control through smart materials (*Invited Paper*)

Author(s): Domenico Sagnelli, Bryan Guilcapì, Amalia D'Avino, Alessia Milano, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy); Alessia Piccolo, Anna De Girolamo Del Mauro, Fausta Loffredo, Fulvia Villani, Giuliano Sico, Maria Montanino, Tommaso Fasolino, Giuseppe Nenna, ENEA (Italy); Lucia Petti, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13528-3 • 9:10 - 9:35

Photomobile polymers in sunlight energy harvesting applications (*Invited Paper*)

Author(s): Fulvia Villani, Anna De Girolamo Del Mauro, Fausta Loffredo, Tommaso Fasolino, Maria Montanino, Giuliano Sico, ENEA (Italy); Domenico Sagnelli, Bryan Guilcapì, Amalia D'Avino, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy); Alessia Piccolo, ENEA (Italy); Gustavo Ardila Rodriguez, Université Grenoble Alpes, Université Savoie Mont Blanc, CNRS, Grenoble INP, IMEP-LAHC (France); Lucia Petti, Istituto di Scienze Applicate e Sistemi Intelligenti (Italy); Giuseppe Nenna, ENEA (Italy)

13528-4 • 9:35 - 10:15

Liquid crystal elastomer actuator: functions enabled by polymer structure and processing (Keynote Presentation)

Author(s): Yue Zhao, Univ. de Sherbrooke (Canada)

Coffee Break 10:15 - 10:35

SESSION 2: MATERIALS, SYSTEMS AND DEVICES FOR ENERGY HARVESTING

7 April 2025 • 10:35 - 13:00 | Aquarius

Session Chair(s): Lucia Petti, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13528-5 • 10:35 - 11:15

SFINKS: self-powering electronics: the key to sustainable future (Keynote Presentation)

Author(s): Thomas Skotnicki, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland); Naveed Ahmed, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland), Institute of High Pressure Physics, Polish Academy of Sciences (Poland); Lidia Lukasiak, Institute of Microelectronics and Optoelectronics, Warsaw Univ. of Technology (Poland); Bartłomiej Stonio, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland), Instytut Mikroelektroniki i Optoelektroniki, Warsaw Univ. of Technology (Poland); Maciej Filipiak, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland); Maciej Haras, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland), Gdansk Univ. of Technology (Poland)

13528-6 • 11:15 - 11:40

Developments of optoelectronic materials and devices on flexible substrates *(Invited Paper)*

Author(s): **Weijie Song**, Ningbo Institute of Materials Technology and Engineering (China)

13528-7 • 11:40 - 12:00

Quasi-2D Ruddlesden-Popper perovskite flexible photodetector arrays for optical imaging

Author(s): **Thierry Pauporté**, **Daming Zheng**, Chimie ParisTech - PSL, CNRS (France); **Tao Wang**, **Feng Fu**, Institute of Microscale Optoelectronics, Shenzhen Univ. (China)

13528-8 • 12:00 - 12:20

Bistable normally bright smart window with planarly aligned cholesteric liquid crystal

Author(s): **Niveen Huseen**, Ben-Gurion Univ. of the Negev (Israel)

13528-9 • 12:20 - 12:40

Dimethylammonium-incorporated mixed halide perovskite nanocrystals for stabilized red emission

Author(s): **Shaoni Kar**, Univ. of Oxford (United Kingdom); **Benjamin M. Gallant**, Univ. of Birmingham (United Kingdom); **Krishanu Dey**, **Zhongcheng Yuan**, Univ. of Oxford (United Kingdom); **Ashley Marshall**, Helio Display Materials Ltd. (United Kingdom); **Dominik J. Kubicki**, Univ. of Birmingham (United Kingdom); **Bernard Wenger**, Helio Display Materials Ltd. (United Kingdom); **Henry J. Snaith**, Univ. of Oxford (United Kingdom)

13528-10 • 12:40 - 13:00

Enhancing the sensitivity and spatial imaging resolution of a hybrid X-ray imaging screen via energy transfer at the ZnS (Ag)-TADF interface

Author(s): **Shorooq A. Alomar**, King Abdullah Univ. of Science and Technology (Saudi Arabia)

Lunch Break 13:00 - 14:00

SESSION 3: CHARACTERIZATION TECHNIQUES AND THEIR IMPLEMENTATION IN SMART MATERIALS AND DEVICES

7 April 2025 • 14:00 - 15:30 | Aquarius

Session Chair(s): **Giuseppe Nenna**, ENEA (Italy)

13528-11 • 14:00 - 14:25

Near field measurements under controlled ambient conditions of ZnO nanowires for piezoelectric applications *(Invited Paper)*

Author(s): **Andrés Jenaro Lopez Garcia**, **Nicolas Guillaume**, **Tanisha Bhadauria**, CROMA (France); **Celine Ternon**, LMGP (France); **Maria Montanino**, **Giuliano Sico**, **Giuseppe Nenna**, ENEA (Italy); **Gustavo A. Ardila Rodriguez**, CROMA (France)

13528-12 • 14:25 - 14:50

Nanoscale characterization of polymer-functionalized multiwalled carbon nanotubes by tip-enhanced Raman spectroscopy *(Invited Paper)*

Author(s): **Antonino Foti**, Istituto per i Processi Chimico Fisici, Consiglio Nazionale delle Ricerche (Italy)

13528-13 • 14:50 - 15:10

Single polyoxometalate-based nanoclusters characterized by infrared absorption nanospectroscopy

Author(s): **David Kreher**, The Lavoisier Institute of Versailles, Univ. Paris-Saclay (France); **Juba Salhi**, Sorbonne Univ. (France); **Imad Arfaoui**, MONARIS, Sorbonne Univ., CNRS (France); **Florence Volatron**, Sorbonne Univ. (France); **Alexandre Dazzi**, L'Institut de Chimie Physique, Univ. Paris-Saclay (France)

13528-14 • 15:10 - 15:30

High-accuracy measurement of equifrequency surfaces in photonic crystals: applications to bound-states in the continuum and self-collimation

Author(s): **Karen Gabriela Caicedo Santamaria**, **Fabrizio Sgrignuoli**, **Bryan Guilcapi**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy); **Adam Schwartzberg**, Lawrence Berkeley National Lab. (United States); **Silvia Romano**, **Gianluigi Zito**, **Ivo Rendina**, **Vito Mocella**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

SESSION 4: SIMULATION OF NEW MATERIALS AND DEVICES

7 April 2025 • 15:30 - 16:10 | Aquarius

Session Chair(s): **Giuseppe Nenna**, ENEA (Italy)

13528-15 • 15:30 - 15:50

Numerical modelling of CuBi₂O₄ thin film solar cells using SCAPS-1D: towards practical efficiency

Author(s): **Pandiyarajan Thangaraj**, **Muhammad Panachikkool**, Indian Institute of Information Technology, Design and Manufacturing, Kurnool (India)

13528-16 • 15:50 - 16:10

Comprehensive simulation of binary and ternary bulk-heterojunction solar cells: a kinetic Monte Carlo and multimethod approach

Author(s): **Techas Weangweera**, **Phatthranit Kaewmee**, **Adis Khetubol**, Kamnoetvidya Science Academy (Thailand)

Coffee Break 16:10 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): **Philip Walther**, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): **Sylvain Gigan**, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 5: INNOVATIVE PHOTONIC/PLASMONIC MATERIALS AND STRUCTURES I

8 April 2025 • 11:00 - 12:55 | Aquarius

Session Chair(s): **Lucia Petti**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13528-17 • 11:00 - 11:40

Harnessing chirality and hyperbolicity of optical metasurfaces (Keynote Presentation)

Author(s): **Giuseppe Strangi**, Case Western Reserve Univ. (United States)

13528-18 • 11:40 - 12:05

Single molecule studies of multivalent molecular interactions enabled by plasmon enhanced fluorescence (Invited Paper)

Author(s): **Duncan S. Sutherland**, **Kasper R. Okholm**, Aarhus Univ. (Denmark); **Sjoerd W. Nooteboom**, **Peter Zijlstra**, Technische Univ. Eindhoven (Netherlands)

13528-19 • 12:05 - 12:30

Intrinsic superchirality in planar plasmonic metasurfaces (Invited Paper)

Author(s): **Giovanna Palermo**, Univ. della Calabria (Italy)

13528-20 • 12:30 - 12:55

Nanostructured SERS biosensors for rapid detection and discrimination of Shiga toxins using principal component analysis (Invited Paper)

Author(s): **Massimo Rippa**, **Alessia Milano**, **Valentina Marchesano**, **Bryan Guilcapì**, **Domenico Sagnelli**, **Amalia D'Avino**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy); **Giovanna Palermo**, Univ. della Calabria (Italy), Istituto di Nanotecnologia, Consiglio Nazionale delle Ricerche (Italy); **Giuseppe Strangi**, Univ. della Calabria (Italy), Istituto di Nanotecnologia, Consiglio Nazionale delle Ricerche (Italy), Case Western Reserve Univ. (United States); **Joseph Zyss**, D'Alembert Institute, École normale supérieure Paris-Saclay, CNRS (France); **Luciano Consagra**, Univ. degli Studi di Bologna (Italy); **Maurizio Brigotti**, Univ. degli Studi di Bologna (Italy), Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy); **Stefano Morabito**, Istituto Superiore di Sanità (Italy), Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy); **Lucia Petti**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy)

Lunch/Exhibition Break 12:55 - 13:55

SESSION 6: INNOVATIVE PHOTONIC/PLASMONIC MATERIALS AND STRUCTURES II

8 April 2025 • 13:55 - 15:20 | Aquarius

Session Chair(s): **Domenico Sagnelli**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13528-21 • 13:55 - 14:35

Steering chiral luminescence with silicon metasurfaces (Keynote Presentation)

Author(s): **Yu-Chen Wei**, **Minpeng Liang**, **Xiaoke Zhu**, Technische Univ. Eindhoven (Netherlands); **Jose Luis Pura**, Universidad de Valladolid (Spain); **Beatriz Castillo Lopez de Larrinzar**, Instituto de Micro y Nanotecnologia (Spain); **Antonio Garcia-Martin**, Instituto de Micro y Nanotecnologia (Spain); **Shunsuke Murai**, Kyoto University (Japan); **Lucio Claudio Andreani**, Università di Pavia (Italy); **Jose A. Sanchez-Gil**, Instituto de Estructura de la Materia (Spain); **Jaime Gómez Rivas**, Technische Univ. Eindhoven (Netherlands)

13528-22 • 14:35 - 15:00

Structured bio-polymers for optical and photonic applications (Invited Paper)

Author(s): **Olga Favale**, **Francesca Leone**, Univ. della Calabria (Italy); **Ferdinanda Annesi**, CNR - Nanotec (Italy); **Gaia Cimieri**, **Vincenzo Caligiuri**, **Maria Penelope De Santo**, **Iolinda Aiello**, **Nicolas Godbert**, **Amerigo Beneduci**, Univ. della Calabria (Italy); **Lucia Petti**, Institute of Applied Sciences and Intelligent Systems-ISASI-CNR, (Italy); **Antonio De Luca**, Univ. della Calabria (Italy)

13528-52 • 15:00 - 15:20

Ultrasmall gold nanoparticle-coated tapered optical fibers for advanced biochemical sensing

Author(s): **Linda Piscopo**, **Maria Samuela Andriani**, Istituto Italiano di Tecnologia (Italy), Università del Salento (Italy); **Cinzia Montinaro**, Istituto Italiano di Tecnologia (Italy); **Massimo De Vittorio**, Istituto Italiano di Tecnologia (Italy), Università del Salento (Italy), Technical University of Denmark (Denmark); **Ferruccio Pisanello**, Istituto Italiano di Tecnologia (Italy)

Coffee Break 15:20 - 15:45

SESSION 7: NOVEL STRUCTURES AND THEIR APPLICATIONS

8 April 2025 • 15:45 - 17:45 | Aquarius

Session Chair(s): **Domenico Sagnelli**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13528-24 • 15:45 - 16:10

Whispering-gallery mode Raman spectroscopy in liquids with metal nanostructure-enhanced microresonators (Invited Paper)

Author(s): **Davide D'Ambrosio**, **Naveed A. Chishti**, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); **Benedetta Catalano**, **Giulia Rusciano**, **Antonio Sasso**, Univ. degli Studi di Napoli Federico II (Italy); **Gianluca Gagliardi**, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy)

13528-25 • 16:10 - 16:35

Bimetallic porous nanopatterns for SERS-based sensing platforms *(Invited Paper)*

Author(s): **Giulia Rusciano**, Univ. degli Studi di Napoli Federico II (Italy); **Angela Capaccio**, Institute of Biosciences and Bioresources - IBBR - CNR (Italy); **Benedetta Francine Catalano**, **Antonio Sasso**, Univ. degli Studi di Napoli Federico II (Italy)

13528-26 • 16:35 - 17:00

Self-assembled hierarchical nanostructures as advanced SERS platforms *(Invited Paper)*

Author(s): **Maria Alessandra Cutolo**, Univ. degli Studi del Sannio (Italy); **Francesco Galeotti**, Consiglio Nazionale delle Ricerche (Italy); **Sara Spaziani**, CeRICT scrl (Italy); **Giuseppe Quero**, Univ. degli Studi del Molise (Italy); **Vincenzo Calcagno**, **Alberto Micco**, Univ. degli Studi del Sannio (Italy); **Andrea Irace**, **Giovanni Breglio**, Univ. degli Studi di Napoli Federico II (Italy); **Marco Pisco**, **Andrea Cusano**, Univ. degli Studi del Sannio (Italy)

13528-27 • 17:00 - 17:25

Innovative flexible gold nanoparticle SERS platform fabricated by a self assembly and rapid approach *(Invited Paper)*

Author(s): **Amalia D'Avino**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy), Univ. degli Studi di Napoli Parthenope (Italy); **Alessia Milano**, **Bryan Guilcapi**, **Valentina Marchesano**, **Domenico Sagnelli**, **Massimo Rippa**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy); **Lu Zhou**, Institute of Photonics, Ningbo Univ. (China); **Elisa Varrone**, **Maurizio Brigotti**, Univ. degli Studi di Bologna (Italy); **Stefano Morabito**, Istituto Superiore di Sanità (Italy); **Lucia Petti**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", Consiglio Nazionale delle Ricerche (Italy)

POSTERS-TUESDAY

8 April 2025 • 17:30 - 19:00 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Tuesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13528-28 • 17:30 - 19:00

Rigid and soft block-copolymerized conjugated polymers enable high-performance intrinsically-stretchable organic photovoltaics

Author(s): **Jin-Woo Lee**, **Heung-Goo Lee**, **Bumjoon Kim**, KAIST (Korea, Republic of)

13528-29 • 17:30 - 19:00

Study on the composition of inks for UV-curable printing

Author(s): **Marcel Zambrzycki**, 3D-nano (Poland); **Kamila Leśniewska-Matys**, Lukaszewicz Research Network - Institute of Microelectronics and Photonics (Poland); **Monika Binkowska**, Jagiellonian University (Poland); **Krzysztof Skupień**, **Klaudia Twardosz**, 3D-nano (Poland); **Michał Kukielski**, **Aleksandra Pantoł-Boczoń**, **Anna Kozłowska**, **Magdalena Romaniec**, Lukaszewicz Research Network - Institute of Microelectronics and Photonics (Poland); **Anna Stępień**, 3D-nano (Poland)

13528-38 • 17:30 - 19:00

Quasi-2D Ruddlesden-Popper phase induced preferentially oriented FA1-xMAxPbI3 for high-performance sequential perovskite solar cells

Author(s): **Thierry Pauporté**, **Zihao Li**, Chimie ParisTech - PSL, CNRS (France)

13528-39 • 17:30 - 19:00

Nanostructure-coupled PPFC thin films: enhancing optoelectronic device performance by irregular nanostructure

Author(s): **Sang-Jin Lee**, Chungbuk National Univ. (Korea, Republic of)

13528-40 • 17:30 - 19:00

Full Stokes vector analysis of excitonic luminescence of chiral 2D hybrid organic-inorganic perovskites

Author(s): **Milon Miah**, **Jonathan Zerhoch**, **Caroline Aschendorf**, **Nasrin Solhtalab**, **Lukas Becker**, **Franz Bodenmüller**, **Felix Deschler**, Ruprecht-Karls-Univ. Heidelberg (Germany)

13528-41 • 17:30 - 19:00

Investigating and comparing (dithia)para- and (meta)para- cyclophanes platforms for tuning (through-space) TADF emission

Author(s): **David Kreher**, The Lavoisier Institute of Versailles, Univ. Paris-Saclay (France); **Fabrice Mathevet**, **Lydia Sosa-Vargas**, Institut Parisien de Chimie Moléculaire, Sorbonne Univ. (France); **Haixia Li**, **Weiwei Du**, Consultant (China); **Chihaya Adachi**, Kyushu Univ. (Japan)

13528-42 • 17:30 - 19:00

Degradation kinetics of multilayer organic compounds in OLED devices

Author(s): **Ilze Aulika**, **Patricija Paulsone**, Institute of Solid State Physics, Univ. of Latvia (Latvia); **Sven Oras**, Institute of Physics, University of Tartu (Estonia); **Jelena Butikova**, Institute of Solid State Physics, Univ. of Latvia (Latvia); **Margarita Anna Zommere**, **Elina Laizane**, Institute of Solid State Physics (Latvia); **Aivars Vembris**, Institute of Solid State Physics, Univ. of Latvia (Latvia)

13528-43 • 17:30 - 19:00

Solar water desalination enhancement by photothermal conversion with broadband surface electromagnetic waves

Author(s): **Aideen Shlebe**, Ben-Gurion Univ. of the Negev (Israel)

13528-44 • 17:30 - 19:00

Characterization of CYA:RE3+ powder and security ink for luminescent tagging of documents

Author(s): **Kamila Leśniewska-Matys**, **Michał Kukielski**, **Aleksandra Pantoł-Boczoń**, **Anna Kozłowska**, **Agnieszka Malinowska**, Lukaszewicz Research Network - Institute of Microelectronics and Photonics (Poland); **Meldra Kemere**, **Anatolijs Sarakovskis**, Institute of Solid State Physics, Univ. of Latvia (Latvia); **Jolanta Zawistowska**, **Oskar Bogucki**, **Magdalena Romaniec**, Lukaszewicz Research Network - Institute of Microelectronics and Photonics (Poland); **Anna Stępień**, **Monika Binkowska**, **Krzysztof Skupień**, 3D-nano (Poland)

13528-45 • 17:30 - 19:00

Amplified spontaneous emission and Förster resonance energy transfer between Alq3 and DCM original derivatives

Author(s): **Patricija Paulsone**, Institute of Solid State Physics, Univ. of Latvia (Latvia); **Marta Liedskalnina**, Institute of Solid State Physics (Latvia); **Elmars Zarins**, Institute of Applied Chemistry, Riga Technical Univ. (Latvia); **Aivars Vembris**, Institute of Solid State Physics, Univ. of Latvia (Latvia)

13528-46 • 17:30 - 19:00

Down- and upconversion luminescence in Er3+ doped CaYAl₃O₇

Author(s): **Meldra Kemere**, **Anatolijs Sarakovskis**, Institute of Solid State Physics, Univ. of Latvia (Latvia); **Kamila Leśniewska-Matys**, **Anna Kozłowska**, Lukaszewicz Research Network - Institute of Microelectronics and Photonics (Poland); **Michał Kukielski**, Lukaszewicz Research Network - Institute of Microelectronics and Photonics (Poland); **Aleksandra Pantoł-Boczoń**, **Agnieszka Malinowska**, Lukaszewicz Research Network - Institute of Microelectronics and Photonics (Poland)

13528-47 • 17:30 - 19:00

Optical waveguides and gratings in gallium oxide

Author(s): **Marek Zduričák**, **Dušan Pudiš**, **Daniel Benedikovič**, Univ. of Žilina (Slovakia); **Filip Gučmann**, Slovak Academy of Sciences (Slovakia)

13528-48 • 17:30 - 19:00

Copper bismuth oxide-based solar cells with graphene oxide as hole transport layer: a realistic simulation approach

Author(s): **Muhammad Panachikkool**, **Pandiyarajan Thangaraj**, Indian Institute of Information Technology, Design and Manufacturing, Kurnool (India)

13528-49 • 17:30 - 19:00

Morphological controlled growth of a newly discovered linker-based luminescent metal-organic-frameworks amine-functionalised zinc-based metal-organic framework *(Invited Paper)*

Author(s): **Siew Suan Ng**, **Ian Sandall**, Univ. of Liverpool (United Kingdom); **Hsin-cheng Chiu**, **Ruey-an Doong**, National Tsing Hua University (Taiwan)

13528-51 • 17:30 - 19:00

CMOS-compatible fabrication of bi-stable thin-film silicon membranes for quasi-perpetual piezoelectric energy harvester *(Invited Paper)*

Author(s): **Maciej Filipiak**, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland); **Maciej Haras**, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland), Gdansk Univ. of Technology (Poland); **Bartłomiej Stonio**, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland), Warsaw Univ. of Technology (Poland); **Naveed Ahmed**, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland), Institute of High Pressure Physics, Polish Academy of Sciences (Poland); **Krystian Pavlov**, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland); **Lidia Lukasiak**, Warsaw Univ. of Technology (Poland); **Thomas Skotnicki**, Ctr. for Advanced Materials and Technologies, Warsaw Univ. of Technology (Poland)

13528-53 • 17:30 - 19:00

SERS-based sensor for high sensitivity melamine detection

Author(s): **Benedetta Francine Catalano**, University of Naples Federico II (Italy); **Angela Capaccio**, Institute of Biosciences and Bioresources (IBBR), CNR (Italy); **Antonio Sasso**, **Giulia Rusciano**, University of Naples Federico II (Italy)

13528-54 • 17:30 - 19:00

Pulsed laser deposited Ti-doped ZnO nanowires for photodetector application

Author(s): **Amitabha Nath**, **Madhuri Mishra**, Indian Institute of Technology Bombay (India); **Avijit Dalal**, **Anirudhha Mondal**, National Institute of Technology Durgapur (India); **Payel Deb**, Parul Institute of Engineering and Technology, Parul University (India); **Subhananda Chakrabarti**, Indian Institute of Technology Bombay (India)

13528-55 • 17:30 - 19:00

Sputter-coated In₂O₃:TiO₂ hybrid films for next-generation solar cell application

Author(s): **Payel Deb**, Parul Institute of Engineering and Technology, Parul University (India); **Amitabha Nath**, Indian Institute of Technology Bombay (India)

Wednesday 9 April 2025

SESSION 8: NOVEL STRUCTURES, ADVANCED PRINTING TECHNOLOGIES AND ADDITIVE MANUFACTURING

9 April 2025 • 8:30 - 10:05 | Aquarius

Session Chair(s): **Domenico Sagnelli**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13528-30 • 8:30 - 8:55

Multiparameter two photon polymerization platform for fabrication of tailored microstructures *(Invited Paper)*

Author(s): **Leonardo Rossi**, Consiglio Nazionale delle Ricerche (Italy); **Frank Marco den Hoed**, Istituto Italiano di Tecnologia (Italy); **Diego Marini**, Consiglio Nazionale delle Ricerche (Italy); **Virgilio Mattoli**, Istituto Italiano di Tecnologia (Italy); **Gabriele Bolognini**, Consiglio Nazionale delle Ricerche (Italy)

13528-31 • 8:55 - 9:20

4D printing of active mechanical and microwave photonic structures *(Invited Paper)*

Author(s): **Young Chul Jun**, Ulsan National Institute of Science and Technology (Korea, Republic of)

13528-32 • 9:20 - 9:45

Sustainable and electrically conductive poly(glycerol) (meth)acrylate resins for stereolithography and volumetric additive manufacturing *(Invited Paper)*

Author(s): **Eduards Krumins**, **Katherine George**, **Vincenzo Taresco**, The Univ. of Nottingham (United Kingdom); **X. Sun**, Univ. of California, Berkeley (United States); **Sean Hoggett**, **John Duncan**, **Valentina Cuzzucoli Crucitti**, **Joel Segal**, **Derek J Irvine**, **Andrei Khlobystov**, **Ricky Wildman**, The Univ. of Nottingham (United Kingdom)

13528-57 • 9:45 - 10:05

Chiral states without planar symmetry breaking in correspondence of Bound States in the Continuum

Author(s): **Vito Mocella**, **Karen Caicedo**, **Fabrizio Sgrignuoli**, **Bryan Guilcapi**, **Silvia Romano**, **Gianluigi Zito**, CNR-ISASI Istituto per le Scienze Applicate e Sistemi Intelligenti (Italy); **Adam Schwartzberg**, Molecular Foundry, Lawrence Berkeley National Laboratory (United States)

Coffee Break 10:05 - 10:35

SESSION 9: SYNTHESIS/FABRICATION OF NEW MATERIALS

9 April 2025 • 10:35 - 10:55 | Aquarius

Session Chair(s): **Giuseppe Nenna**, ENEA (Italy)

13528-33 • 10:35 - 10:55

True zero-order waveplates enabled by low-dimensional ferrocene crystals

Author(s): **Qian Wang**, **Zhipeng Li**, A*STAR Institute of Materials Research and Engineering (Singapore)

SESSION 10: SMART MATERIALS AND DEVICES

9 April 2025 • 10:55 - 12:30 | Aquarius

Session Chair(s): **Giuseppe Nenna**, ENEA (Italy)

13528-34 • 10:55 - 11:20

Charge storage in ionic capacitors with graphene-based electrodes *(Invited Paper)*

Author(s): **Lucia Sansone**, Institute of Polymers, Composites and Biomaterials, Consiglio Nazionale delle Ricerche (Italy); **Fausta Loffredo**, ENEA (Italy); **Fabrizia Cilento**, Institute of Polymers, Composites and Biomaterials, Consiglio Nazionale delle Ricerche (Italy); **Riccardo Miscioscia**, **Nicola Barrella**, **Fulvia Villani**, ENEA (Italy); **Michele Giordano**, Institute of Polymers, Composites and Biomaterials, Consiglio Nazionale delle Ricerche (Italy)

13528-35 • 11:20 - 11:40

Surface modification of few-layer graphene on metal and semiconductor substrates by Cs/O activation

Author(s): **Yijun Zhang**, **Song Tang**, **Yu Jiang**, **Runzhe Zhao**, **Hongyu Li**, **Rongguo Fu**, **Yunsheng Qian**, Nanjing Univ. of Science and Technology (China); **Feng Shi**, **Gangcheng Jiao**, Science and Technology on Low-Light-Level Night Vision Lab., Xi'an Institute of Applied Optics (China)

13528-36 • 11:40 - 12:05

Smart materials for opto-thermal gating of nanopore *(Invited Paper)*

Author(s): **Ali Douaki**, **Shukun Weng**, **German Lanzavecchia**, **Anastasiia Sapunova**, **Roman Krahne**, **Denis Garoli**, Istituto Italiano di Tecnologia (Italy)

13528-37 • 12:05 - 12:30

Room temperature sputtered silicon nitride microcombs and real-time Hz-level tunable laser spectroscopy (*Invited Paper*)

Author(s): **Toby Bi**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany), Max-Planck-Institut für die Physik des Lichts (Germany)

Lunch/Exhibition Break 12:30 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

CONFERENCE 13529

Holography: Advances and Modern Trends IX

8 - 10 April 2025 | Stella

Conference Chair(s): **Antonio Fimia**, Univ. Miguel Hernández de Elche (Spain); **Miroslav Hrabovský**, Palacký Univ. Olomouc (Czech Republic); **Izabela Naydenova**, Technological Univ. Dublin (Ireland)

Program Committee: **Augusto Beléndez Vázquez**, Univ. de Alicante (Spain); **Andrea Bianco**, INAF - Osservatorio Astronomico di Brera (Italy); **Hans I. Bjelkhagen**, HANSHOLO (United Kingdom); **Friedrich-Karl Bruder**, Covestro AG (Germany); **Sergio Calixto-Carrera**, Centro de Investigaciones en Óptica, A.C. (Mexico); **Christiane Carre**, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France), CNRS FOTON (France), Univ. de Rennes 1 (France); **Radim Chmelík**, Brno Univ. of Technology (Czech Republic); **Giuseppe Coppola**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy); **Ivan B. Divliansky**, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States); **Claas Falldorf**, Bremer Institut für angewandte Strahltechnik GmbH (Germany); **Martin Fally**, Univ. Wien (Austria); **Tigran Galstian**, Ctr. d'Optique, Photonique et Laser, Univ. Laval (Canada); **Unnikrishnan Gopinathan**, Instruments Research & Development Establishment (India); **Yoshio Hayasaki**, Utsunomiya Univ. Ctr. for Optical Research & Education (Japan); **John J. Healy**, Univ. College Dublin (Ireland); **Bryan M. Hennelly**, National Univ. of Ireland, Maynooth (Ireland); **Ken Yuh Hsu**, National Chiao Tung Univ. (Taiwan); **Damien P. Kelly**, Oryx Consulting (Germany); **Milos Kopecky**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Raymond K. Kostuk**, The Univ. of Arizona (United States); **Libor Kotacka**, Optaglio s.r.o. (Czech Republic); **Malgorzata Kujawińska**, Warsaw Univ. of Technology (Poland); **Jacques Lalevée**, Univ. de Haute Alsace (France); **Suzanne Martin**, Technological Univ. Dublin (Ireland); **Osamu Matoba**, Kobe Univ. (Japan); **Robert R. McLeod**, Univ. of Colorado Boulder (United States); **Miroslav Miler**, Academy of Sciences of the Czech Republic (Czech Republic); **Lian Nedelchev**, Institute of Optical Materials and Technologies (Bulgaria); **Christoph Neipp**, Univ. de Alicante (Spain); **Takanori Nomura**, Wakayama Univ. (Japan); **Sergey B. Odinokov**, Bauman Moscow State Technical Univ. (Russian Federation); **Inmaculada Pascual**, Univ. de Alicante (Spain); **Giancarlo Pedrini**, Institut für Technische Optik (Germany); **Kalaichelvi Saravanamuttu**, McMaster Univ. (Canada); **Guohai Situ**, Shanghai Institute of Optics and Fine Mechanics (China); **Yasuhiro Takaki**, Tokyo Univ. of Agriculture and Technology (Japan); **Yasuo Tomita**, The Univ. of Electro-Communications (Japan); **Vladimir Y. Venediktov**, Saint Petersburg Electrotechnical Univ. "LETI" (Russian Federation); **Przemysław W. Wachulak**, Military Univ. of Technology (Poland); **Günther Walze**, Covestro AG (Germany); **Min Wan**, Univ. College Dublin (Ireland); **Dayong Wang**, Beijing Univ. of Technology (China); **Rafael Yuste**, Columbia Univ. (United States); **Stanislovas J. Zacharovas**, Geola Digital uab (Lithuania); **Haizheng Zhong**, Beijing Institute of Technology (China); **Igor Zhurminsky**, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

SESSION 1: DIGITAL HOLOGRAPHIC MICROSCOPY I

8 April 2025 • 15:30 - 17:50 | Stella

Session Chair(s): **Miroslav Hrabovský**, Palacký Univ. Olomouc (Czech Republic); **Antonio Fimia Gil**, Univ. Miguel Hernández (Spain)

13529-1 • 15:30 - 16:00

Biological cell imaging by digital holographic microscopy with double field of view (*Invited Paper*)

Author(s): **Manoj Kumar**, Kobe Univ. (Japan), Amity Univ. (India); **Yasuhiro Awatsuji**, Kyoto Institute of Technology (Japan); **Osamu Matoba**, Kobe Univ. (Japan)

13529-2 • 16:00 - 16:30

Imaging of phase transitions in single levitated aerosol particles using digital in-line holography (*Invited Paper*)

Author(s): **Tobias Kraus**, **Gregory David**, **Michael Gleichweit**, **Lars Höhner**, **Ruth Signorelli**, ETH Zurich (Switzerland)

13529-3 • 16:30 - 16:50

Single-shot characterization of microlenses using digital holographic microscopy

Author(s): **Maria Josef Lopera Acosta**, **Sara Abbasi**, Vrije Univ. Brussel (Belgium); **Carlos Trujillo**, Univ. EAFIT (Colombia); **Heidi Ottevaere**, Vrije Univ. Brussel (Belgium)

13529-4 • 16:50 - 17:10

The use of digital holographic microscopy for the characterisation of fibrous biomaterials

Author(s): **Antonio Fimia Gil**, Univ. Miguel Hernández (Spain); **Ilida Ortega Asensio**, The Univ. of Sheffield (United Kingdom); **Roque Madrigal**, **Cristina Garcia Miralles**, Univ. Miguel Hernández (Spain); **Mingda Lu**, **Mehmet Gunen**, The Univ. of Sheffield (United Kingdom)

13529-5 • 17:10 - 17:30

Portable cellphone-based lensless holographic microscope with a customized freeform lens

Author(s): **Maria Josef Lopera Acosta**, Vrije Univ. Brussel (Belgium); **Carlos Trujillo**, Univ. EAFIT (Colombia); **Heidi Ottevaere**, **Yunfeng Nie**, Vrije Univ. Brussel (Belgium)

13529-6 • 17:30 - 17:50

Temporal phase unwrapping for under-sampled spectral signal with tilted interference

Author(s): **Harikrishnan Ponnarath**, **Dinesh N. Naik**, Indian Institute of Space Science and Technology (India)

Wednesday 9 April 2025

SESSION 2: HOLOGRAPHIC RECORDING MATERIALS I

9 April 2025 • 8:50 - 10:00 | Stella

Session Chair(s): **Martin Fally**, Univ. Wien (Austria); **Maria Inmaculada Pascual Villalobos**, Univ. de Alicante (Spain)

13529-7 • 8:50 - 9:20

Numerical simulations of holographic recording in photopolymers with comprehensive reaction kinetics (*Invited Paper*)

Author(s): **Yunfeng Hu**, **Adam Dobson**, **Rosby Robinson**, **Christopher N. Bowman**, Univ. of Colorado Boulder (United States)

13529-8 • 9:20 - 9:40

Advancing the performance of dual-thiol holographic photopolymers via kinetic selectivity

Author(s): **John Rynk**, **Benjamin R Nelson**, **Marianela Trujillo-Lemon**, **Andrew N. Sias**, **Himaghna Kuntumalla**, **Yunfeng Hu**, Univ. of Colorado Boulder (United States); **Maciej Podgórski**, Maria Curie-Skłodowska Univ. (Poland); **Robert R. McLeod**, **Christopher N. Bowman**, Univ. of Colorado Boulder (United States)

13529-9 • 9:40 - 10:00

Insight into the mechanism of thiol-based photopolymers for DOEs

Author(s): **Davide Giughello**, **Andrea Bianco**, **Luca Oggioni**, INAF (Italy)

Coffee Break 10:00 - 10:30

SESSION 3: HOLOGRAPHIC RECORDING MATERIALS II

9 April 2025 • 10:30 - 12:10 | Stella

Session Chair(s): **Andrea Bianco**, INAF - Osservatorio Astronomico di Brera (Italy); **Izabela Naydenova**, Technological Univ. Dublin (Ireland)

13529-10 • 10:30 - 10:50

Photopolymerization shrinkage in holographic hybrid sol-gel material

Author(s): **Jamshed Aftab**, Ctr. for Industrial & Engineering Optics, Technological Univ. Dublin (Ireland); **Izabela Naydenova**, **Tatsiana Mikulchik**, Technological Univ. Dublin (Ireland)

13529-11 • 10:50 - 11:10

Doping photopolymerisable glass with BODIPY photosensitiser: an efficient approach to improve UV resistance

Author(s): **Luca Sorridente, Tatsiana Mikulchyk, Izabela Naydenova, Kevin Murphy, Metodej Dvoracek, Mikhail A Filatov**, Technological Univ. Dublin (Ireland)

13529-12 • 11:10 - 11:30

Recording holographic diffusers in a photopolymerizable glass

Author(s): **Vishwath Rishaban Sakthinathan, Suzanne Martin, Kevin Murphy**, Technological Univ. Dublin (Ireland)

13529-13 • 11:30 - 11:50

Improving the mechanical robustness, UV curability, and humidity resistance of an acrylamide/polyvinyl alcohol-based photopolymer material for volume holography applications with LEDs by using D-sorbitol as a naturally occurring plasticiser

Author(s): **Michael Murray**, Centre for Industrial and Engineering Optics, FOCAS Research Institute, TU Dublin (Ireland); **Izabela Naydenova, Suzanne Martin**, FOCAS Research Institute, TU Dublin (Ireland)

13529-14 • 11:50 - 12:10

Thermal behavior and production capabilities of photopolymer-based VPHGs

Author(s): **Manuela Arnò, Michele Frangiamore, Andrea Bianco**, INAF (Italy)

Lunch/Exhibition Break 12:10 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 4: HOLOGRAPHIC OPTICAL ELEMENTS I

9 April 2025 • 15:40 - 17:50 | Stella

Session Chair(s): **Suzanne Martin**, Technological Univ. Dublin (Ireland); **Giuseppe Coppola**, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello" (Italy)

13529-15 • 15:40 - 16:10

Recording techniques using low coherence light sources with applications in near-eye displays (*Invited Paper*)

Author(s): **Friedrich-Karl Bruder, Jose Diaz, Johannes Frank, Mira Holzheimer, Alexander Lorenz, Christel Manecke**, Covestro Deutschland AG (Germany); **Jack Mills**, Covestro LLC (United States); **Lena Nault, Igor Pochorovski, Thomas Roelle**, Covestro Deutschland AG (Germany)

13529-16 • 16:10 - 16:30

In-situ automotive camera calibration using holographic resolution targets

Author(s): **Tobias Wilm, Reinhold Fieß, Ulrich Seger**, Robert Bosch GmbH (Germany)

13529-17 • 16:30 - 16:50

Customized PVA/AA diffraction gratings by high repetition rate femtosecond direct laser writing

Author(s): **Andrés Pérez Bernabeu, Daniel Puerto, Andrés Márquez, Sergi Gallego, Inmaculada Pascual, Augusto Beléndez**, Univ. de Alicante (Spain)

13529-18 • 16:50 - 17:10

Automated holographic recording using six-axis robot arm pair

Author(s): **Marvin Feil, Tobias Wilm, Reinhold Fiess**, Bosch Corporate Research (Germany); **Wilhelm Stork**, Karlsruher Institut für Technologie (Germany)

13529-19 • 17:10 - 17:30

Electron beam-induced modifications in As-S-Se thin films for diffractive optics applications

Author(s): **Vadims Kolbjonoks**, Daugavpils Univ. (Latvia)

13529-40 • 17:30 - 17:50

Application of nanodiamond-polymer composite holographic gratings in a very cold neutron interferometer (*Invited Paper*)

Author(s): **Martin Fally, Sonja Falmbigl, Roxana H Ackermann**, Univ Wien (Austria); **Elhoucine Hadden**, Institut Laue-Langevin (France), Uppsala University (Sweden); **Hanno Filter-Pieler, Tobias Jenke**, Institut Laue-Langevin (France); **Jürgen Klepp**, Univ Wien (Austria); **Christian Pruner**, University of Salzburg (Austria); **Yasuo Tomita**, University of Electro-Communications (Japan)

POSTERS-WEDNESDAY

9 April 2025 • 17:40 - 19:15 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Wednesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13529-32 • 17:40 - 19:15

Low-toxicity photopolymer biophotopol optimization to record wavelength-shifted holographic couplers

Author(s): **Joan Josep Sirvent-Verdú, Emilio José Mena Ortiz, Juan Carlos Bravo, Jesús Fernández, Manuel Mora, José Carlos García Vázquez, Andrés Márquez, Sergi Gallego**, Univ. de Alicante (Spain)

13529-33 • 17:40 - 19:15

Fabrication and characterization of liquid crystal cells based on azo dye photoalignment

Author(s): **Adrián Moya Aliaga, Eva María Calzado, Manuel Ortuño, Andrés Márquez, Augusto Beléndez**, Univ. de Alicante (Spain)

13529-34 • 17:40 - 19:15

Simultaneous recording of intracellular calcium signals and local field potentials through a 110 µm-thin multimode fibre

Author(s): **Miroslav M. Stibůrek, Tomáš Pikálek**, Institute of Scientific Instruments of the CAS, v.v.i. (Czech Republic); **Jana Krejčí**, Institute of Biophysics of the CAS, v.v.i. (Czech Republic); **Marco Bianco**, Istituto Italiano di Tecnologia (Italy); **Marco Pisanello**, Optogenix S.r.l. (Italy); **Andreas Bucherer**, Institut für Mikrosystemtechnik – IMTEK, Univ. of Freiburg (Germany); **Massimo De Vittorio**, Istituto Italiano di Tecnologia (Italy), Univ. del Salento (Italy); **Hana Uhlířová**, Institute of Scientific Instruments of the CAS, v.v.i. (Czech Republic); **Patrick Ruther**, Institut für Mikrosystemtechnik – IMTEK, Univ. of Freiburg (Germany); **Tomáš Čížmár**, Leibniz-Institut für Photonische Technologien e.V. (Germany), Friedrich-Schiller-Univ. Jena (Germany)

13529-35 • 17:40 - 19:15

Experimental study of PVA/AA photopolymers by means of pulsed laser exposure

Author(s): **Emilio José Mena Ortiz, Juan Carlos Bravo Francés, Manuel G. Ramírez, Sergi Gallego, Andrés Márquez, Augusto Beléndez**, Univ. de Alicante (Spain)

13529-36 • 17:40 - 19:15

Green's method for solving the Helmholtz scalar equation with applications to refractive index media

Author(s): **Juan Carlos Bravo Francés, Cristian Neipp, Jorge Francés, Eva María Calzado, Inmaculada Pascual, Sergi Gallego**, Univ. de Alicante (Spain)

13529-37 • 17:40 - 19:15

Confocal microscopy through a multimode optical fibre

Author(s): **Tomáš Pikálek, Miroslav M. Stibůrek, Tereza Tučková, Petra Kolbábková**, Institute of Scientific Instruments of the CAS, v.v.i. (Czech Republic); **Sergey Turtaev**, Leibniz-Institut für Photonische Technologien e.V. (Germany); **Jana Krejčí**, Institute of Biophysics of the CAS, v.v.i. (Czech Republic); **Hana Uhlířová**, Institute of Scientific Instruments of the CAS, v.v.i. (Czech Republic); **Tomáš Čížmár**, Institute of Scientific Instruments of the CAS, v.v.i. (Czech Republic), Leibniz-Institut für Photonische Technologien e.V. (Germany), Friedrich-Schiller-Univ. Jena (Germany)

13529-39 • 17:40 - 19:15

Versatile tool for accurate efficiency analysis of holographic materials and optical elements

Author(s): **Michele Frangiamore, Andrea Bianco, Luca Oggioni, Giorgio Pariani**, INAF - Osservatorio Astronomico di Brera (Italy)

Thursday 10 April 2025

SESSION 5: HOLOGRAPHIC OPTICAL ELEMENTS II

10 April 2025 • 8:30 - 10:20 | Stella

Session Chair(s): **Maria Inmaculada Pascual Villalobos**, Univ. de Alicante (Spain); **Antonio Fimia Gil**, Univ. Miguel Hernández (Spain)

13529-20 • 8:30 - 9:00

Wavelength-shifted holographic recording of multiplexed volume holographic optical couplers for solar collection (*Invited Paper*)

Author(s): **Dipanjan Chakraborty, Rosen Georgiev**, Technological University Dublinblin, (Ireland); **Vincent Toal**, Technological University Dublinblin, (Ireland); **Izabela Naydenova, Dervil Cody**, Technological University Dublinblin, (Ireland); **Suzanne Martin**, Technological University Dublin, (Ireland)

13529-21 • 9:00 - 9:20

Fundamental tools in the design of hololens-based optical devices

Author(s): **Tomás Lloret López, Marta Morales-Vidal, Belén Nieto-Rodríguez, Víctor Navarro-Fuster, Augusto Beléndez, Inmaculada Pascual**, Univ. de Alicante (Spain)

13529-22 • 9:20 - 9:40

On-axis collimation of LED output using stacked volume holographic optical elements

Author(s): **Jorge Lasarte-Sanz, Kevin Murphy, Izabela Naydenova**, Technological Univ. Dublin (Ireland); **Jesús Atencia, María-Victoria Collados**, Univ. de Zaragoza (Spain); **Suzanne Martin**, Technological Univ. Dublin (Ireland)

13529-23 • 9:40 - 10:00

Design Constraints and Feasibility of Holographic Optical Lenses for Vision Correction

Author(s): **Matthew Hellis, Jorge Lasarte, Suzanne Martin, Matthew Sheehan, Kevin Murphy**, Ctr. for Industrial & Engineering Optics, Technological Univ. Dublin (Ireland)

13529-29 • 10:00 - 10:20

Design and fabrication of hierarchical microstructures for advanced optical applications

Author(s): **Daniel Mrena, Daniel Jandura, Matej Goraus, Dušan Pudiš**, Univ. of Žilina (Slovakia); **Christine Schuster, Anja Voigt**, micro resist technology GmbH (Germany); **David Kuhness, Christine Prietl, Ladislav Kuna, Markus Postl**, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria)

Coffee Break 10:20 - 10:50

SESSION 6: HOLOGRAPHIC RECORDING MATERIALS III

10 April 2025 • 10:50 - 12:10 | Stella

13529-24 • 10:50 - 11:10

Stability analysis of symmetric holographic transmission gratings stored in photohydrogels

Author(s): **Belén Nieto-Rodríguez, Manuel G. Ramírez, Marta Morales-Vidal, José Carlos García-Vázquez, Augusto Beléndez, Inmaculada Pascual**, Univ. de Alicante (Spain)

13529-25 • 11:10 - 11:30

Modification of the hygroscopic properties of a low-toxicity photopolymer

Author(s): **José Carlos García-Vázquez, Manuel G. Ramírez, Tomás Lloret López, Joan Josep Sirvent-Verdú, Marta Morales-Vidal, Inmaculada Pascual**, Univ. de Alicante (Spain)

13529-26 • 11:30 - 11:50

Investigation of a polymer-based holographic grating for visible light dosimetry using a bleachable dye

Author(s): **Saoirse Maher**, Technological Univ. Dublin (Ireland); **Jackie McCavana, Seán Cournane**, Univ. College Dublin (Ireland), St. Vincent's Univ. Hospital (Ireland); **Suzanne Martin, Dervil Cody**, Technological Univ. Dublin (Ireland)

13529-27 • 11:50 - 12:10

Advanced hydrogel-based volume holographic gratings for label-free biosensing

Author(s): **Aitor Cubells Gómez**, Univ. Politècnica de València (Spain); **Michael Murray**, Centre for Industrial and Engineering Optics (Ireland); **María Isabel Lucío**, Univ. Politècnica de València (Spain); **Suzanne Martin, Izabela Naydenova**, Centre for Industrial and Engineering Optics (Ireland); **María José Bañuls, Ángel Maquieira**, Univ. Politècnica de València (Spain)

SESSION 7: ADVANCED HOLOGRAPHY

10 April 2025 • 12:10 - 13:10 | Stella

Session Chair(s): **Izabela Naydenova**, Technological Univ. Dublin (Ireland); **Antonio Fimia Gil**, Univ. Miguel Hernández (Spain)

13529-28 • 12:10 - 12:30

Control of light's spatial coherence via spatial light modulator

Author(s): **Przemysław Litwin, Jakub Wronski**, Wroclaw Univ. of Science and Technology (Poland); **Karen Volke-Sepúlveda**, Instituto de Física, Univ. Nacional Autónoma de México (Mexico); **Mateusz Szatkowski**, Wroclaw Univ. of Science and Technology (Poland)

13529-30 • 12:30 - 12:50

Cost-effective and scalable manufacturing of meta-hologram using ArF scanner and nanoimprint lithography

Author(s): **Chanwoong Park, Seungyeon Lee, Hansang Sung, Heon Lee**, Korea Univ. (Korea, Republic of)

13529-31 • 12:50 - 13:10

Metasurface fabrication using BaTiO₃ nanoparticles embedded resin (nano-PER)

Author(s): **Seungyeon Lee, Chanwoong Park, Hansang Sung, Seongwoo Park, Heon Lee**, Korea Univ. (Korea, Republic of)

CONFERENCE 13530

Integrated Optics: Design, Devices, Systems, and Applications VIII

8 - 10 April 2025 | Zodiac

Conference Chair(s): **Pavel Cheben**, National Research Council Canada (Canada); **Jiří Čtyroký**, Institute of Photonics and Electronics of the CAS (Czech Republic); **Iñigo Molina-Fernández**, Univ. de Málaga (Spain)

Program Committee: **Roel G. Baets**, Univ. Gent (Belgium); **Daniel Benedikovic**, Univ. of Žilina (Slovakia); **Trevor Mark Benson**, The Univ. of Nottingham (United Kingdom); **Hung-Chun Chang**, National Taiwan Univ. (Taiwan); **Christopher R. Doerr**, Acacia Communications Inc. (United States); **Daivid Fowler**, CEA-LETI (France); **Romuald Houdré**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Raman Kashyap**, Ecole Polytechnique de Montréal (Canada); **Philippe Lalanne**, Institut d'Optique Graduate School (France); **Xaveer J. M. Leijts**, Technische Univ. Eindhoven (Netherlands); **Goran Z. Mashanovich**, Univ. of Southampton (United Kingdom); **Andrea I. Melloni**, Politecnico di Milano (Italy); **Martin Schell**, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); **Laurent Vivien**, Institut d'Électronique Fondamentale (France); **Lech Wosinski**, KTH Royal Institute of Technology (Sweden)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 1: PHOTONIC PLATFORMS AND NOVEL MATERIALS I

8 April 2025 • 11:00 - 12:50 | Zodiac

Session Chair(s): **Pavel Cheben**, National Research Council Canada (Canada)

13530-1 • 11:00 - 11:40

Hybrid photonics for overcoming the limitations of silicon (Keynote Presentation)

Author(s): **Ana-Maria Statie**, **Pablo Bedoya-Ríos**, Univ. Paris-Saclay (France); **Clément Ben Braham**, Univ. Paris-Saclay (France), Univ. Grenoble Alpes (France), MINATEC, CEA-LETI (France); **Alicia Ruiz-Caridad**, Univ. de Barcelona (Spain); **Ali El Boutaybi**, Univ. Paris-Saclay (France); **Jonathan Peltier**, Univ. Paris-Saclay (France), Univ. Grenoble Alpes (France), MINATEC, CEA-LETI (France); **Christian Lafforgue**, EPFL (Switzerland); **Daniele Melati**, **Samson Edmond**, Univ. Paris-Saclay (France); **Ali Belarouci**, Institut des Nanotechnologies de Lyon, Univ. de Lyon, CNRS (France); **Eric Cassan**, **Delphine Marris-Morini**, Univ. Paris-Saclay (France); **Karamanis Panaghiotis**, Univ. de Pau et des Pays de l'Adour, CNRS (France); **Nicolas Dubreuil**, Lab. Photonique, Numérique et Nanosciences, CNRS (France), Univ. de Bordeaux (France); **Michel Rérat**, CNRS (France); **Guy Aubin**, **Philippe Lecoeur**, **Sylvia Matzen**, **Thomas Maroutian**, Univ. Paris-Saclay (France); **Regis Orobtcouk**, Univ. de Lyon (France); **Léopold Viro**, **Yohan Désières**, Univ. Grenoble Alpes (France); **Carlos Alonso-Ramos**, Univ. Paris-Saclay (France); **Laurent Vivien**, Ctr. de Nanosciences et de Nanotechnologies, Univ. Paris-Saclay, CNRS (France)

13530-2 • 11:40 - 12:10

Recent progress on III-V/Si heterogeneous photonics circuits: scaling up maturity, versatility and wafer yield *(Invited Paper)*

Author(s): **Joan Manel Ramirez**, **Delphine Neel**, **Amin Souleiman**, **Nicolas Vaissiere**, **Claire Besançon**, Nokia Bell Labs. (France); **Stéphane Malhouitre**, **Karim Hassan**, CEA-LETI (France)

13530-3 • 12:10 - 12:30

New chalcogenide-based platform with very high light-sound interaction for the next generation of photonic integrated circuits

Author(s): **Youssef Ghandaoui**, Institut des Sciences Chimiques de Rennes, Univ. de Rennes (France), Fonctions Optiques pour les Technologies de l'information, Univ. de Rennes (France); **Anupama Viswanathan**, Univ. Pardubice (Czech Republic); **Abdelali Hammouti**, Fonctions Optiques pour les Technologies de l'information, Univ. de Rennes (France); **Jan Gutwirth**, Univ. Pardubice (Czech Republic); **Lucas Deniel**, Fonctions Optiques pour les Technologies de l'information, Univ. de Rennes (France); **Albane Benardais**, Institut des Sciences Chimiques de Rennes, Univ. de Rennes (France); **Stanislav Pechev**, Univ. Bordeaux, CNRS, Bordeaux INP, ICMCB, UMR 5026, F-33600 Pessac, France (France); **Christophe Calers**, **Michel Cathelinaud**, Institut des Sciences Chimiques de Rennes, Univ. de Rennes (France); **Jean-Pierre Guin**, Institut de Physique de Rennes, Univ. de Rennes (France); **Laurent BRAMERIE**, **Mathilde Gay**, Univ Rennes, CNRS, Institut FOTON - UMR 6082, F-22305 Lannion, France. (France); **Petr Nemec**, Univ. Pardubice (Czech Republic); **Mehdi Alouini**, **Joel Charrier**, Fonctions Optiques pour les Technologies de l'information, Univ. de Rennes (France); **Virginie Nazabal**, Institut des Sciences Chimiques de Rennes, Univ. de Rennes (France), Univ. Pardubice (Czech Republic)

13530-4 • 12:30 - 12:50

Silicon nitride-based integrated photonic platform for applications for trustworthy communication systems

Author(s): **Sourav Dev**, **Mircea Catuneanu**, **Menglong He**, TU Dresden (Germany); **Margarita Lapteva**, Fraunhofer-Institut für Photonische Mikrosysteme IPMS (Germany); **David Weyers**, TU Dresden (Germany); **Bhuvnesh Narayanan**, Fraunhofer-Institut für Photonische Mikrosysteme IPMS (Germany); **Johann Fell**, **Sevag Abadian**, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration IZM (Germany); **Tianwen Qian**, Fraunhofer-Institut für Nachrichtentechnik, Heinrich-Hertz-Institut, HHI (Germany); **Charles-Alix Manier**, **Hermann Oppermann**, **Tolga Tekin**, **Juliane Froehlich**, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration IZM (Germany); **Saif Shaikh**, TU Dresden (Germany); **Moritz Kleinert**, Fraunhofer-Institut für Nachrichtentechnik, Heinrich-Hertz-Institut, HHI (Germany); **Mariel Jama**, **Robert Lawrowski**, ams-OSRAM International GmbH (Germany); **Krzysztof Kamil Nieweglowski**, TU Dresden (Germany); **Matthias Landwehr**, **Christoph Posenau**, **Sascha Boenhardt**, Fraunhofer-Institut für Photonische Mikrosysteme IPMS (Germany); **Karlheinz Bock**, **Kambiz Jamshidi**, TU Dresden (Germany)

Lunch/Exhibition Break 12:50 - 14:00

SESSION 2: PHOTONIC PLATFORMS AND NOVEL MATERIALS II

8 April 2025 • 14:00 - 15:20 | Zodiac

Session Chair(s): **Joan Manel Ramirez**, Nokia Bell Labs. (France)

13530-5 • 14:00 - 14:30

Phase change materials for chip-integrated photonics *(Invited Paper)*

Author(s): **Iñigo López**, **Juanfran Morcillo**, **Jorge Caso**, **Jorge Parra**, **Pablo Sanchis Kilders**, Univ. Politècnica de València (Spain)

13530-6 • 14:30 - 15:00

Polymer photonics made by laser lithography *(Invited Paper)*

Author(s): **Dušan Pudiš**, **Peter Gaso**, **Daniel Mrena**, **Daniel Jandura**, **Tomas Mizera**, **Matej Goraus**, **Petra Maniakova**, **Ivana Lettrichova**, Univ. of Žilina (Slovakia)

13530-7 • 15:00 - 15:20

Fast thermo-optic switching on silicon nitride platform through parity-time symmetry breaking

Author(s): **Ravi Pradip**, **Venkata Sai Akhil Varri**, **Simone Ferrari**, Ruprecht-Karls-Univ. Heidelberg (Germany)

Coffee Break 15:20 - 15:50

SESSION 3: PHOTONIC PLATFORMS AND NOVEL MATERIALS III

8 April 2025 • 15:50 - 17:00 | Zodiac

Session Chair(s): **Daniel Benedikovic**, Univ. of Žilina (Slovakia)

13530-8 • 15:50 - 16:10

Integration and tunability of rare-earth-doped YSZ for next generation photonic devices

Author(s): **Alicia Ruiz-Caridad**, **Francesco Chiabrera**, **Paul Nizet**, Institut de Recerca en Energia de Catalunya (Spain); **Ana-Maria Statie**, Ctr. de Nanosciences et de Nanotechnologies, Univ. Paris-Saclay, CNRS (France); **Lluís Yedra**, Univ. de Barcelona (Spain); **Christian Lafforgue**, EPFL (Switzerland); **Thomas Maroutian**, **Sylvia Matzen**, **Laurent Vivien**, Ctr. de Nanosciences et de Nanotechnologies (France); **Albert Tarancón**, Institut de Recerca en Energia de Catalunya (Spain)

13530-9 • 16:10 - 16:30

Toward a hyperspectral imaging camera based on a three-dimension direct laser written photonic integrated circuit

Author(s): **Sébastien Bourdel**, **Alexis Tryoen**, ONERA (France), Institut de Chimie Moléculaire et des Matériaux d'Orsay (France); **Olivier Gazzano**, **Guillaume Druart**, ONERA (France); **Matthieu Lancry**, Institut de Chimie Moléculaire et des Matériaux d'Orsay (France)

13530-10 • 16:30 - 17:00

Heterogeneous integration of compound semiconductors on silicon by direct heteroepitaxy (*Invited Paper*)

Author(s): **Jonathan Klamkin**, Aeluma, Inc. (United States)

SESSION 4: SIMULATION AND DESIGN I

8 April 2025 • 17:00 - 18:00 | Zodiac

Session Chair(s): **Daniele Melati**, Ctr. de Nanosciences et de Nanotechnologies (France)

13530-11 • 17:00 - 17:20

Noise resilience in photonic analog neural networks

Author(s): **Akhil Varri**, **Frank Brücknerhoff-Plückelmann**, Univ. Münster (Germany); **Rasmus Bankwitz**, **Wolfram Pernice**, Ruprecht-Karls- Univ. Heidelberg (Germany)

13530-12 • 17:20 - 17:40

AI-driven optimization of a compact four-channel SiN MMI WDM for efficient O-band data transmission

Author(s): **Dror Malka**, Holon Institute of Technology (Israel)

13530-13 • 17:40 - 18:00

Design of an aluminum nitride-based electro-optic phase modulator and photonic switch for next-generation scalable photonic integrated circuits

Author(s): **Suat Icli**, Leibniz Univ. Hannover (Germany), Physikalisch-Technische Bundesanstalt (Germany); **Rangana Banerjee Chaudhuri**, **Elena Jordan**, **Fatemeh Salahshoori**, Physikalisch-Technische Bundesanstalt (Germany); **Tanja Mehlstäubler**, Leibniz Univ. Hannover (Germany), Physikalisch-Technische Bundesanstalt (Germany)

Wednesday 9 April 2025

SESSION 5: SIMULATION AND DESIGN II

9 April 2025 • 8:30 - 10:10 | Zodiac

Session Chair(s): **Jiri Ctyroky**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

13530-14 • 8:30 - 8:50

Effects of -OH, -NH, water, and atmospheric humidity on propagation loss of mid-infrared photonic waveguides

Author(s): **Jana Jágerská**, **Jehona Salaj**, **Sebastian Alberti**, **Roman Zakoldaev**, **Marek Vlk**, UiT The Arctic Univ. of Norway (Norway)

13530-15 • 8:50 - 9:20

Optimization of metamaterial devices for optical beam steering (*Invited Paper*)

Author(s): **Daniele Melati**, Ctr. de Nanosciences et de Nanotechnologies (France)

13530-16 • 9:20 - 9:50

Low-loss, broadband, and compact couplers and spot-size converters based on anisotropic subwavelength metamaterials (*Invited Paper*)

Author(s): **Juan Gonzalo Wangüemert-Pérez**, **Víctor Gavira-Benítez**, **Alejandro Sánchez-Sánchez**, Univ. de Málaga (Spain); **Carlos Pérez-Armenta**, AGPhotonics SL (Spain); **Diego Pérez-Galacho**, **José Manuel Luque-González**, **Alejandro Ortega-Moñux**, **Laureano Moreno-pozas**, **José de Oliva-Rubio**, Univ. de Málaga (Spain); **David González-Andrade**, Ctr. de Nanosciences et de Nanotechnologies, Univ. Paris-Saclay, CNRS (France); **Paula Nuño-Ruano**, **David Medina-Quiroz**, Ctr. de Nanosciences et de Nanotechnologies (France); **Jens H. Schmid**, **Pavel Cheben**, National Research Council Canada (Canada); **Iñigo Molina-Fernández**, Univ. de Málaga (Spain); **Carlos Alonso-Ramos**, Ctr. de Nanosciences et de Nanotechnologies (France); **Robert Halir**, Univ. de Málaga (Spain)

13530-17 • 9:50 - 10:10

Beyond traditional bandwidth tunability in grating-assisted couplers: enhanced design techniques and theoretical limitations

Author(s): **Lorenzo Tunesi**, **Andrea Carena**, **Vittorio Curri**, **Paolo Bardella**, Politecnico di Torino (Italy)

Coffee Break 10:10 - 10:40

SESSION 6: DEVICES I

9 April 2025 • 10:40 - 12:30 | Zodiac

Session Chair(s): **Laurent Vivien**, Ctr. de Nanosciences et de Nanotechnologies (France)

13530-18 • 10:40 - 11:20

Recent progress in silicon photonics research at the optoelectronics research centre (Keynote Presentation)

Author(s): **Graham T. Reed**, Optoelectronics Research Ctr. (United Kingdom)

13530-19 • 11:20 - 11:50

Monolithic integration for silicon photonics (*Invited Paper*)

Author(s): **Frederic Y. Gardes**, **Ilias Skandalos**, **Thalia Dominguez Bucio**, **Ipsita Chakraborty**, **Xingshi Yu**, **Michele Paparella**, **Afroz Shoaib**, **Qianbin Luo**, **Ioannis Zeimpekis**, Univ. of Southampton (United Kingdom); **Huiyun Liu**, **Alwyn Seeds**, Univ. College London (United Kingdom)

13530-20 • 11:50 - 12:10

Harnessing subwavelength metamaterials for low-loss grating couplers in silicon nitride waveguides

Author(s): **Daniel Benedikovic**, Univ. of Žilina (Slovakia); **William Fraser**, Carleton Univ. (Canada); **Radovan Korcek**, **Adam Petrovic**, Univ. of Žilina (Slovakia); **Viktoria Pikulikova**, University of Žilina (Slovakia); **David Medina**, Ctr. de Nanosciences et de Nanotechnologies, Univ. Paris-Saclay (France); **Thalia Dominguez Bucio**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom); **Frederic Y. Gardes**, Optoelectronics Research Ctr. (United Kingdom); **Quentin Wilmart**, CEA LETI (France); **Samson Edmond**, Ctr. de Nanosciences et de Nanotechnologies (France); **Pavel Cheben**, **Jens H. Schmid**, National Research Council Canada (Canada); **Carlos Alonso-Ramos**, **Laurent Vivien**, Ctr. de Nanosciences et de Nanotechnologies (France); **Winnie Ye**, Carleton Univ. (Canada)

13530-21 • 12:10 - 12:30

Comparison of two types of silicon nitride grating couplers for 1550 nm wavelength with slots and square holes and different deposition methods

Author(s): **Anne-Katrin Schumann**, **Julia Wecker**, **Franz Tank**, **Chris Stöckel**, **Karla Hiller**, **Danny Reuter**, **Jörg Martin**, **Roman Forke**, **Alexander Weiß**, Fraunhofer-Institut für Elektronische Nanosysteme ENAS (Germany)

Lunch/Exhibition Break 12:30 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)
Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)
WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:30

SESSION 7: DEVICES II

9 April 2025 • 15:30 - 17:30 | Zodiac

Session Chair(s): **Frederic Y. Gardes**, Univ. of Southampton (United Kingdom)

13530-22 • 15:30 - 16:00

Wavelength-sensitive nanostructured organic photodetectors (*Invited Paper*)

Author(s): **Jan Schardt**, **Martina Gerken**, Christian-Albrechts-Univ. zu Kiel (Germany)

13530-23 • 16:00 - 16:30

Photonic-based integrated millimeter-wave/terahertz sources and receivers (*Invited Paper*)

Author(s): **Guillermo Carpintero**, Univ. Carlos III de Madrid (Spain)

13530-24 • 16:30 - 16:50

Frequency conversion in C- and O-band using silicon nitride waveguides

Author(s): **Chandan Upadhyay**, TU Dresden (Germany); **Yizhao Jia**, Technische Univ. München (Germany); **Abdou Shetewy, Menglong He, Dirk Plettmeier**, TU Dresden (Germany); **Norbert Hanik**, Technische Univ. München (Germany); **Kambiz Jamshidi**, TU Dresden (Germany)

13530-25 • 16:50 - 17:10

Widely tunable SG-DBR laser with ultra-narrow linewidth achieved via polarization-controlled feedback

Author(s): **Jeppe H. Surrow, Simon T. Thomsen, Rakesh R. Kumar, Mónica Far Brusatori, Maria Paula Montes**, Aarhus Univ. (Denmark); **Chris Hoede**, AimValley B.V. (Netherlands); **Holger N. Klein**, OE Solutions America, Inc. (United States); **Nicolas Volet**, Aarhus Univ. (Denmark)

13530-27 • 17:10 - 17:30

RGB Combiner for Ultracompact Laser Beam Scanning Image Projectors

Author(s): **Farhan Ali**, imec (Belgium), KU Leuven (Belgium); **Bruno Figeys, Oksana Shramkova, Roelof Jansen, Xavier Rottenberg, Robert Gehlhaar, Jan genoe**, imec (Belgium)

POSTERS-WEDNESDAY

9 April 2025 • 17:40 - 19:15 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Wednesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13530-42 • 17:40 - 19:15

Integrated laser self-mixing prototype for optical power and beam size measurement

Author(s): **Yuanfu Tan**, The Chinese Univ. of Hong Kong (Hong Kong, China)

13530-43 • 17:40 - 19:15

Design of ultra-compact low-loss and low-crosstalk SDM waveguide based on PDWG

Author(s): **Jiale Gao, Jingyan Lv, Kun Kang, Wenhua Gu**, Nanjing Univ. of Science and Technology (China)

13530-44 • 17:40 - 19:15

A robust high-efficiency taper design for micro-transfer-printed photonic devices

Author(s): **He Li, Günther Roelkens**, imec, Univ. Gent (Belgium)

13530-45 • 17:40 - 19:15

Low-complexity indoor integrated visible light positioning and communication system using VCSEL and POF

Author(s): **Zhiyue Yin, Lihang Liu, Yibin Li, Connie Chang-Hasnain, H. Y. Fu**, Tsinghua Shenzhen International Graduate School, Tsinghua Univ. (China)

13530-46 • 17:40 - 19:15

High-transparency SWIR electrode with ultrathin silver film and high-index overlay for advanced infrared applications

Author(s): **EuiHyoun Ryu**, Korea Institute of Science and Technology (Korea, Republic of), Korea Univ. (Korea, Republic of); **Sunghyun Hwang, Nayeon Kim, Ji-Hwan Son, Donghee Park**, Korea Institute of Science and Technology (Korea, Republic of); **Tae-Yeon Seong**, Korea Univ. (Korea, Republic of); **In-Ho Lee**, Korea Institute of Science and Technology (Korea, Republic of)

13530-47 • 17:40 - 19:15

Single pixel infrared imaging using optically addressed liquid crystal spatial light modulator and Si CMOS camera

Author(s): **Tariq Abu Hussein**, Ben-Gurion Univ. of the Negev (Israel)

13530-48 • 17:40 - 19:15

Building ultra-high sensitive absorption spectroscopic technique for material characterisation

Author(s): **Avari Roy, Aditya Sadhanala**, Indian Institute of Science, Bengaluru (India)

13530-49 • 17:40 - 19:15

Towards monolithic integration of polymer-based electro-optical devices in silicon photonic integrated circuits using a 250nm SOI technology

Author(s): **Patrick Steglich**, HyPhoX GmbH (Germany); **Martin Paul**, Technische Hochschule Wildau (Germany); **Tabea Fünning**, IHP GmbH (Germany); **Christoph Schumann**, Technische Hochschule Wildau (Germany); **Christian Mai**, IHP GmbH (Germany); **Robert Tannenberg**, Bundesanstalt für Materialforschung und -prüfung (Germany); **Andreas Mai**, IHP GmbH (Germany)

13530-50 • 17:40 - 19:15

Non-inertia beam steering for optical wireless communication: a multimode fiber-based solution

Author(s): **Ziming Ye**, Tsinghua Shenzhen International Graduate School, Tsinghua Univ. (China); **Lihang Liu, Yaqi Han, H. Y. Fu**, Tsinghua Univ. (China)

13530-51 • 17:40 - 19:15

Spectral efficient OFDM-based VLC system with low-resolution DAC

Author(s): **Siyu Bai, Yibin Li**, Tsinghua Univ. (China); **Chen Cheng, Yanfu Yang**, Harbin Institute of Technology Shenzhen Graduate School (China); **Qian Li**, Electronic and Computer Engineering, Peking University, Shenzhen 518055 P.R. China (China); **H. Y. Fu**, Tsinghua Univ. (China)

13530-52 • 17:40 - 19:15

Photonic crystal-based asymmetric parallel waveguide design for WDM-MDM applications

Author(s): **Soibam Aruna Chanu, Shamshad Alam, Uttara Biswas, Anas Ashraf, Ramesh K. Sonkar**, Indian Institute of Technology Guwahati (India); **Mohammad Mansoor Khan**, Indian Institute of Information Technology, Guwahati (India)

13530-54 • 17:40 - 19:15

Enabling independent electrical control of two quantum emitters via introducing mid-cavity structural division in photonic crystal microcavities

Author(s): **Monika Singh, Nicholas J. Martin, Dominic J. Hallett, Luke R. Wilson**, The Univ. of Sheffield (United Kingdom)

13530-55 • 17:40 - 19:15

Experimental verification of the one-way double pass Mueller polarimeter using single twisted nematic liquid crystal

Author(s): **Monika Salamaga, Władysław Artur Woźniak**, Wrocław Univ. of Science and Technology (Poland)

13530-56 • 17:40 - 19:15

Integrated nanophotonic devices and logic circuits using phase-change-materials in silicon photonics

Author(s): **Rajib Ghosh, Umang Chaturvedi, Wridheeman Bhattacharya, Merbin John, Vaibhav Chaturvedi, Mohd Asif, Anuj Dhawan**, Indian Institute of Technology Delhi (India)

13530-58 • 17:40 - 19:15

Prediction of fundamental modes in ridge waveguides with convolutional neural networks

Author(s): **Ezel Yağmur Zeydan Çelen, Sait Eser Karlık**, Bursa Uludağ Univ. (Turkey)

13530-59 • 17:40 - 19:15

Resonant mode excitation in multimode optical waveguide

Author(s): **Sergey Kuchinsky, Vladimir N. Borisov**, Corning SAS (Finland); **Tigran Armenakovich Vartanyan**, ITMO Univ. (Russian Federation)

13530-60 • 17:40 - 19:15

Simulation of SiPM and SPAD performance for dToF LiDAR applications with ANSYS Speos software and onsemi post-processing

Author(s): **David Auger**, Ansys France SAS (France), onsemi (Ireland); **Benoit Heraud**, Ansys France SAS (France); **Colin Barry, Andrii Nagai**, onsemi (Ireland)

13530-61 • 17:40 - 19:15

Axially modulated GRIN media

Author(s): **Fatemeh Kalantarifard, Parviz Elahi**, Ozyegin Univ. (Turkey)

13530-62 • 17:40 - 19:15

Comparative analysis of optical concentrators for efficient light capture in optical wireless communication

Author(s): **Sina Babadi, Iman Tavakkolnia, Hossein Kazemi, Hossein Safi, Othman Younus, Harald Haas**, Univ. of Cambridge (United Kingdom)

Thursday 10 April 2025

SESSION 8: SIMULATION AND DESIGN III

10 April 2025 • 8:50 - 10:10 | Zodiac

Session Chair(s): **Juan Gonzalo Wangüemert-Pérez**, Univ. de Málaga (Spain)

13530-29 • 8:50 - 9:20

Subwavelength metamaterials for ultra-broadband power and modal management in silicon photonics (*Invited Paper*)

Author(s): **Raquel Fernández de Cabo, Aitor Villafranca Velasco**, Consejo Superior de Investigaciones Científicas (Spain); **David González-Andrade, Carlos Alonso-Ramos, Daniele Melati, Yijun Yang**, Ctr. de Nanosciences et de Nanotechnologies (France); **Alejandro Sánchez-Sánchez**, Univ. de Málaga (Spain)

13530-30 • 9:20 - 9:50

Guiding light through modes embedded in the radiation continuum (*Invited Paper*)

Author(s): **Jiří Petráček**, Brno Univ. of Technology (Czech Republic); **Jiří Čtyrský**, **Vladimír Kuzmiak**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic); **Ivan Richter**, Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Depart (Czech Republic)

13530-31 • 9:50 - 10:10

Unified photonic design automation platform for multi-physics simulations and fabrication-aware PIC design

Author(s): **Prashanta Kharel**, **Lucas Gabrielli**, **Charles Wojcik**, **Weiliang Jin**, **Damian Marek**, **Qiming Zhao**, **Marc Bolinches**, Flexcompute, Inc. (United States); **Xinzhong Chen**, Flexcompute (United States); **Momchil Minkov**, Flexcompute, Inc. (United States); **Tyler W Hughes**, Flexcompute (United States); **Zongfu Yu**, Flexcompute, Inc. (United States)

Coffee Break 10:10 - 10:40

SESSION 9: SYSTEMS AND APPLICATIONS I

10 April 2025 • 10:40 - 12:50 | Zodiac

Session Chair(s): **Graham T. Reed**, Optoelectronics Research Ctr. (United Kingdom)

13530-32 • 10:40 - 11:20

New concepts and wafer-scale technologies for integrated photonics targeting quantum and sensing applications (Keynote Presentation)

Author(s): **Thomas Pertsch**, Friedrich-Schiller-Univ. Jena (Germany), Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF (Germany)

13530-33 • 11:20 - 11:50

Harmonic generation in the visible and UV range from metallic nanostructures: role of the free and bound electrons (*Invited Paper*)

Author(s): **Crina M. Cojocaru**, **Shroddha Mukhopadhyay**, Univ. Politècnica de Catalunya (Spain); **Maria Antonietta Vincenti**, Univ. degli Studi di Brescia (Italy); **Kent Hallman**, PeopleTec, Inc. (United States); **Jose Trull**, Univ. Politècnica de Catalunya (Spain); **Michael Scalora**, U.S. Army Combat Capabilities Development Command (United States)

13530-34 • 11:50 - 12:10

Photonic processor for neutral atom quantum computing

Author(s): **Julian Rasmus Bankwitz**, **Erik Jung**, **Philipp Schmidt**, Ruprecht-Karls-Univ. Heidelberg (Germany); **Ivonne Bente**, Univ. Münster (Germany); **Jan Brandes**, Ruprecht-Karls-Univ. Heidelberg (Germany); **Akhil Varri**, Univ. Münster (Germany); **Xinyu Ma**, **Wolfram Pernice**, Ruprecht-Karls-Univ. Heidelberg (Germany)

13530-35 • 12:10 - 12:30

Purcell-enhanced single photons at telecom wavelengths from a quantum dot in a photonic crystal cavity

Author(s): **Nicholas J. Martin**, **Catherine Phillips**, **Alistair Brash**, The Univ. of Sheffield (United Kingdom); **Max Godsland**, EPSRC - National Epitaxy Facility (United Kingdom); **Andrew Foster**, **Anna Tomlinson**, **René Dost**, The Univ. of Sheffield (United Kingdom); **Nasser Babazadeh**, **Elisa Sala**, EPSRC - National Epitaxy Facility (United Kingdom); **Luke R. Wilson**, The Univ. of Sheffield (United Kingdom); **Jon Heffernan**, EPSRC - National Epitaxy Facility (United Kingdom); **Maurice Skolnick**, **Mark Fox**, The Univ. of Sheffield (United Kingdom)

13530-63 • 12:30 - 12:50

Microcavity platform for widely tunable optical double resonance

Author(s): **Sigurd Flågan**, University of Calgary (Canada); **Patrick Maletinsky**, **Richard J Warburton**, University of Basel (Switzerland); **Daniel Riedel**, Lightsynq Technologies Inc., (United States)

Lunch Break 12:50 - 13:50

SESSION 10: SYSTEMS AND APPLICATIONS II

10 April 2025 • 13:50 - 15:30 | Zodiac

Session Chair(s): **Jiri Ctyrsky**, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

13530-37 • 13:50 - 14:20

Novel nonlinear optics in diamond micro- and nano-cavities (*Invited Paper*)

Author(s): **Sigurd Flågan**, **Joe Itoi**, Univ. of Calgary (Canada); **Elham Zohari**, Univ. of Alberta (Canada); **Nicholas Sorensen**, **Waleed El-Sayed**, **Sean McNaney**, **Christopher Coutts**, **Prasoon K. Shandilya**, **Vinaya K. Kavatamane**, **Paul E. Barclay**, Univ. of Calgary (Canada)

13530-38 • 14:20 - 14:50

Advancing telecommunications and data communications through silicon photonic technologies (*Invited Paper*)

Author(s): **Winnie N. Ye**, Carleton Univ. (Canada); **Dusan Gostimirovic**, McGill Univ. (Canada); **Yule Xiong**, **Kevan K. MacKay**, **Shahrazad Khajavi**, **William Fraser**, **Xiaochen Xin**, Carleton Univ. (Canada); **Daniel Benedikovic**, Univ. of Žilina (Slovakia); **Bryce A. Dorin**, Carleton Univ. (Canada); **Yao Sun**, Carleton Univ. (China); **Qiankun Liu**, Ctr. de Nanosciences et de Nanotechnologies (France); **Tianyi Hao**, Carleton Univ. (Canada); **Neha Purwaha**, Advanced Micro Devices, Inc. (Canada); **M Abduhu Ruhul Fatin**, **Shuxia Li**, Carleton Univ. (Canada); **Sarra Salhi**, **Daniele Melati**, Ctr. de Nanosciences et de Nanotechnologies (France); **Alejandro Sánchez-Postigo**, Carleton Univ. (Canada); **Pavel Cheben**, **Jens H. Schmid**, National Research Council Canada (Canada); **Ahmad K. Atieh**, Optiwave Systems Inc. (Canada)

13530-39 • 14:50 - 15:10

TFLN frequency shifters for environmental monitoring

Author(s): **Jan Brandes**, **Rasmus Bankwitz**, **Xinyu Ma**, **Wolfram Pernice**, Ruprecht-Karls-Univ. Heidelberg (Germany)

13530-41 • 15:10 - 15:30

Space radiation effects on photonic integrated circuits for optical satellite payloads

Author(s): **Giulio Terrasanta**, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany), Technische Univ. München (Germany); **Agnes Zinth**, Technische Univ. München (Germany), Munich Ctr. for Quantum Science and Technology (Germany); **Marcin Ziarko**, **Nicola Bergamasco**, **Juraj Poliak**, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); **Menno Poot**, Technische Univ. München (Germany), Munich Ctr. for Quantum Science and Technology (Germany), Institute for Advanced Study, Technische Univ. München (Germany)

CONFERENCE 13531

EUV and X-ray Optics: Synergy between Laboratory and Space IX

7 - 8 April 2025 | Tycho

Conference Chair(s): **René Hudec**, Astronomical Institute of the ASCR, v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic)

Program Committee: **Webster Cash**, Univ. of Colorado at Boulder (United States); **Henryk Fiedorowicz**, Military Univ. of Technology (Poland); **René Hudec**, Czech Technical Univ. in Prague (Czech Republic); **Ali M. Khounsary**, X-ray Optics, Inc. (United States); **Randall L. McEntaffer**, The Univ. of Iowa (United States); **Stephen L. O'Dell**, NASA Marshall Space Flight Ctr. (United States); **Giovanni Pareschi**, INAF - Osservatorio Astronomico di Brera (Italy); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Yuriy Ya Platonov**, Rigaku Innovative Technologies, Inc. (United States); **Paul B. Reid**, Harvard-Smithsonian Ctr. for Astrophysics (United States); **Bedřich Rus**, ELI Beamlines (Czech Republic), Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Anatoly Snigirev**, ESRF - The European Synchrotron (France); **Melville P. Ulmer**, Northwestern Univ. (United States); **David L. Windt**, Reflective X-Ray Optics LLC (United States); **William W. Zhang**, NASA Goddard Space Flight Ctr. (United States)

Monday 7 April 2025

WELCOME AND OPENING REMARKS

7 April 2025 • 8:30 - 8:30 | Tycho

René Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic)

Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic)

Conference Chaira

SESSION 1: ASTRONOMICAL X-RAY OPTICS I

7 April 2025 • 8:30 - 10:00 | Tycho

Session Chair(s): **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic)

13531-2 • 8:30 - 9:00

Development of the Follow-up X-ray Telescope onboard the Einstein Probe and its preliminary in-orbit performance results (*Invited Paper*)

Author(s): **Yong Chen**, **Dawei Han**, **Weiwei Cui**, **Juan Wang**, **Yanji Yang**, **Yusa Wang**, **Wei Li**, **Shumei Jia**, **Chengkui Li**, **Juan Zhang**, **Jia Ma**, **Xiaofan Zhao**, Institute of High Energy Physics, CAS (China); **Peter Friedrich**, **Norbert Meidinger**, **Vadim Burwitz**, Max Planck Institute for Extraterrestrial Physics (Germany); **Weimin Yuan**, National Astronomical Observatories, CAS (China)

13531-3 • 9:00 - 9:20

Czech contribution to AHEAD2020: a summary

Author(s): **René Hudec**, **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Veronika Marsikova**, **Adolf Inneman**, Rigaku Innovative Technologies Europe (Czech Republic)

13531-4 • 9:20 - 9:40

Optical tests of Lobster Eye X-Ray optics prototype for nanosatellite missions based on new technology

Author(s): **Vladimir Tichy**, Czech Technical Univ. in Prague (Czech Republic)

13531-26 • 9:40 - 10:00

Gratings for the soft and tender X-ray energy range: recent developments at Helmholtz Zentrum Berlin (Keynote Presentation)

Author(s): **Frank T. Siewert**, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany)

Coffee Break 10:20 - 10:40

SESSION 2: LABORATORY X-RAY/EUV OPTICS

7 April 2025 • 10:40 - 11:40 | Tycho

Session Chair(s): **Thorsten Döhring**, Technische Hochschule Aschaffenburg (Germany)

13531-5 • 10:40 - 11:00

Optimization of grazing incidence X-ray optics for special applications

Author(s): **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Peter Oberta**, Rigaku Innovative Technologies Europe (Czech Republic); **René Hudec**, Czech Technical Univ. in Prague (Czech Republic)

13531-6 • 11:00 - 11:20

Experimental hybrid X-ray Lobster Eye/Wolter optical module

Author(s): **René Hudec**, **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Veronika Marsikova**, **Adolf Inneman**, **Peter Oberta**, Rigaku Innovative Technologies Europe (Czech Republic)

13531-7 • 11:20 - 11:40

Novel technologies for laboratory Wolter type X ray optics

Author(s): **René Hudec**, **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Veronika Marsikova**, **Adolf Inneman**, **Peter Oberta**, Rigaku Innovative Technologies Europe (Czech Republic)

SESSION 3: INTEGRATED DEVICES

7 April 2025 • 11:40 - 12:40 | Tycho

Session Chair(s): **Boris Landgraf**, cosine measurement systems (Netherlands)

13531-8 • 11:40 - 12:00

Radiation measurements in the stratosphere by the balloon experiment ASTRABAX

Author(s): **Thorsten Döhring**, **Lucia Krivanekova**, **Jan Pregler**, **Georg Hildenbrand**, Technische Hochschule Aschaffenburg (Germany)

13531-9 • 12:00 - 12:20

Space radiation monitoring and evaluation with Timepix-family detectors

Author(s): **Katerina Sykorova**, **Carlos Granja**, ADVACAM s.r.o. (Czech Republic); **David Hladik**, ADVACAM s.r.o. (Czech Republic), CzechInvest (Czech Republic); **Jan Jakubek**, **Lukas Marek**, ADVACAM s.r.o. (Czech Republic); **Tomas Baca**, Czech Technical Univ. in Prague (Czech Republic); **Adolf Inneman**, **Zdenek Matej**, Rigaku Innovative Technologies Europe (Czech Republic); **Marco Sabia**, **Victor Colas**, Eutelsat OneWeb (United Kingdom); **Maxime L'Huillier**, **Emmanuel Plascencia**, **Benjamin Azoulay**, Oledcomm (France); **Marco Vuolo**, European Space Research and Technology Ctr. (Netherlands)

13531-25 • 12:20 - 12:40

First contact polymers as a path towards atomically clean, particle-free surfaces for high-energy laser and EUV and X-ray sources

Author(s): **James P. Hamilton**, Photonic Cleaning Technologies (United States), University of Wisconsin-Platteville (United States)

Lunch Break 12:40 - 13:40

SESSION 4: ASTRONOMICAL X-RAY OPTICS II

7 April 2025 • 13:40 - 15:50 | Tycho

Session Chair(s): **Enrico Virgilli**, INAF - Osservatorio di Astrofisica e Scienza dello Spazio (Italy)

13531-10 • 13:40 - 14:10

High-resolution silicon pore X-ray optics (Invited Paper)

Author(s): **Boris Landgraf**, **Nicolas Barrière**, **Marloes Bistervels**, **Alex Bayerle**, **Maximilien Collon**, **David Girou**, **Ramses Günther**, **Laurens Keek**, **Christian Körnig**, **Adam Lassise**, **Giuseppe Vacanti**, **Mark Vervest**, **Luc Voruz**, cosine Science & Computing B.V. (Netherlands)

13531-11 • 14:10 - 14:30

Development of the focusing mirrors onboard eXTP

Author(s): **Yanji Yang**, Institute of High Energy Physics (China); **Ke Yu**, Institute of High Energy Physics (China), Changchun University of Science and Technology (China); **Juan Wang**, **Jia Ma**, **Jinxin Tian**, **Xin Li**, **Jiehan Cao**, **Qian Zhang**, **Xinyan Bi**, **Yusa Wang**, **Yong Chen**, Institute of High Energy Physics (China); **Bo Wang**, **Dianlong Wang**, **Langping Wang**, **Fei Ding**, **Kaiji Wu**, Harbin Institute of Technology (China); **Pengfei Qiang**, **Lizhi Sheng**, **Yongqing Yan**, Xi'an Institute of Optics and Precision Mechanics (China)

13531-12 • 14:30 - 14:50

Design of the CCD imaging X-ray Focusing Telescope onboard eXTP

Author(s): **Yong Chen**, **Weiwei Cui**, **Dawei Han**, **Yanji Yang**, **Juan Wang**, **Xiaofan Zhao**, **Juan Zhang**, **Hao Wang**, **Jia Huo**, **Jia Ma**, **Jingjing Xu**, Institute of High Energy Physics (China); **Ziliang Zhang**, **Qian Zhang**, **Haoyang Geng**, **Yupeng Xu**, **Hua Feng**, **Congzhan Liu**, **ShuangNan Zhang**, Institute of High Energy Physics Chinese Academy of Sciences (China)

13531-13 • 14:50 - 15:10

Development and fabrication of EUV diffraction gratings for future NASA missions

Author(s): Fabien Grisé, Pennsylvania State Univ (United States)

13531-14 • 15:10 - 15:30

Calculation of effective collecting area of lobster eye with respect to full point spread function

Author(s): Vladimir Tichy, Czech Technical Univ. in Prague (Czech Republic)

13531-15 • 15:30 - 15:50

Polydopamine: a bio-inspired polymer for X-ray mirror coatings and other technical applications

Author(s): Diana Khropost, Franziska Riethmüller, Thorsten Döhring, Technische Hochschule Aschaffenburg (Germany); Deniz Hülögü, Andreas Hertwig, Bundesanstalt für Materialforschung und -prüfung (Germany); Vincenzo Cotroneo, INAF - Osservatorio Astronomico di Brera (Italy); Eugenio Gibertini, Politecnico di Milano (Italy)

Coffee Break 15:50 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): Philip Walther, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): Sylvain Gigan, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): Emma Hume, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 5: REFRACTIVE, DIFFRACTIVE AND MULTILAYER X-RAY OPTICS

8 April 2025 • 11:00 - 12:40 | Tycho

Session Chair(s): **Fabien Grisé**, The Pennsylvania State Univ. (United States)

13531-16 • 11:00 - 11:30

Advances in diamond-based refractive X-ray optics (Invited Paper)

Author(s): **Irina Snigireva**, ESRF - The European Synchrotron (France)

13531-17 • 11:30 - 12:00

Adjustable gamma-ray optics (Invited Paper)

Author(s): **Enrico Virgilli**, **Natalia Auricchio**, INAF - Osservatorio di Astrofisica e Scienza dello Spazio (Italy); **Marta Civitani**, INAF - Osservatorio Astronomico di Brera (Italy); **Giovanni De Cesare**, **Riccardo Campana**, INAF - Osservatorio di Astrofisica e Scienza dello Spazio (Italy); **Carmelo Gargano**, INAF - Istituto di Astrofisica Spaziale e Fisica cosmica Palermo (Italy); **Raffaella Landi**, INAF - Osservatorio di Astrofisica e Scienza dello Spazio (Italy); **Giuseppe Baldazzi**, **Giuseppe Levi**, Univ. degli Studi di Bologna (Italy); **Claudio Ferrari**, Istituto dei Materiali per l'Elettronica ed il Magnetismo (Italy); **Ezio Caroli**, INAF - Osservatorio di Astrofisica e Scienza dello Spazio (Italy); **Elena Ferrari**, Istituto dei Materiali per l'Elettronica ed il Magnetismo (Italy); **Lisa Ferro**, **Miguel Moita**, Univ. degli Studi di Ferrara (Italy)

13531-18 • 12:00 - 12:20

Development of computational framework for broadband X-ray multilayer coatings

Author(s): **Kirtan P. Dixit**, **Danielle Gurgew**, **Panini Singam**, **Jessica Gaskin**, NASA Marshall Space Flight Ctr. (United States)

13531-19 • 12:20 - 12:40

Ultra shallow silicon EUV gratings fabricated via ion irradiation

Author(s): **Johannes Kaufmann**, Friedrich-Schiller-Univ. Jena (Germany); **Richard Ciesielski**, Physikalisch-Technische Bundesanstalt (Germany); **Katharina Freiberg**, **Markus Walther**, Friedrich-Schiller-Univ. Jena (Germany); **Analia Fernández Herrero**, Physikalisch-Technische Bundesanstalt (Germany); **Stephanie Lippmann**, Friedrich-Schiller-Univ. Jena (Germany); **Victor Soltwisch**, Physikalisch-Technische Bundesanstalt (Germany); **Thomas Siefke**, Friedrich-Schiller-Univ. Jena (Germany), Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); **Uwe Zeitner**, Hochschule für Angewandte Wissenschaften München (Germany), Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany)

POSTERS-TUESDAY

8 April 2025 • 17:30 - 19:00 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Tuesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13531-20 • 17:30 - 19:00

A visitor experiment on astronomical x-ray optics for the "Deutsches Röntgenmuseum"

Author(s): **Eva Stanik**, **Jan Pregler**, **Thorsten Döhring**, Technische Hochschule Aschaffenburg (Germany); **Anna Kätker**, **Uwe Busch**, Deutsches Röntgen-Museum (Germany); **Peter Friedrich**, Max-Planck-Institut für extraterrestrische Physik (Germany)

13531-21 • 17:30 - 19:00

LOPSIMUL: high computing rate numerical simulator of multi-foil reflective optical systems

Author(s): **Vladimir Tichy**, Czech Technical Univ. in Prague (Czech Republic); **René Hudec**, Czech Technical Univ. in Prague (Czech Republic), Astronomical Institute AS CR (Czech Republic)

13531-22 • 17:30 - 19:00

From lower-energy X-ray to soft gamma-ray optics

Author(s): **Boris Landgraf**, **Nicolas Barrière**, **Marloes Bistervels**, **Alex Bayerle**, **Maximilien Collon**, **David Girou**, **Ramses Günther**, **Laurens Keek**, **Christian Körnig**, **Adam Lassise**, **Giuseppe Vacanti**, **Mark Vervest**, **Luc Voruz**, cosine Science & Computing B.V. (Netherlands)

13531-23 • 17:30 - 19:00

Development of novel Lobster and Kirkpatrick Baez X-ray optics

Author(s): **René Hudec**, **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Veronika Maršíková**, **Adolf J. Inneman**, Rigaku Innovative Technologies Europe (Czech Republic)

13531-24 • 17:30 - 19:00

LVICE2: advancing astrophysical plasma and dust dynamics research in the cislunar space

Author(s): **Vít Pomahac**, Czech Technical Univ. in Prague (Czech Republic)

CONFERENCE 13532

High-power, High-energy Lasers and Ultrafast Optical Technologies II

8 - 10 April 2025 | Kepler

Conference Chair(s): **Pavel Bakule**, ELI Beamlines, ELI ERIC (Czech Republic); **Patrick Baer**, Fraunhofer-Institut für Lasertechnik ILT (Germany); **Joachim Hein**, Friedrich-Schiller-Univ. Jena (Germany); **Thomas J. Butcher**, STFC Rutherford Appleton Lab. (United Kingdom)

Program Committee: **Jake Bromage**, Univ. of Rochester (United States); **Constantin L. Haefner**, Fraunhofer-Institut für Lasertechnik ILT (Germany); **Hiromitsu Kiriya**, National Institutes for Quantum and Radiological Science and Technology (Japan); **Andreas R. Maier**, Deutsches Elektronen-Synchrotron (Germany); **Zsuzsanna Major**, GSI Helmholtzzentrum für Schwerionenforschung GmbH (Germany); **Marcus Seidel**, Deutsches Elektronen-Synchrotron (Germany)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 1: TECHNOLOGY DEVELOPMENT FOR PW LASERS

8 April 2025 • 11:00 - 12:30 | Kepler

Session Chair(s): **Pavel Bakule**, ELI Beamlines (Czech Republic)

13532-1 • 11:00 - 11:30

KALDERA: a high-average power drive-laser for laser plasma acceleration (*Invited Paper*)

Author(s): **Guido Palmer**, **Juan B. Gonzalez-Diaz**, **Timo Eichner**, **Cora Braun**, **Thomas Hülsenbusch**, **Christian M. Werle**, **Lutz Winkelmann**, **Caterina Vidoli**, Deutsches Elektronen-Synchrotron (Germany); **Matthias Schnepf**, **Manuel Kirchen**, Univ. Hamburg (Germany); **Wim P. Leemans**, **Andreas R. Maier**, Deutsches Elektronen-Synchrotron (Germany)

13532-2 • 11:30 - 11:50

Performance of a large-aperture, gas-cooled Faraday rotator and its role in depolarization mitigation for the L3 HAPLS pump laser

Author(s): **Jakub Novák**, ELI Beamlines (Czech Republic); **František Batysta**, **Emily Sistrunk Link**, Lawrence Livermore National Lab. (United States); **Petr Szołkowski**, **Emily C. Erdman**, **Anthony J. Vella**, ELI Beamlines (Czech Republic); **Thomas C. Galvin**, **Leily S. Kiani**, Lawrence Livermore National Lab. (United States); **Martin Cuhra**, **Bohdana Lopushanska**, **Lucia Jarboe**, ELI Beamlines (Czech Republic); **Katherine M. Velas**, **Thomas Spinka**, Lawrence Livermore National Lab. (United States); **Bedřich Rus**, ELI Beamlines (Czech Republic)

13532-3 • 11:50 - 12:10

Performance of the L2 DUHA pump laser for high-energy, high-repetition rate OPCPA

Author(s): **Jan Bartoníček**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Jan Eisenschreiber**, **Martin Fibrich**, **Jonathan Tyler Green**, **Lukáš Indra**, ELI ERIC (Czech Republic); **Petr Vlčák**, Czech Technical Univ. in Prague (Czech Republic); **Bedřich Rus**,

ELI ERIC (Czech Republic)

13532-4 • 12:10 - 12:30

Commissioning of ELI-Beamlines advanced deposition system for ultrahigh intensity laser systems

Author(s): **Tomas Tolenis**, Adrien Chauvin, ELI ERIC (Czech Republic); **James Oliver**, Robert Hand, Vacuum Innovations, LLC (United States); **Naveed Ahmed**, Tamas Somoskoi, Subhendu Kahaly, ELI ERIC (Hungary); **Mojmir Havlik**, Jan Hřebíček, Bedřich Rus, Daniel Kramer, Pavel Trojek, Štěpán Vyhlička, ELI ERIC (Czech Republic)

Lunch/Exhibition Break 12:30 - 13:40

SESSION 2: OPA/OPCPA

8 April 2025 • 13:40 - 15:30 | Kepler

Session Chair(s): **Patrick Baer**, Fraunhofer-Institut für Lasertechnik ILT (Germany)

13532-5 • 13:40 - 14:10

A universal broadband and CEP-stable OPCA seeder for high-power amplifiers *(Invited Paper)*

Author(s): **Raman Maksimenka**, Fastlite (France); **Jingfeng Chen**, Solene Favier, Amplitude Laser Group (France); **Simone Bux**, Yoann Pertot, Fastlite (France)

13532-6 • 14:10 - 14:30

A 1 kHz, 12 mJ, 16 fs, white-light seeded OPCA laser (FSYNC) as an auxiliary beam for pump-probe experiments and as a test bed for broadband coherent beam combining *(Invited Paper)*

Author(s): **Emily C. Erdman**, ELI ERIC (Czech Republic), Charles Univ. (Czech Republic); **Jakub Novák**, Roman Antipenkov, ELI ERIC (Czech Republic); **Gaudenis Jansonas**, Vilnius Univ. (Lithuania); **Lukáš Indra**, Bogusław Tykalewicz, ELI ERIC (Czech Republic); **Vojtek Grossman**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Martin Horacek**, Catherine Blackman, Peter Dupej, Pavel Bakule, Bedřich Rus, ELI ERIC (Czech Republic)

13532-7 • 14:30 - 14:50

Ultrahigh contrast parametric frontends for 18μm high-energy lasers

Author(s): **Deividas Nemura**, Vytenis Girdauskas, Light Conversion, UAB (Lithuania); **Rimantas Budriūnas**, Light Conversion, UAB (Lithuania), Vilnius Univ. (Lithuania); **Valdas Maslinskas**, Tomas Stanislaukas, Light Conversion, UAB (Lithuania)

13532-8 • 14:50 - 15:10

Ultrabroadband high contrast frontend for high-intensity Ti:Sa lasers

Author(s): **Roland Sándor Nagymihály**, ELI-ALPS Research Institute (Hungary); **Mikhail Kalashnikov**, ELI-HU Nonprofit Ltd. (Hungary); **Viktor Pajer**, Levente Lehotai, János Bohus, Nóra Csernus-Lukács, Balázs Tari, Ádám Börzsönyi, ELI-ALPS Research Institute (Hungary)

13532-9 • 15:10 - 15:30

Dual output multi mJ kilohertz broadband frontend for L2-Duha laser

Author(s): **Lukáš Indra**, Alex Whitehead, Jonathan Tyler Green, Alexandr Spacek, Jan Bartoníček, Jan Eisenschreiber, Martin Fibrich, Bogusław Tykalewicz, Martin Horáček, Bedřich Rus, ELI ERIC (Czech Republic)

Coffee Break 15:30 - 16:00

SESSION 3: PULSE COMPRESSION TECHNIQUES

8 April 2025 • 16:00 - 17:30 | Kepler

Session Chair(s): **Marcus Seidel**, Deutsches Elektronen-Synchrotron (Germany)

13532-10 • 16:00 - 16:30

Towards direct nonlinear compression of long-pulse lasers to the femtosecond regime *(Invited Paper)*

Author(s): **Gaspard Beaufort**, Deutsches Elektronen-Synchrotron (Germany); **Nayla Jimenez**, Deutsches Elektronen-Synchrotron (Germany), Helmholtz-Institut Jena (Germany), GSI Helmholtzzentrum für Schwerionenforschung GmbH (Germany); **Victor Hariton**, Ayhan Tajalli, Ingmar Hartl, Deutsches Elektronen-Synchrotron (Germany); **Marcus Seidel**, Deutsches Elektronen-Synchrotron (Germany), Helmholtz-Institut Jena (Germany), GSI Helmholtzzentrum für Schwerionenforschung GmbH (Germany)

13532-13 • 16:30 - 16:50

Post-compression of multi-terawatt long-wave infrared pulses

Author(s): **Mikhail N. Polyanskiy**, Igor V. Pogorelsky, Dismas K. Choge, Marcus Babzien, William Li, Mark A. Palmer, Brookhaven National Lab. (United States)

13532-14 • 16:50 - 17:10

Compression of a repetition-rate tunable electro-optic laser in the multi-GHz regime

Author(s): **Duncan Sarton, Denis Marion, Jérôme Lhermite, Jean-Christophe Delagnes, Philippe Balcou**, Ctr. Lasers Intenses et Applications (France); **Charles Lacampagne**, Univ. de Bordeaux (France)

13532-47 • 17:10 - 17:30

Robust pulse compression gratings at 1 μ m or 2 μ m

Author(s): **Yuxing Han, Yunxia Jin**, SIOM (China)

Wednesday 9 April 2025

SESSION 4: LASER BEAM AND PULSE DIAGNOSTICS

9 April 2025 • 11:00 - 12:20 | Kepler

Session Chair(s): **Hiromitsu Kiriya**, National Institutes for Quantum Science and Technology (Japan)

13532-15 • 11:00 - 11:20

Simple few-shot method for spectrally resolving the wavefront of an ultrashort laser pulse

Author(s): **Slava Smartsev**, Lab. d'Optique Appliquée (France); **Aaron Liberman**, Weizmann Institute of Science (Israel); **Igor Andriyash, Antoine Cavagna, Alessandro Flacco, Camilla Giaccaglia, Jaismeen Kaur, Josephine Monzac**, Lab. d'Optique Appliquée (France); **Sheroy Tata**, Weizmann Institute of Science (Israel); **Aline Vernier**, Lab. d'Optique Appliquée (France); **Victor Malka**, Weizmann Institute of Science (Israel); **Rodrigo Lopez-Martens, Jerome Faure**, Lab. d'Optique Appliquée (France)

13532-16 • 11:20 - 11:40

Spectrally-resolved wavefront sensor for spatio-temporal coupling measurements of ultra-high-intensity lasers

Author(s): **Alok Kumar Pandey, Xavier Levecq, Guillaume Dovillaire, Jérôme Legrand, Rafael Porcar-Guezenc, Imagine Optic SA** (France)

13532-17 • 11:40 - 12:00

Revealing the spatio-temporal structure of mid-infrared laser pulses

Author(s): **Roland Sándor Nagymihály, Bálint Kiss**, ELI-ALPS Research Institute (Hungary); **Miguel Miranda, Matias Charrut, Paulo T. Guerreiro**, Sphere Ultrafast Photonics (Portugal); **Levente Lehotai**, ELI-ALPS Research Institute (Hungary); **Eric Cormier**, ELI-ALPS Research Institute (Hungary), Lab. Photonique Numérique et Nanosciences (LP2N), Univ. de Bordeaux (France); **Rosa Romero**, Sphere Ultrafast Photonics (Portugal)

13532-18 • 12:00 - 12:20

Complex laser fields characterization at the dual arm 10 PW laser system of ELI-NP

Author(s): **Daniel Ursescu**, Institutul National de Cercetare-Dezvoltare pentru Fizica si Inginerie Nucleara Horia Hulubei (Romania)

Lunch/Exhibition Break 12:20 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)
Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)
WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 5: HIGH ENERGY PW SYSTEMS

9 April 2025 • 15:40 - 17:50 | Kepler

Session Chair(s): **Daniel Ursescu**, Institutul National de Cercetare-Dezvoltare pentru Fizica si Inginerie Nucleara Horia Hulubei (Romania)

13532-19 • 15:40 - 16:10

Laser system design and critical technologies for the NSF OPAL project (*Invited Paper*)

Author(s): **Jake Bromage, Seung-Whan Bahk, Matthew Barczys, Alex Bolognesi, Christophe Dorrer, Nagitha Ekanayake, Chengyong Feng, Elizabeth Hill, Cheonha Jeon, Michael Krieger, Brian Kruschwitz, Joseph Kwiatkowski, Erik Power, Benjamin Webb, Jonathan D. Zuegel**, Univ. of Rochester (United States)

13532-20 • 16:10 - 16:40

ELI Beamlines lasers: status update (*Invited Paper*)

Author(s): **Bedřich Rus, Pavel Bakule, Roman Antipenkov, Tyler Green, Petr Szotkowski, Jakub Novák, Pavel Trojek, Štěpán Vyhlička, Ludovít Haizer, Daniel Kramer**, ELI Beamlines (Czech Republic)

13532-21 • 16:40 - 17:00

Status of the new high intensity laser facilities under construction in the UK: Extreme Photonics Application Centre and Vulcan 20-20 (*Invited Paper*)

Author(s): **Cristina Hernandez-Gomez, John Collier, Chris Armstrong, Vesselin Aleksandrov, Nicola Booth, Thomas Butche, David Carrol, Robert Clarke, Helder Crespo, Tiago Faria Pinto, Mariastefania De-vido, Kevin Glize, James Green, Robert Heathcote, Pedro Oliveira, Matthew Oliver, Paul Mason, Rajeev Pattathil, Gary Quinn, Christopher Spindloe, Nicholas Stuart, Dan Symes, Trevor Winstone**, STFC Rutherford Appleton Lab (United Kingdom)

13532-22 • 17:00 - 17:20

Comparison research for the temporal contrast of the petawatt J-KAREN-P laser

Author(s): **Hiromitsu Kiriya, Yasuhiro Miyasaka, Akira Kon, Mamiko Nishiuchi, Akito Sagisaka, Sasao Hajime, Alexander Pirozhkov, Yuji Fukuda, Koichi Ogura, Kotaro Kondo, Nobuhiko Nakanii, Yuji Mashiba, Nicholas Dover, Chang Liu, Masaki Kando**, National Institutes for Quantum Science and Technology (Japan); **Stefan Bock, Tim Ziegler, Thomas Püschel, Hans-Peter Schlenvoigt, Karl Zeil, Ulrich Schramm**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Il Woo Choi, Chang Hee Nam**, Gwangju Institute of Science and Technology (Korea, Republic of)

13532-23 • 17:20 - 17:50

Commissioning of the L4 10 PW kilojoule pulse compressor (*Invited Paper*)

Author(s): **Bedřich Rus**, ELI Beamlines (Czech Republic)

POSTERS-WEDNESDAY

9 April 2025 • 17:40 - 19:15 | Conference Foyer

13532-11 • 17:40 - 19:15

Automated optimization of laser pulse temporal shape

Author(s): **Rostislav Matuška**, ELI ERIC (Czech Republic), Charles Univ. (Czech Republic); **Davorin Peceli**, ELI ERIC (Czech Republic); **Ishraq Md Anjum**, Univ. of Maryland, Baltimore County (United States); **Roman Antipenkov, Boguslaw Tykalewicz, Bedřich Rus**, ELI ERIC (Czech Republic)

13532-36 • 17:40 - 19:15

Cryogenic helium cooling for high-energy laser head using the inverse Brayton cycle

Author(s): **Jonathan Tyler Green**, ELI ERIC (Czech Republic); **Vladislav Plasil**, ATEKO a.s. (Czech Republic); **Martin Fibrich, Pavel Soukup, Jan Bartoníček, Marek Rajdl, Karel Majer, Jack A. Naylor, Daniel Kramer, Bedřich Rus**, ELI ERIC (Czech Republic)

13532-37 • 17:40 - 19:15

500 mJ, 1 kHz, thin-disk multipass amplifier

Author(s): **Robert Boge, Pavel Bakule**, ELI Beamlines (Czech Republic)

13532-38 • 17:40 - 19:15

Efficient laser-based solid-state lighting with thermally self-managing colour converter phosphors-silver nanoparticle composite

Author(s): **Dheeraj Kumar, R. K. Varshney, Dalip S. Mehta**, Indian Institute of Technology Delhi (India)

13532-39 • 17:40 - 19:15

Generation of pulsed structured beams with laser seeding techniques

Author(s): **Shu-Chun Chu, Yu-Chuan Chang**, National Cheng Kung Univ. (Taiwan)

13532-40 • 17:40 - 19:15

Realization of a 4 kHz, large energy single-frequency ns optical parametric oscillator by suppressing optical parametric generation

Author(s): **Huadong Lu**, Shanxi Univ. (China)

13532-41 • 17:40 - 19:15

Tm:YAG laser generating Q-switched pulses in the atmospheric window around the wavelength of 2036nm

Author(s): Dominika Popelová, Jan Šulc, Jan Kratochvíl, Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, CRYTUR spol s.r.o. (Czech Republic)

13532-42 • 17:40 - 19:15

Compact 19 kW/8ns pulse Nd:YAG/V:YAG laser source at 1.32 μ m

Author(s): Kryštof Kadlec, Jan Šulc, Michal Němec, Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Radim Kudělka, CRYTUR spol s.r.o. (Czech Republic)

13532-43 • 17:40 - 19:15

High peak power, eye-safe, nanosecond diode-pumped Q-switched lasers

Author(s): Van Tuan Vu, Van Thinh Hoang, Duy Khanh Duong, Xuan Duc Cao, Tuan Anh Nguyen, Bao Dong To, Viettel High-Tech Industrial Corp. (Vietnam)

13532-44 • 17:40 - 19:15

Output peak-power optimization of Nd:YAG/Cr:YAG microchip laser

Author(s): Jan Šulc, Kryštof Kadlec, Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Lukáš Beran, CRYTUR spol s.r.o. (Czech Republic)

13532-45 • 17:40 - 19:15

Measurement of fluorescence lifetime in thulium doped laser active media: minimizing reabsorption effects with the confocal method

Author(s): Tereza Nováková, Czech Technical Univ. in Prague (Czech Republic), ELI ERIC (Czech Republic); Karel Veselský, Jan Šulc, Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic)

13532-46 • 17:40 - 19:15

VIS, UV and DUV wavelength extension of Yb:YAG diode-pumped thin-disk laser

Author(s): Šimon Šatra, HiLASE Ctr. (Czech Republic), Charles Univ. (Czech Republic); Ondřej Novák, Hana Turčičová, Jiří Mužík, Petr Hauschwitz, Martin Smrž, Tomáš Mocek, HiLASE Ctr. (Czech Republic)

Thursday 10 April 2025

SESSION 6: ADVANCED TECHNOLOGIES FOR HIGH-POWER LASERS

10 April 2025 • 8:40 - 10:20 | Kepler

Session Chair(s): Jake Bromage, Univ. of Rochester (United States)

13532-24 • 8:40 - 9:00

High-power and high-reliability 808nm VCSEL to replace laser bar and flash lamp for Nd:YAG laser pumping

Author(s): Yang Li, Chuanchuan Li, Xin Wei, Lianghai Chen, Institute of Semiconductors (China)

13532-25 • 9:00 - 9:20

AI-enhanced environmental control and energy sustainability in multi-petawatt laser facilities

Author(s): Davorin Peceli, Patricia Buganova, Lukas Chrast, Jakub Urban, Pavel Koupil, ELI ERIC (Czech Republic)

13532-26 • 9:20 - 9:40

Comparison and optimization of continuous passively mode-locked Nd, Y:SrF₂ and Nd, Gd:SrF₂ lasers for sub-picosecond pulse generation

Author(s): František Novák, Milan Frank, Michal Jelinek, David Vyhlídal, Czech Technical Univ. in Prague (Czech Republic); Zhonghan Zhang, Dapeng Jiang, Liangbi Su, Shanghai Institute of Ceramics (China); Vaclav Kubecek, Czech Technical Univ. in Prague (Czech Republic)

13532-27 • 9:40 - 10:00

Design and implementation of a terawatt Cr:ZnSe laser at 2400 nm

Author(s): Clemens Anschütz, Joachim Hein, Malte Kaluza, Helmholtz Institute Jena (Germany)

13532-28 • 10:00 - 10:20

Demonstration of high-peak power-passive coherent beam combining with solid-state amplifier

Author(s): Shigeki Oshima, Jin Akai, Yuhei Ueno, Doshisha Univ. (Japan), National Institutes for Quantum Science and Technology (Japan); Hajime Sasao, Yasuhiro Miyasaka, Zechen Lan, National Institutes for Quantum Science and Technology (Japan); Masayuki Suzuki, Doshisha Univ. (Japan); Hiroyuki Toda, Doshisha Univ. (Japan), National Institutes for Quantum Science and Technology (Japan); Hiromitsu Kiriya, National Institutes for Quantum Science and Technology (Japan), Doshisha Univ. (Japan)

Coffee Break 10:20 - 10:50

SESSION 7: HIGH AVERAGE-POWER LASER SYSTEMS

10 April 2025 • 10:50 - 12:30 | Kepler

Session Chair(s): **Andreas R. Maier**, Deutsches Elektronen-Synchrotron (Germany); **Guido Palmer**, Deutsches Elektronen-Synchrotron (Germany)

13532-29 • 10:50 - 11:20

Tm:YLF: the next generation of high-power laser technology (*Invited Paper*)

Author(s): **Zbyněk Hubka**, Lawrence Livermore National Laboratory (United States)

13532-30 • 11:20 - 11:50

Physics and technology of liquid face-cooling for multi-kiloWatt Yb-YAG laser amplifiers (*Invited Paper*)

Author(s): **Philippe Balcou**, CNRS (France), Univ. de Bordeaux (France); **Christophe Féral**, CEA (France); **Stéphane Petit**, CNRS (France);

Dominique Descamps, CEA (France); **Antoine Rohm**, **Marie-Christine Nadeau**, CNRS (France); **Mathias Lachat**, **Duncan Sarton**, **Eric**

Mevel, Univ. de Bordeaux (France); **Guilhem Rouzaud**, **Guillaume Duchateau**, **Laurent Lamaignere**, CEA (France); **Jérôme Lhermite**, CNRS

(France); **Denis Marion**, CEA (France)

13532-31 • 11:50 - 12:10

Design and commissioning of an MLD grating compressor for the high average-power Ti:Sa laser KALDERA

Author(s): **Christian M. Werle**, Deutsches Elektronen-Synchrotron (Germany); **Cora Braun**, Deutsches Elektronen-Synchrotron (Germany),

Univ. Hamburg (Germany); **Abdullah Yousefi**, Deutsches Elektronen-Synchrotron (Germany); **Matthias Schnepf**, Univ. Hamburg (Germany);

Lutz Winkelmann, **Caterina Vidoli**, **Manuel Kirchen**, **Guido Palmer**, **Andreas R. Maier**, Deutsches Elektronen-Synchrotron (Germany)

13532-32 • 12:10 - 12:30

Technology development for single-cycle exawatt lasers

Author(s): **Zhaoyang Li**, Zhangjiang Lab (China), Shanghai Institute of Optics and Fine Mechanics (China)

Lunch Break 12:30 - 13:40

SESSION 8: ADVANCES IN HIGH-REPETITION RATE LASER TECHNOLOGY

10 April 2025 • 13:40 - 15:00 | Kepler

Session Chair(s): **Joachim Hein**, Friedrich-Schiller-Univ. Jena (Germany)

13532-33 • 13:40 - 14:10

Bonding of single crystal Yb:YAG for aperture scaling of high energy, high-pulse repetition rate lasers (*Invited Paper*)

Author(s): **Mariastefania De Vido**, **Jonathan Phillips**, STFC Rutherford Appleton Lab. (United Kingdom); **David Meissner**, **Stephanie**

Meissner, Onyx Optics Inc. (United States); **Gary Quinn**, **Saamyabrata Banerjee**, STFC Rutherford Appleton Lab. (United Kingdom); **Martin**

Divoky, HiLASE Ctr. (Czech Republic); **Paul D. Mason**, STFC Rutherford Appleton Lab. (United Kingdom)

13532-34 • 14:10 - 14:40

Cryocooled Ti:sapphire amplifiers for laser plasma acceleration at high repetition rates (*Invited Paper*)

Author(s): **Juan B. Gonzalez-Diaz**, **Man Jiang**, **Timo Eichner**, Deutsches Elektronen-Synchrotron (Germany); **Cora Braun**, Deutsches

Elektronen-Synchrotron (Germany), Univ. Hamburg (Germany); **Thomas Hülsenbusch**, **Abdullah Yousefi**, **Jelto Thesinga**, **Mikhail**

Pergament, **Wim P. Leemans**, **Guido Palmer**, **Andreas R. Maier**, Deutsches Elektronen-Synchrotron (Germany)

13532-35 • 14:40 - 15:00

Temporal pulse shaped fiber front end for high-energy, high-repetition rate nanosecond OPCPA pump laser

Author(s): **Jan Eisenschreiber**, ELI Beamlines (Czech Republic), Charles Univ. (Czech Republic); **Jonathan Tyler Green**, **Jan Bartoniček**, **Jack**

A. Naylor, **Bogusław Tykalewicz**, **Martin Horáček**, **Martin Fibrich**, **Bedřich Rus**, ELI Beamlines (Czech Republic)

CONFERENCE 13533

Optics Damage and Materials Processing by EUV/X-ray Radiation (XDam9)

7 - 9 April 2025 | Veduta

Conference Chair(s): **Libor Juha**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Saša Bajt**, Deutsches Elektronen-Synchrotron (Germany); **Stéphane Guizard**, CEA-DRF-IRAMIS, Lab. des Solides Irradiés (France)

Program Committee: **Jaromír Chalupský**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Henryk Fiedorowicz**, Military Univ. of Technology (Poland); **Jacek Krzywinski**, SLAC National Accelerator Lab. (United States); **Igor A. Makhotkin**, Univ. Twente (Netherlands); **Klaus Mann**, Laser-Lab. Göttingen e.V. (Germany); **Tomáš Mocek**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Jorge J. Rocca**, Colorado State Univ. (United States); **Michael Störmer**, Helmholtz-Zentrum Geesthacht (Germany); **Marco Truccato**, Univ. degli Studi di Torino (Italy); **Philippe Zeitoun**, Ecole Nationale Supérieure de Techniques Avancées (France); **Beata Ziaja-Motyka**, Deutsches Elektronen-Synchrotron (Germany)

Monday 7 April 2025

SESSION 1: DAMAGE MECHANISMS

7 April 2025 • 10:30 - 12:15 | Veduta

Session Chair(s): **Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-1 • 10:30 - 11:10

Damage mechanisms in solid materials irradiated with X-ray free-electron-laser pulses (*Invited Paper*)

Author(s): **Beata Ziaja-Motyka**, Center for Free-Electron-Laser Science, Deutsches Elektronen-Synchrotron (Germany)

13533-2 • 11:10 - 11:35

Diagnostics and qualitative analysis of highly charged ions emitted from copper foil exposed to ultrashort x-ray laser pulses

Author(s): **Josef Krása**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-3 • 11:35 - 12:15

Investigating the damage threshold of X-ray mirror (B4C-coated/Si substrate) at grazing incidence and determining electron collision length at 1 keV at the European XFEL (*Invited Paper*)

Author(s): **Marziyeh Tavakkoly**, European XFEL GmbH (Germany), Univ. Hamburg (Germany); **Jaromir Chalupsky**, **Vera Hajkova**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Wolfgang Hillert**, Deutsches Elektronen-Synchrotron (Germany), Univ. Hamburg (Germany); **Simon Jelinek**, **Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Mikako Makita**, **Tommaso Mazza**, **Michael Meyer**, **Jacobo Montano**, **Harald Sinn**, European XFEL GmbH (Germany); **Vojtěch Vozda**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Maurizio Vannoni**, European XFEL GmbH (Germany)

Lunch Break 12:15 - 13:35

SESSION 2: DAMAGE TO OPTICS

7 April 2025 • 13:35 - 14:50 | Veduta

Session Chair(s): **Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-4 • 13:35 - 14:00

13.5nm femtosecond laser damage behaviors of EUV multilayer mirrors

Author(s): **Yuan'an Zhao**, **Jiaoling Zhao**, **Xiaoran Li**, Shanghai Institute of Optics and Fine Mechanics (China); **Zhan Lu**, Zhangjiang Lab. (China); **Jiahao Li**, **Yunqi Peng**, **Jianda Shao**, Shanghai Institute of Optics and Fine Mechanics (China)

13533-5 • 14:00 - 14:25

Heating of optical elements exposed to intense X-rays inspected by NIR thermal camera

Author(s): **Zuzana Valdová, Jakub Bulíčka, Tomáš Burian, Jaromír Chalupský**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Mattia Ronch**, European XFEL GmbH (Germany); **Jan Wild**, Charles Univ. (Czech Republic); **Patrik Vagovič**, European XFEL GmbH (Germany); **Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-6 • 14:25 - 14:50

Formation of carbon deposit on a scintillator screen exposed to x-ray FEL radiation

Author(s): **Andreas Koch, Jan Grünert, Maurizio Vannoni, Mikako Makita**, European XFEL GmbH (Germany); **Alžběta Horynová, Jakub Bulíčka, Luděk Vyšín, Věra Hájková, Tomáš Burian, Jaromír Chalupský, Martin Vondráček, Jan Pokorný**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Jan Hrabovský**, HiLASE Ctr., Institute of Physics of the CAS, v.v.i. (Czech Republic); **Ján Lančok, Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

ROUND TABLE DISCUSSION: CONTAMINATION OF OPTICS

7 April 2025 • 14:50 - 16:00 | Veduta

Moderator:

Silja Schmidtchen

European XFEL GmbH (Germany)

Coffee Break 16:00 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): **Philip Walther**, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): **Sylvain Gigan**, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 3: RADIATION PROCESSING

8 April 2025 • 11:00 - 12:30 | Veduta

Session Chair(s): **Mark A. van de Kerkhof**, ASML Netherlands B.V. (Netherlands)

13533-7 • 11:00 - 11:40

Interaction of intense nanosecond pulses of extreme ultraviolet (EUV) and the EUV induced plasmas with solids (Invited Paper)

Author(s): **Andrzej S. Bartnik**, **Wojciech Skrzeczanowski**, **Jerzy Kostecki**, **Tomasz Fok**, **Lukasz Wegrzynski**, **Henryk Fiedorowicz**, Wojskowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland)

13533-8 • 11:40 - 12:05

Desorption and ablation of poly(vinylidene fluoride) induced by XUV laser radiation: ion emission studies

Author(s): **David Ettel**, **Luděk Vyšín**, **Alžběta Horynová**, **Jakub Bulíčka**, **Věra Hájková**, **Tomáš Burian**, **Jaromír Chalupský**, **Josef Krása**, **Vojtěch Vozda**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Miroslav Černík**, Technical Univ. of Liberec (Czech Republic); **Jorge J. Rocca**, **Carmen S. Menoni**, Colorado State Univ. (United States); **Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-9 • 12:05 - 12:30

Investigation of functional oxides modifications induced by synchrotron irradiation

Author(s): **Andrea Alessio**, Univ. degli Studi di Torino (Italy); **Valentina Bonino**, ESRF - The European Synchrotron (France); **Kalle Goß**, Forschungszentrum Jülich GmbH (Germany); **Vanessa Hinojosa**, Univ. de Valladolid (Spain); **Federico Picollo**, **Lorenzo Mino**, Univ. degli Studi di Torino (Italy); **Jorge Serrano**, Univ. de Valladolid (Spain); **Gema Martinez-Criado**, ESRF - The European Synchrotron (France); **Regina Dittmann**, Forschungszentrum Jülich GmbH (Germany); **Marco Truccato**, Univ. degli Studi di Torino (Italy)

Lunch/Exhibition Break 12:30 - 13:40

SESSION 4: TECHNIQUES/INSTRUMENTATION

8 April 2025 • 13:40 - 15:10 | Veduta

Session Chair(s): **Saša Bajt**, Deutsches Elektronen-Synchrotron (Germany)

13533-10 • 13:40 - 14:20

Utilization of wave-front sensing techniques for EUV damage studies (Invited Paper)

Author(s): **Lu Li**, **Chaoneng Wu**, **Sizhong Wu**, Shenzhen Technology Univ. (China); **Mabel Ruiz-Lopez**, Deutsches Elektronen-Synchrotron (Germany); **Yinpeng Zhong**, Institute of Advanced Science Facilities, Shenzhen (China); **Barbara Keitel**, **Elke Plönjes**, Deutsches Elektronen-Synchrotron (Germany); **Philippe Zeitoun**, Lab. d'Optique Appliquée (France)

13533-11 • 14:20 - 14:45

Characterization of non-Gaussian beam profiles using laser ablation

Author(s): **Šimon Jelínek**, **Roman Dudžák**, **Tomáš Burian**, **Jan Dostál**, **Věra Hájková**, **Libor Juha**, **Michal Krupka**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Mikako Makita**, **Marziyeh Tavakkoly**, **Maurizio Vannoni**, European XFEL GmbH (Germany); **Vojtěch Vozda**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Jan Wild**, Charles Univ. (Czech Republic); **Jaromír Chalupský**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-12 • 14:45 - 15:10

Reminisce : refurbishment of mirrors to increase sustainability at light sources

Author(s): **Silja Schmidtchen**, **Idoia Freijo Martin**, **Maurizio Vannoni**, European XFEL GmbH (Germany)

Coffee Break 15:10 - 15:40

SESSION 5: MATERIALS RESPONSE

8 April 2025 • 15:40 - 17:35 | Veduta

Session Chair(s): **Šimon Jelínek**, Institute of Plasma Physics of the CAS, v.v.i. (Czech Republic)

13533-13 • 15:40 - 16:20

Interaction between EUV and construction materials (*Invited Paper*)

Author(s): **Mark A. van de Kerkhof, Vadim Banine, Andrey Nikipelov, Job Beckers**, ASML Netherlands B.V. (Netherlands)

13533-14 • 16:20 - 16:45

Damage to lead iodide under XUV and x-ray laser irradiation

Author(s): **Alžběta Horynová, Věra Hájková, Šimon Jelínek, Jaromír Chalupský, Vojtěch Vozda, Luděk Vyšín, Jakub Bulíčka, Tomáš Burian, Roman Dudžák, Michal Krupka, Zuzana Valdová, Josef Krása**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Michal Šmíd**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Nikita Medvedev, Ladislav Fekete, Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-15 • 16:45 - 17:10

X-ray-induced optical luminescence on ZnO nanostructured films

Author(s): **Valentina Bonino**, ESRF - The European Synchrotron (France); **Michael McKinlay**, Univ. of Glasgow (United Kingdom); **Des Gibson**, Univ. of the West of Scotland (United Kingdom); **Carlos García Nuñez**, Univ. of Glasgow (United Kingdom)

13533-16 • 17:10 - 17:35

Laboratory and computational studies on radiation damage thresholds in tungsten and boron nitride for first-wall applications in IFE reactors

Author(s): **Jakub Bulíčka**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Luděk Vyšín, Nikita Medvedev, Věra Hájková, Ladislav Fekete, Tomáš Burian, Jaromír Chalupský, Josef Krása**, Institute of Physics of the CAS (Czech Republic); **Jiří Matějček**, Institute of Plasma Physics of Czech Academy of Sciences (Czech Republic); **Andreas Koch, Jan Grünert**, European XFEL GmbH (Germany); **Jorge J. Rocca, Carmen S. Menoni**, Colorado State University (United States); **Libor Juha**, Institute of Physics of the CAS (Czech Republic)

POSTERS-TUESDAY

8 April 2025 • 17:30 - 19:00 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Tuesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13533-24 • 17:30 - 19:00

N₂ buffer gas stopping power for ions in LPP x-ray source

Author(s): **Radhwan Alnaimi**, King's College London (United Kingdom)

13533-25 • 17:30 - 19:00

Advancing characterization of non-Gaussian beams fluence distributions

Author(s): **Šimon Jelínek, Roman Dudžák, Tomáš Burian, Jan Dostál, Věra Hájková, Libor Juha, Michal Krupka**, FZU - Institute of Physics of the CAS (Czech Republic); **Mikako Makita, Marziyeh Tavakkoly, Maurizio Vannoni**, European XFEL GmbH (Germany); **Vojtěch Vozda**, FZU - Institute of Physics of the CAS (Czech Republic); **Jan Wild**, Charles University (Czech Republic); **Jaromír Chalupský**, FZU - Institute of Physics of the CAS (Czech Republic)

Wednesday 9 April 2025

SESSION 6: OPTICAL ELEMENTS/MATERIALS

9 April 2025 • 10:30 - 12:25 | Veduta

Session Chair(s): **Zuzana Kuglerová**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-17 • 10:30 - 11:10

Multilayer Laue lenses for focusing XFEL beams (*Invited Paper*)

Author(s): **Margarita Zakharova**, Deutsches Elektronen-Synchrotron (Germany); **Jia Chyi Wong**, The Hamburg Centre for Ultrafast Imaging (Germany); **Mauro Prasciolu**, Deutsches Elektronen-Synchrotron (Germany); **Jan Lukas Dresselhaus**, The Hamburg Centre for Ultrafast Imaging (Germany); **Holger Fleckenstein**, Deutsches Elektronen-Synchrotron (Germany); **Henry N. Chapman**, Deutsches Elektronen-Synchrotron (Germany), The Hamburg Centre for Ultrafast Imaging (Germany), Department of Physics, Universität Hamburg (Germany); **Saša Bajt**, Deutsches Elektronen-Synchrotron (Germany)

13533-18 • 11:10 - 11:30

High-transmission CNT-based membrane for EUV

Author(s): **Mark A. van de Kerkhof**, ASML Netherlands B.V. (Netherlands)

13533-19 • 11:30 - 11:50

Optical metrology for material parameters under X-ray, EUV and VUV irradiation: methods, challenges and future perspectives

Author(s): **Victor Soltwisch, Najmeh Abbasirad, Qais Saadeh, Samira Naghdi, Christian Laubis, Analia Fernandez Herrero, Michael Kolbe, Frank Scholze**, Physikalisch-Technische Bundesanstalt (Germany)

13533-20 • 11:50 - 12:25

Effects of non-equilibrium in ultrafast irradiation of matter (*Invited Paper*)

Author(s): **Nikita Medvedev**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

Lunch/Exhibition Break 12:25 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 7: THEORY/COMPUTER SIMULATIONS

9 April 2025 • 15:40 - 16:55 | Veduta

Session Chair(s): **Beata Ziaja-Motyka**, Deutsches Elektronen-Synchrotron (Germany)

13533-21 • 15:40 - 16:15

Tracking ultrafast changes of optical properties in XUV-ray pumped diamond (*Invited Paper*)

Author(s): **Sebastião Antunes**, Deutsches Elektronen-Synchrotron (Germany), Institute of Nuclear Physics (Poland); **Flavio Capotondi**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Konrad Kapcia**, Adam Mickiewicz Univ. (Poland), Deutsches Elektronen-Synchrotron (Germany); **Victor Tkachenko**, European XFEL GmbH (Germany), Deutsches Elektronen-Synchrotron (Germany); **Beata Ziaja**, Deutsches Elektronen-Synchrotron (Germany), Institute of Nuclear Physics (Poland)

13533-22 • 16:15 - 16:35

Modelling damage formation in polyolefins irradiated with XUV/X-ray free-electron-laser pulses

Author(s): **Nikita Nikishev**, **Nikita Medvedev**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13533-23 • 16:35 - 16:55

Modeling structural and electronic transitions induced by EUV/x-ray irradiation in cadmium sulfide

Author(s): **Aldo Artízmez Peña**, Institute of Physics of the CAS, v.v.i. (Czech Republic), Univ. de La Habana (Cuba); **Nikita Medvedev**, Institute of Physics of the CAS, v.v.i. (Czech Republic), Institute of Plasma Physics of the CAS, v.v.i. (Czech Republic)

ROUND TABLE DISCUSSION: THEORY/COMPUTER SIMULATIONS

9 April 2025 • 16:55 - 17:40 | Veduta

Moderator:

Beata Ziaja-Motyka

Deutsches Elektronen-Synchrotron (Germany)

CONFERENCE 13534

Laser Acceleration of Electrons, Protons, and Ions VIII

7 - 9 April 2025 | Taurus (Mon-Tue), Kepler (Wed)

Conference Chair(s): **Stepan S. Bulanov**, Lawrence Berkeley National Lab. (United States); **Gabriele M. Grittani**, ELI Beamlines (Czech Republic); **Charlotte A. J. Palmer**, Queen's Univ. Belfast (United Kingdom)

Program Committee: **Sergei V. Bulanov**, ELI Beamlines (Czech Republic); **Min Chen**, Shanghai Jiao Tong Univ. (China); **Brigitte Cros**, Lab. de Physique des Gaz et des Plasmas (France); **Eric H. Esarey**, Lawrence Berkeley National Lab. (United States); **Leonida A. Gizzi**, Consiglio Nazionale delle Ricerche (Italy); **Masaki Kando**, National Institutes for Quantum and Radiological Science and Technology (Japan); **Victor Armand Malka**, Weizmann Institute of Science (Israel); **Ulrich Schramm**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Zheng-Ming Sheng**, Shanghai Jiao Tong Univ. (China); **Jörg Schreiber**, Ludwig-Maximilians-Univ. München (Germany); **Carl B. Schroeder**, Lawrence Berkeley National Lab. (United States); **Luis O. Silva**, Univ. Técnica de Lisboa (Portugal); **Alexander G. R. Thomas**, Univ. of Michigan (United States)

Monday 7 April 2025

SESSION 1: ELECTRON ACCELERATION I

7 April 2025 • 8:30 - 10:10 | Taurus

Session Chair(s): **Stepan S. Bulanov**, Lawrence Berkeley National Lab. (United States)

13534-1 • 8:30 - 9:00

Controlled injection and acceleration of electron beams in optically-formed plasma channels (*Invited Paper*)

Author(s): **Alex Picksley**, Lawrence Berkeley National Lab. (United States)

13534-2 • 9:00 - 9:30

Vacuum acceleration and radiation sources driven by flying focus (*Invited Paper*)

Author(s): **Dillon Ramsey**, Univ. of Rochester (United States)

13534-4 • 9:30 - 9:50

Computational study of the density down-ramp injection mechanism in magnetized plasmas in the laser wakefield acceleration

Author(s): **Keren Carolina Vanegas Perez**, **Jesús E. López Durán**, **Eduardo A. Orozco Ospino**, Univ. Industrial de Santander (Colombia)

13534-5 • 9:50 - 10:10

Effects of nanoparticle parameters on electron injection in NA-LWFA

Author(s): **Alžběta Špádová**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic);

Petr Valenta, **Sebastian Lorenz**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Jiří Šišma**, **Michal Nevřkla**, **Filip Vitha**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Gabriele Maria Grittani**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic)

Coffee Break 10:10 - 10:40

SESSION 2: ELECTRON ACCELERATION II

7 April 2025 • 10:40 - 12:20 | Taurus

Session Chair(s): **Charlotte Palmer**, Queen's Univ. Belfast (United Kingdom)

13534-6 • 10:40 - 11:00

1 kHz electron beams for on-demand irradiation

Author(s): **Carlo Maria Lazzarini**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic);

Gabriele Maria Grittani, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Illia Zymak**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Petr Valenta**, **Leonardo Vila Nova Gonçalves**, ELI Beamlines (Czech Republic); **Sebastian Lorenz**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Alžběta Špádová**, ELI

Beamlines (Czech Republic), ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Marco Favetta**, Azienda

Ospedaliero Univ. Consorziato Policlinico (Italy); **Emília Rita Szabó**, ELI-ALPS Research Institute (Hungary); **Róbert Polanek**, ELI-ALPS Research Institute (Hungary), Univ. of Szeged (Hungary); **Júlia Dudás**, ELI-ALPS Research Institute (Hungary); **Katalin Hideghety**, ELI-ALPS Research Institute (Hungary), Univ. of Szeged (Hungary); **Sergei V. Bulanov**, ELI Beamlines (Czech Republic), National Institutes for Quantum Science and Technology (Japan)

13534-7 • 11:00 - 11:20

A geometrical approach to modelling laser wakefield accelerators

Author(s): **David A. Burton**, Lancaster Univ. (United Kingdom)

13534-8 • 11:20 - 11:40

Reduction of the electron-beam divergence of laser wakefield accelerators by integrated plasma lenses

Author(s): **Susanne Schöbel**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Yen-Yu Chang**, **Jurjen Couperus Cadabag**, **Alexander Debus**, **Amin Ghaith**, **Maxwell LaBerge**, **Richard Pausch**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Patrick Ufer**, **Ulrich Schramm**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Arie Irman**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany)

13534-9 • 11:40 - 12:00

Realization of plasma photocathode injection in a compact plasma accelerator powered by laser-accelerated electron beams

Author(s): **Patrick Ufer**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Alastair Nutter**, Univ. of Strathclyde (United Kingdom)

13534-10 • 12:00 - 12:20

Electron acceleration in a wakefield generated by structured light

Author(s): **Aaron Liberman**, Weizmann Institute of Science (Israel); **Slava Smartsev**, Lab. d'Optique Appliquée, Ecole Nationale Supérieure de Techniques Avancées, CNRS (France), École Polytechnique, Institut Polytechnique de Paris (France); **Anton Golovanov**, **Sheroy Tata**, Weizmann Institute of Science (Israel); **Igor Andriyash**, Lab. d'Optique Appliquée, Ecole Nationale Supérieure de Techniques Avancées, CNRS (France), École Polytechnique, Institut Polytechnique de Paris (France); **Salome Benracassa**, **Eitan Levine**, **Eyal Kroupp**, Weizmann Institute of Science (Israel); **Ronan Lahaye**, Lab. d'Optique Appliquée (France); **Cedric Thauray**, Lab. d'Optique Appliquée, Ecole Nationale Supérieure de Techniques Avancées, CNRS (France), École Polytechnique, Institut Polytechnique de Paris (France); **Victor Malka**, Weizmann Institute of Science (Israel)

Lunch Break 12:20 - 13:30

SESSION 3: ELECTRON ACCELERATION III

7 April 2025 • 13:30 - 15:50 | Taurus

Session Chair(s): **Gabriele Maria Grittani**, ELI Beamlines (Czech Republic)

13534-11 • 13:30 - 14:00

Revealing the three-dimensional structure of microbunched plasma wakefield accelerated electron beams (Invited Paper)

Author(s): **Maxwell LaBerge**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany)

13534-12 • 14:00 - 14:30

Optimized scaling for reaching maximum electron energy from laser wakefield accelerator (Invited Paper)

Author(s): **Petr Valenta**, **Sergei Bulanov**, ELI ERIC (Czech Republic)

13534-13 • 14:30 - 14:50

Surface wave electron acceleration from flat foils at parallel laser incidence

Author(s): **Adrian McCay**, Queen's Univ. Belfast (United Kingdom)

13534-14 • 14:50 - 15:10

Laser wakefield electron acceleration simulation using physics-informed diffusion probabilistic models

Author(s): **Matěj Jech**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Alexander Kovalenko**, Czech Technical Univ. in Prague (Czech Republic); **Carlo Maria Lazzarini**, **Gabriele Maria Grittani**, ELI ERIC (Czech Republic)

13534-15 • 15:10 - 15:30

Energy compression of a laser-plasma accelerator

Author(s): **Paul Winkler**, **Max Trunk**, **Lars Hübner**, **Alberto Martinez de la Ossa**, **Sören Jalas**, **Manuel Kirchen**, **Ilya Agapov**, **Sergey A. Antipov**, **Reinhard Brinkmann**, **Timo Eichner**, **Angel Ferran Pousa**, **Thomas Hülsenbusch**, **Guido Palmer**, Deutsches Elektronen-Synchrotron (Germany); **Matthias Schnepf**, Univ. Hamburg (Germany); **Kaja Schubert**, **Maxence Thevenet**, **Paul Andreas Walker**, **Christian Werle**, Deutsches Elektronen-Synchrotron (Germany); **Wim P. Leemans**, Deutsches Elektronen-Synchrotron (Germany), Univ. Hamburg (Germany); **Andreas R. Maier**, Deutsches Elektronen-Synchrotron (Germany)

13534-16 • 15:30 - 15:50

LWFA kHz electron beam quality improvement and online diagnostics: design and recent experimental results

Author(s): **Illia Zymak**, ELI ERIC (Czech Republic); **Carlo Maria Lazzarini**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Gabriele Maria Grittani**, ELI Beamlines (Czech Republic); **Sebastian Lorenz**, **Filip Vitha**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Jiří Šišma**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Leonardo Vila Nova Goncalves**, **Sergei V. Bulanov**, ELI Beamlines (Czech Republic)

Coffee Break 15:50 - 16:15

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): **Philip Walther**, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): **Sylvain Gigan**, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:00

SESSION 4: APPLICATIONS I

8 April 2025 • 11:00 - 12:40 | Taurus

Session Chair(s): **Stefan S. Bulanov**, Lawrence Berkeley National Lab. (United States)

13534-17 • 11:00 - 11:30

Observation of quantum effects on radiation reaction in strong fields (*Invited Paper*)

Author(s): **Eva Los**, Univ. of Oxford (United Kingdom); **Elias Gerstmayr**, Queen's Univ. Belfast (United Kingdom); **Christopher Arran**, Univ. of York (United Kingdom); **Matthew J. V. Streeter**, Queen's Univ. Belfast (United Kingdom); **Cary Colgan**, Tokamak Energy Ltd. (United Kingdom); **Claudia C. Cobo**, **Brendan Kettle**, Imperial College London (United Kingdom); **Thomas G. Blackburn**, Göteborgs Univ. (Sweden); **Nicolas Bourgeois**, STFC Rutherford Appleton Lab. (United Kingdom); **Luke Calvin**, Queen's Univ. Belfast (United Kingdom); **Jason Cardarelli**, Univ. of Michigan (United States); **Niall Cavanagh**, Queen's Univ. Belfast (United Kingdom); **Stephen J. D. Dann**, STFC Rutherford Appleton Lab. (United Kingdom); **Antonino Di Piazza**, Univ. of Rochester (United States); **Rebecca Fitzgarrald**, Univ. of Michigan (United States); **Anton Ilderton**, The Univ. of Edinburgh (United Kingdom); **Christoph H. Keitel**, Max-Planck-Institut für Kernphysik (Germany); **Mattias Marklund**, Göteborgs Univ. (Sweden); **Paul McKenna**, Univ. of Strathclyde (United Kingdom); **Christopher D. Murphy**, Univ. of York (United Kingdom); **Zulfikar Najmudin**, Imperial College London (United Kingdom); **Peter Parsons**, Queen's Univ. Belfast (United Kingdom); **Rajeev Pattathil**, **Daniel R. Symes**, STFC Rutherford Appleton Lab. (United Kingdom); **Matteo Tamburini**, Max-Planck-Institut für Kernphysik (Germany); **Alexander G. R. Thomas**, Univ. of Michigan (United States); **Jonathan Wood**, Deutsches Elektronen-Synchrotron (Germany); **Matt Zepf**, Friedrich-Schiller-Univ. Jena (Germany); **Gianluca Sarri**, Queen's Univ. Belfast (United Kingdom); **Christopher Ridgers**, Univ. of York (United Kingdom); **Stuart Mangles**, Imperial College London (United Kingdom)

13534-18 • 11:30 - 12:00

Probing strong-field QED through Compton scattering between a multi-GeV electron beam and an ultra-intense laser pulse (*Invited Paper*)

Author(s): **Mohammad Mirzaie**, Institute for Basic Science (Korea, Republic of), Gwangju Institute of Science and Technology (Korea, Republic of); **Calin I. Hojbota**, **Doyeon Kim**, **Vishwa B. Pathak**, Institute for Basic Science (Korea, Republic of); **Chulmin Kim**, Gwangju Institute of Science and Technology (Korea, Republic of); **Marija Vranic**, **Oscar Amaro**, Instituto Superior Técnico, Univ. de Lisboa (Portugal); **Jaehee Sung**, **Jinwoo Yoon**, **Seongku Lee**, **Kiyong Kim**, **Chang Hee Nam**, Institute for Basic Science (Korea, Republic of), Gwangju Institute of Science and Technology (Korea, Republic of)

13534-19 • 12:00 - 12:20

Relativistic plasma mirrors for bright coherent X-ray generation

Author(s): **Marcel Lamač**, **Petr Valenta**, **Jaroslav Nejdil**, **Martin Matys**, **Uddhab Chaulagain**, **Tae Moon Jeong**, **Sergei V. Bulanov**, ELI Beamlines (Czech Republic)

13534-20 • 12:20 - 12:40

Relativistic dense electron sheets from a double layer target

Author(s): **Jianhui Bin**, Shanghai Institute of Optics and Fine Mechanics (China)

Lunch/Exhibition Break 12:40 - 13:40

SESSION 5: APPLICATIONS II

8 April 2025 • 13:40 - 15:40 | Taurus

Session Chair(s): **Gabriele Maria Grittani**, ELI Beamlines (Czech Republic)

13534-21 • 13:40 - 14:10

Experimental demonstration of bright laser-driven gamma flash (*Invited Paper*)

Author(s): **Alexander S. Pirozhkov**, **A. Sagisaka**, **K. Ogura**, National Institutes for Quantum Science and Technology (Japan); **E. A. Vishnyakov**, ELI ERIC (Czech Republic); **A. N. Shatokhin**, P. N. Lebedev Physical Institute (Russian Federation); **C. D. Armstrong**, STFC Rutherford Appleton Lab. (United Kingdom); **T. Z. Esirkepov**, National Institutes for Quantum Science and Technology (Japan); **B. Gonzalez Izquierdo**, National Institutes for Quantum Science and Technology (Japan), Marvel Fusion GmbH (Germany); **T. A. Pikuz**, Osaka Univ. (Japan); **P. Hadjisolomou**, ELI ERIC (Czech Republic); **M. A. Alkhimova**, Joint Institute for High Temperatures (Russian Federation); **Christopher Arran**, Univ. of York (United Kingdom); **I. P. Tsygvintsev**, ISTEQ AR LLC (Armenia); **Petr Valenta**, ELI ERIC (Czech Republic); **S. A. Pikuz**, HB11 Energy Holdings Pty. Ltd. (Australia); **W. Yan**, ELI ERIC (Czech Republic), Shanghai Jiao Tong Univ. (China); **Tae Moon Jeong**, ELI ERIC (Czech Republic); **Sushil K. Singh**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **O. Finke**, **Gabriele Maria Grittani**, **Michal Nevrkla**, ELI ERIC (Czech Republic); **Carlo Maria Lazzarini**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **A. Velyhan**, ELI ERIC (Czech Republic); **T. Hayakawa**, **Y. Fukuda**, National Institutes for Quantum Science and Technology (Japan); **James K. Koga**, National Institutes for Quantum Science and Technology (Japan), Kyoto International Univ. Academy (Japan); **M. Ishino**, **Kotaro Kondo**, **Y. Miyasaka**, **Akira Kon**, **M. Nishikino**, National Institutes for Quantum Science and Technology (Japan); **E. V. Nosach**, Institute of Physics, NASU (Ukraine); **D. Khikhlukha**, National Institutes for Quantum Science and Technology (Japan); **A. O. Kolesnikov**, **E. N. Ragozin**, P. N. Lebedev Physical Institute (Russian Federation); **V. A. Gasilov**, M. V. Keldysh Institute of Applied Mathematics (Russian Federation); **D. Kumar**, **Jaroslav Nejdil**, **P. V. Sasorov**, **S. Weber**, **D. Margarone**, ELI ERIC (Czech Republic); **Y. Kato**, Osaka Univ. (Japan); **G. Korn**, ELI ERIC (Czech Republic), Marvel Fusion GmbH (Germany); **Hiromitsu Kiriya**, **K. Kondo**, National Institutes for Quantum Science and Technology (Japan); **Christopher Ridgers**, Univ. of York (United Kingdom); **T. Kawachi**, **M. Kando**, National Institutes for Quantum Science and Technology (Japan); **Sergei V. Bulanov**, National Institutes for Quantum Science and Technology (Japan), ELI ERIC (Czech Republic)

13534-22 • 14:10 - 14:40

Bayesian approaches to measurement and optimization (*Invited Paper*)

Author(s): **Andreas Döpp**, Ludwig-Maximilians-Univ. München (Germany)

13534-23 • 14:40 - 15:00

Next-generation sub-micron droplet source for laser-matter interactions

Author(s): **Sreehari Kaniyeri**, **Hang Li**, Umeå Univ. (Sweden); **Sargis Ter Avetisyan**, Extreme Light Infrastructure Nuclear Physics (Romania); **Matthias Schnuerer**, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); **Ulrich Teubner**, Hochschule Emden-Leer (Germany); **Laszlo Veisz**, Umeå Univ. (Sweden)

13534-24 • 15:00 - 15:20

Development of the scintillator stack spectrometer for laser-plasma experiments at Prague Asterix Laser System

Author(s): **Shubham Agarwal**, **Sushil K. Singh**, **Michal Krupka**, **Pooja Devi**, Institute of Physics of the CAS, v.v.i. (Czech Republic); **Alejandro L. Garcia**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Roman Dudžák**, Institute of Plasma Physics of the CAS, v.v.i. (Czech Republic); **Valeria Istoksaia**, **Lorenzo Giuffrida**, ELI Beamlines (Czech Republic); **David Chvátal**, Nuclear Physics Institute of the CAS, v.v.i. (Czech Republic); **Josef Krása**, **Libor Juha**, Institute of Physics of the CAS, v.v.i. (Czech Republic)

13534-25 • 15:20 - 15:40

High average-power laser plasma acceleration at DESY

Author(s): **Manuel Kirchen**, **Sören Jalas**, **Philipp Messner**, **Tatiana Nechaeva**, **Timo Eichner**, **Luisa Niggemeier**, **Abdullah Yousefi**, **Lutz Winkelmann**, **Guido Palmer**, **Kaja Schubert**, **Paul Andreas Walker**, **Wim P. Leemans**, **Andreas R. Maier**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 15:40 - 16:00**SESSION 6: ION ACCELERATION I**

8 April 2025 • 16:00 - 17:40 | Taurus

Session Chair(s): **Charlotte Palmer**, Queen's Univ. Belfast (United Kingdom)

13534-26 • 16:00 - 16:20

Experimental comparison of TNSA and LWFA schemes for neutron generation on ALLS 150 TW

Author(s): **Simon Vallières**, Institut National de la Recherche Scientifique (Canada); **Francois Fillion-Gourdeau**, Institut National de la Recherche Scientifique (Canada), Infinite Potential Labs. (Canada); **Sylvain Fourmaux**, Institut National de la Recherche Scientifique (Canada); **Nicholas Beier**, Univ. of Alberta (Canada), Lawrence Livermore National Lab. (United States); **Nils Dietrich**, **Stéphane Payeur**, **François Légaré**, Institut National de la Recherche Scientifique (Canada); **Steve MacLean**, Institut National de la Recherche Scientifique (Canada), Infinite Potential Labs. (Canada)

13534-27 • 16:20 - 16:40

Visualizing plasmons and ultrafast kinetic instabilities in laser-driven solids using X-ray scattering

Author(s): **Paweł Ordyna**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Carsten Bähitz**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Erik Brambrink**, European XFEL GmbH (Germany); **Michael Bussmann**, **Alejandro L. Garcia**, **Marco Garten**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Lennart Gaus**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Sebastian Göde**, European XFEL GmbH (Germany); **Jörg Grenzer**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Christian Gutt**, Univ. Siegen (Germany); **Hauke Höppner**, **Lingen Huang**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Uwe Hübner**, Leibniz-Institut für Photonische Technologien e.V. (Germany); **Oliver Humphries**, European XFEL GmbH (Germany); **Brian E. Marré**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Josefine Metzkes-Ng**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Thomas Miethlinger**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Motoaki Nakatsutsumi**, European XFEL GmbH (Germany); **Özgül Öztürk**, Univ. Siegen (Germany); **Xiayun Pan**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Franziska Paschke-Brühl**, **Alexander Pelka**, **Irene Prencipe**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Thomas R. Preston**, European XFEL GmbH (Germany); **Lisa Randolph**, European XFEL GmbH (Germany), Univ. Siegen (Germany); **Hans-Peter Schlenvoigt**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Jan-Patrick Schwinkendorf**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), European XFEL GmbH (Germany); **Michal Šmíd**, **Sebastian Starke**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Radka Štefaníková**, **Erik Thiessenhusen**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Toma Toncian**, **Karl Zeil**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Ulrich Schramm**, **Thomas E. Cowan**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany), TU Dresden (Germany); **Thomas Kluge**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany)

13534-28 • 16:40 - 17:00

A laser-driven ion beamline at SCAPA

Author(s): **Ross J. Gray**, **Robbie Wilson**, **Ewan J. Dolier**, **Matthew Alderton**, **Martin King**, **Radhika Nayli**, **Christopher McQueen**, **Maia Peat**, Univ. of Strathclyde (United Kingdom); **Jesal K. Patel**, Univ. of Strathclyde (United Kingdom), Central Laser Facility (United Kingdom); **Ben C. Torrance**, **Thomas Wilson**, **Paul McKenna**, Univ. of Strathclyde (United Kingdom)

13534-29 • 17:00 - 17:20

The ionization mechanisms and dynamics for acceleration of energetic highly charged Au ions by high-intensity high-contrast laser pulses

Author(s): **Mamiko Nishiuchi**, **Chang Liu**, **Masayasu Hata**, National Institutes for Quantum Science and Technology (Japan); **Nicholas Dover**, The John Adams Institute for Accelerator Science (United Kingdom); **Kotaro Kondo**, **Akira Kon**, **Hironao Sakaki**, **Hiromitsu Kiriya**, **James K. Koga**, **Tatsuhiko Miyatake**, **Haruya Matsumoto**, National Institutes for Quantum Science and Technology (Japan); **Nuo Xu**, **Ginevra Casati**, **Zulfikar Najmudin**, The John Adams Institute for Accelerator Science (United Kingdom); **Marvin Umlandt**, **Milenko Vesicovi-Pinochet**, **Pengjie Wang**, **Tim Ziegler**, **Thomas Kluge**, **Ulrich Schramm**, **Karl Zeil**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Natsumi Iwata**, **Yasuhiko Sentoku**, Osaka Univ. (Japan); **Shin-Ichi Namba**, Hiroshima Univ. (Japan); **Stephan Fritzsche**, Helmholtz Institute Jena (Germany)

13534-30 • 17:20 - 17:40

A neural network-based synthetic diagnostic of laser-accelerated proton energy spectra

Author(s): **Christopher McQueen**, Univ. of Strathclyde (United Kingdom), The Cockcroft Institute (United Kingdom); **Robbie Wilson**, **Timothy P. Frazer**, Univ. of Strathclyde (United Kingdom); **Martin King**, Univ. of Strathclyde (United Kingdom), The Cockcroft Institute (United Kingdom); **Matthew Alderton**, **Ewan F. J. Bacon**, **Ewan J. Dolier**, Univ. of Strathclyde (United Kingdom); **Thomas Dzelainis**, Central Laser Facility (United Kingdom); **Jesal K. Patel**, Univ. of Strathclyde (United Kingdom), Central Laser Facility (United Kingdom); **Maia Peat**, **Ben C. Torrance**, **Ross J. Gray**, Univ. of Strathclyde (United Kingdom); **Paul McKenna**, Univ. of Strathclyde (United Kingdom), The Cockcroft Institute (United Kingdom)

Wednesday 9 April 2025

SESSION 7: ION ACCELERATION II

9 April 2025 • 8:30 - 10:10 | Kepler

Session Chair(s): **Gabriele Maria Grittani**, ELI Beamlines (Czech Republic)

13534-31 • 8:30 - 8:50

Time-resolved optical shadowgraphy of solid hydrogen jets as a testbed to benchmark particle-in-cell simulations

Author(s): **Constantin Bernert**, **Long Yang**, **Lingen Huang**, **Stefan Assenbaum**, **Thomas E. Cowan**, **Ilja Goethel**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); **Sebastian Göde**, European XFEL GmbH (Germany); **Thomas Kluge**, **Martin Rehwald**, **Xiayun Pan**, **Ulrich Schramm**, **Jan Vorberger**, **Karl Zeil**, **Tim Ziegler**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany)

13534-32 • 8:50 - 9:10

An ultrathin liquid leaf target system for ion acceleration by a 100 W average power ultrashort pulse laser

Author(s): **Tibor Gilinger**, **Elod Buzas**, **Mate Karnok**, National Laser Transmutation Lab. (Hungary); **Árpád Mohácsi**, ELI-ALPS Research Institute (Hungary); **Botond Bencsik**, **Attila P. Kovacs**, National Laser Transmutation Lab. (Hungary); **Károly Osvay**, National Laser Transmutation Lab., Univ. of Szeged (Hungary)

13534-33 • 9:10 - 9:30

Stable acceleration of low-divergence proton beams from novel liquid sheet targets

Author(s): **Charlotte Palmer**, Queen's Univ. Belfast (United Kingdom)

13534-34 • 9:30 - 9:50

Laser ion acceleration at PW-class laser facilities and beyond

Author(s): **Stepan S. Bulanov**, Lawrence Berkeley National Lab. (United States)

13534-35 • 9:50 - 10:10

Generation of multi-Joule, multi-GeV electron beams by laser-driven acceleration in meter-scale plasma waveguides

Author(s): **Jaron E Shrock, Ela Rockafellow, Ari Sloss, Bo Miao, Howard Milchberg**, University of Maryland (United States)

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

CONFERENCE 13535

Research Using Extreme Light Infrastructures: New Frontiers with Petawatt-Level Lasers VI

7 - 9 April 2025 | Nadir

Conference Chair(s): Bedrich Rus, Daniele Margarone, ELI Beamlines (Czech Republic); Victor Malka, Weizmann Institute of Science (Israel)

Program Committee: Sergei V. Bulanov, ELI Beamlines (Czech Republic); Dimitrios Charalambidis, Foundation for Research and Technology-Hellas (Greece); Domenico Doria, Extreme Light Infrastructure Nuclear Physics (Romania); Mike Dunne, SLAC National Accelerator Lab. (United States); Gabriele M. Grittani, ELI Beamlines (Czech Republic); Cristina Hernandez-Gomez, Rutherford Appleton Lab. (United Kingdom); Subhendu Kahaly, ELI-ALPS Research Institute (Hungary); Mattias Marklund, Umeå Univ. (Sweden); Luis O. Silva, Univ. Técnica de Lisboa (Portugal)

Monday 7 April 2025

SESSION 1: EXTREME LIGHT INFRASTRUCTURE FACILITIES

7 April 2025 • 10:30 - 12:30 | Nadir

Session Chair(s): Bedřich Rus, ELI Beamlines (Czech Republic)

13535-1 • 10:30 - 11:00

ELI NP status and challenges (*Invited Paper*)

Author(s): Victor A. Malka, Extreme Light Infrastructure Nuclear Physics (Romania)

13535-2 • 11:00 - 11:30

ELI ALPS status and challenges (*Invited Paper*)

Author(s): Katalin G. Varju, ELI-ALPS Research Institute (Hungary)

13535-3 • 11:30 - 12:00

ELI Beamlines status and challenges (*Invited Paper*)

Author(s): Daniele Margarone, ELI Beamlines (Czech Republic)

13535-4 • 12:00 - 12:30

Towards the petawatt capability of the L3 HAPLS laser system (*Invited Paper*)

Author(s): Jakub Novák, Petr Sztokowski, ELI Beamlines (Czech Republic); Emily Sistrunk Link, James J. McLoughlin, Leily S. Kiani, Thomas C. Galvin, Katherine M. Velas, Lawrence Livermore National Lab. (United States); Jan Černý, Jitka Sedmidubská, Martin Cuhra, Lucia Jarboe, Bohdana Lopushanska, ELI Beamlines (Czech Republic); Thomas Spinka, Lawrence Livermore National Lab. (United States); Bedřich Rus, ELI Beamlines (Czech Republic)

Lunch Break 12:30 - 13:50

SESSION 2: ULTRARELATIVISTIC REGIMES OF LASER-MATTER AND LASER-VACUUM INTERACTION

7 April 2025 • 13:50 - 15:40 | Nadir

Session Chair(s): Daniele Margarone, ELI Beamlines (Czech Republic)

13535-5 • 13:50 - 14:20

Experimental exploration of non-linear QED regimes with multi-PW lasers (*Invited Paper*)

Author(s): Gianluca Sarri, Queen's Univ. Belfast (United Kingdom)

13535-6 • 14:20 - 14:50

Control of beam properties for electron-positron pair creation in laser-electron beam scattering with multi-PW lasers (*Invited Paper*)

Author(s): Bernardo Maria Pereira da Costa de Pessanha Barbosa, Instituto Superior Técnico (Portugal)

13535-7 • 14:50 - 15:10

Collimated γ -flash emission along the target surface at oblique incidence

Author(s): **Martin Matys**, Prokopis Hadjisolomou, Tae Moon Jeong, Marcel Lamač, Rashid Shaisultanov, Petr Valenta, ELI Beamlines (Czech Republic); **James P. Thistlewood**, Univ. of Oxford (United Kingdom); **Christopher P. Ridgers**, Univ. of York (United Kingdom); **Alexander S. Pirozhkov**, National Institutes for Quantum Science and Technology (Japan); **Sergei V. Bulanov**, ELI Beamlines (Czech Republic)

13535-28 • 15:10 - 15:40

A multi-PW beams plasma physics platform at APOLLON (Invited Paper)

Author(s): **Julien Fuchs**, École Polytechnique (France)

Coffee Break 15:40 - 16:25

MONDAY PLENARY SESSION

7 April 2025 • 16:15 - 18:00 | Nadir

16:15 to 16:30

Welcome and Opening Remarks

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

Optics + Optoelectronics Symposium Chairs

SPIE Presentation of the 2025 SPIE Maria Goeppert Mayer Award in Photonics

to

Pavel Cheben, National Research Council Canada

Presentation of SPIE Fellowship

to

Niels Quack, Univ. of Sydney (Australia)

and

Peter D. Dragic, Univ. of Illinois (United States)

Plenary Speaker Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Pavel Bakule, ELI Beamlines (Czech Republic)

13525-500 • 16:30 - 17:15

New perspectives on photonic quantum computing and quantum machine learning (Plenary Presentation)

Author(s): **Philip Walther**, Univ. Wien (Austria)

13527-501 • 17:15 - 18:00

Large-scale optical machine learning exploiting disorder (Plenary Presentation)

Author(s): **Sylvain Gigan**, Lab. Kastler Brossel (France)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 10:40 - 11:10

SESSION 3: LASER ACCELERATION OF PARTICLES I

8 April 2025 • 11:10 - 12:50 | Nadir

Session Chair(s): **Victor Armand Malka**, Weizmann Institute of Science (Israel); **Aaron Liberman**, Weizmann Institute of Science (Israel)

13535-9 • 11:10 - 11:40

ELIMAIA: advancing ion acceleration with high-intensity, high-repetition, femtosecond laser pulses (*Invited Paper*)

Author(s): **Lorenzo Giuffrida**, **Francesco Schillaci**, **Martina Zakova Greplova**, **Filip Grepl**, **Maksym Tryus**, **Stanislav Stancek**, **Andriy Velyhan**, **Valeria Istokskaia**, **Pavel Bláha**, ELI Beamlines (Czech Republic); **Pablo G. Cirrone**, Istituto Nazionale di Fisica Nucleare (Italy); **Petr Sztokowski**, **Jakub Novák**, **Helena Lefebvre**, **Nina V. Gamanuova**, **Timofej Chagovets**, **Vasiliki Kantarelou**, ELI Beamlines (Czech Republic); **Marco Tosca**, ELI Beamlines (Czech Republic), Charles Univ. (Czech Republic); **Jan Psikal**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Marco Borghesi**, Queen's Univ. Belfast (United Kingdom); **Bedřich Rus**, **Daniele Margarone**, ELI Beamlines (Czech Republic)

13535-10 • 11:40 - 12:10

Ion acceleration using PW class structured light (*Invited Paper*)

Author(s): **Mihail O. Cernaianu**, Extreme Light Infrastructure Nuclear Physics (Romania)

13535-11 • 12:10 - 12:30

Laser-driven collisionless shock acceleration of ions from near-critical dense gas jets

Author(s): **Elodie Minjou**, CEA-DAM Ile-de-France (France), Univ. de Bordeaux (France); **Joao Jorge Santos**, Univ. de Bordeaux (France); **Laurent Gremillet**, CEA-DAM Ile-de-France (France); **Medhi Tarisien**, **Antoine Maitrallain**, Univ. de Bordeaux (France); **Valeria Ospina-Bohorquez**, CEA-DAM Ile-de-France (France), Univ. de Bordeaux (France)

13535-12 • 12:30 - 12:50

Effects of laser pointing fluctuations on carbon ion acceleration with the "peeler" scheme

Author(s): **Bogdan Corobean**, Univ. Politehnica din Bucuresti (Romania), Extreme Light Infrastructure Nuclear Physics (Romania); **Vojtěch Horný**, Extreme Light Infrastructure Nuclear Physics (Romania); **Alexander Pukhov**, Heinrich-Heine-Univ. Düsseldorf (Germany); **Emmanuel d'Humières**, Univ. de Bordeaux (France); **Domenico Doria**, **Paolo Tomassini**, Extreme Light Infrastructure Nuclear Physics (Romania)

Lunch/Exhibition Break 12:50 - 13:50

SESSION 4: LASER ACCELERATION OF PARTICLES II

8 April 2025 • 13:50 - 15:30 | Nadir

Session Chair(s): **Daniele Margarone**, ELI Beamlines (Czech Republic)

13535-13 • 13:50 - 14:20

Advancing the energy frontier for proton acceleration with PW lasers (*Invited Paper*)

Author(s): **Tim Ziegler**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany)

13535-14 • 14:20 - 14:50

Machine learning experiments at PW-class facilities (*Invited Paper*)

Author(s): **Elizabeth Grace**, Lawrence Livermore National Lab. (United States); **Moritz Kröger**, RWTH Aachen Univ. (Germany)

13535-15 • 14:50 - 15:10

Experimental operation of a 10-PW-driven nano accelerator

Author(s): **Alice Fazzini**, **Daniel E. Rivas**, **Valeriu Scutelnic**, **Marc Günther**, Marvel Fusion GmbH (Germany); **Alexandru Ailincutei**, Thales Systems Romania (Romania); **Theodor Asavei**, **Septimiu Balascuta**, Extreme Light Infrastructure Nuclear Physics (Romania); **John J. Bekx**, Marvel Fusion GmbH (Germany); **Gabriel Petrisor G. Bleotu**, Extreme Light Infrastructure Nuclear Physics (Romania); **Giordano Bodini**, **Carafino Braganza**, **Alexandra F. Brodersen**, **Alessandro Cavalli**, Marvel Fusion GmbH (Germany); **Olivier J. Chalus**, Thales LAS France SAS (France); **Gabriel Cojocaru**, Institutul National pentru Fizica Laserilor, Plasmei si Radiatiei (Romania); **Jadyn D'Mello**, Marvel Fusion GmbH (Germany); **Ioan Dancus**, Institutul National pentru Fizica Laserilor, Plasmei si Radiatiei (Romania); **Christophe Derycke**, Thales LAS France SAS (France); **Floris Deurvorst**, Marvel Fusion GmbH (Germany); **Domenico Doria**, Extreme Light Infrastructure Nuclear Physics (Romania); **Michael Ehrmantraut**, **Erhard Gaul**, **Dan Gengenbach**, Marvel Fusion GmbH (Germany); **Petru V. Ghenuche**, **Dan Ghita**, Extreme Light Infrastructure Nuclear Physics (Romania); **Lorenzo Giuffrida**, ELI Beamlines (Czech Republic); **Bruno Gonzalez-Izquierdo**, Marvel Fusion GmbH (Germany); **Marius Gugu**, Extreme Light Infrastructure Nuclear Physics (Romania); **Anja Härle**, **Oscar Juina**, **Jana J. Jung**, **Kyle Kenney**, **Mathias Krüger**, **Sumit Kumar**, **Mariana Martinez-Pacheco**, **Ignacio Minquez Bacho**, Marvel Fusion GmbH (Germany); **Saidbek Norbaev**, Extreme Light Infrastructure Nuclear Physics (Romania); **Nathaniel Poetranto**, **Emanuel Schork**, **Martin Speicher**, **Markus Stein**, Marvel Fusion GmbH (Germany); **Anda-Maria Talposi**, **Antonia Toma**, Extreme Light Infrastructure Nuclear Physics (Romania); **Marco Tosca**, ELI Beamlines (Czech Republic); **Ashwini Ubarhande**, Marvel Fusion GmbH (Germany); **Lidia Vasescu**, Extreme Light Infrastructure Nuclear Physics (Romania); **Marius S. Schollmeier**, **Hartmut Ruhl**, **Georg Korn**, Marvel Fusion GmbH (Germany)

13535-16 • 15:10 - 15:30

Laser-driven proton acceleration with multi-PW pulses and single- and double-layer targets by 3D PIC simulations

Author(s): **Vojtěch Horný, Domenico Doria**, Extreme Light Infrastructure Nuclear Physics (Romania)

Coffee Break 15:30 - 16:00

SESSION 5: NUCLEAR PHYSICS WITH ULTRAINTENSE LASERS

8 April 2025 • 16:00 - 17:40 | Nadir

Session Chair(s): **Bedřich Rus**, ELI Beamlines (Czech Republic)

13535-17 • 16:00 - 16:30

Progress on nuclear photonics science at Gekko XII-LFEX facility (*Invited Paper*)

Author(s): **Yasunobu Arikawa**, Osaka Univ. (Japan)

13535-18 • 16:30 - 17:00

Nuclear physics under the low-energy, high intensity frontier (*Invited Paper*)

Author(s): **Chieh-Jen Yang, Vojtech Horny**, Extreme Light Infrastructure Nuclear Physics (Romania); **Klaus Spohr**, Extreme Light Infrastructure Nuclear Physics (Romania), School of Computing, Engineering and Physical Sciences, University of the West of Scotland (United Kingdom); **Klaus Spohr**, Extreme Light Infrastructure Nuclear Physics (Romania), School of Computing, Engineering and Physical Sciences, University of the West of Scotland (United Kingdom); **Domenico Doria**, Extreme Light Infrastructure Nuclear Physics (Romania)

13535-19 • 17:00 - 17:20

Preliminary studies on laser-driven production of nuclear isomeric states for fundamental and applied research at ELI-NP

Author(s): **Ovidiu Tesileanu**, Extreme Light Infrastructure Nuclear Physics (Romania), "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Georgiana Giubega, Violeta Iancu, Yoshihide Nakamiya, Vanessa L.J. Phung**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Alexandru Balaceanu, Catalin Vancea**, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Lucian Tudor, Madalin Rosu, Ionut Slabu**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Gabriel Cojocaru**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania), CETAL, National Institute for Lasers, Plasma and Radiation Physics (Romania); **Mihail Cernaianu, Flanish D'Souza, Vicentiu Iancu, Simona Baruta, Andrei Berceanu, Anissa Bey, Catalin Chiochiu, Andi Cucoanes**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Madalina Dobre**, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania), Faculty of Physics, University of Bucharest (Romania); **Dragana Dregheci**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Alice Dumitru**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Nicoleta Florea**, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Marius Gugiu, Catalin Matei, Mihai Merisanu, Iani Mitu, Andrei Naziru**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania); **Liviu Neagu**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania), CETAL (Romania); **Saidbek Norbaev, Jian Fuh Ong, Andreea Radu, Mihai Risca, Florin Rotaru, Stefan Tazlauanu, Daniel Tofan, Antonia Toma, Tatiana Tozar, Gabriel V Turturica, Lidia Vasescu, Yi Xu**, ELI-NP, "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering (Romania)

13535-20 • 17:20 - 17:40

Generating energetic, beamed alpha-particle sources via proton-boron fusion for radioisotope production

Author(s): **Daniel Molloy, Marco Borghesi**, Queen's Univ. Belfast (United Kingdom); **Daniele Margarone**, ELI Beamlines (Czech Republic), Queen's Univ. Belfast (United Kingdom)

Wednesday 9 April 2025

SESSION 6: LASER-PRODUCED SECONDARY SOURCES AND APPLICATIONS

9 April 2025 • 8:40 - 10:10 | Nadir

Session Chair(s): **Daniele Margarone**, ELI Beamlines (Czech Republic)

13535-21 • 8:40 - 9:10

Laser-driven X-ray sources at ELI Beamlines: results from commissioning and user operation (*Invited Paper*)

Author(s): **Jaroslav Nejdli**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Ondrej Hort, Uddhab Chaulagain, Tomáš Parkman, Lucie Jurkovičová, Matyáš Staněk, Marcel Lamač, Jan Vábek, Yelizaveta Pulnova, Marek Raclavský, Dominik Čáp, Vojtěch Janota, Orsolya Morvai, Antonia Morabito**, ELI Beamlines (Czech Republic)

13535-22 • 9:10 - 9:30

ALFA beamline: a unique source of kHz high-energy electron beams for user experiments and secondary sources

Author(s): **Carlo Maria Lazzarini**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Gabriele M. Grittani**, **Illia Zymak**, **Petr Valenta**, **Leonardo Vila Nova Goncalves**, ELI Beamlines (Czech Republic); **Sebastian Lorenz**, **Alžběta Špádová**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Michal Nevrkla**, Czech Technical Univ. in Prague (Czech Republic), ELI Beamlines (Czech Republic); **Matěj Jech**, **Filip Vitha**, **Jiří Šišma**, **Marcel Lamač**, **Uddhab Chaulagain**, **Roman Antipenkov**, **Annika Grenfell**, **Václav Šobr**, **Wojciech J. Szuba**, **Pavel Bakule**, **Georg Korn**, ELI Beamlines (Czech Republic); **Sergei V. Bulanov**, ELI Beamlines (Czech Republic), National Institutes for Quantum Science and Technology (Japan)

13535-23 • 9:30 - 9:50

A high repetition rate, laser-based neutron source with a yield of 100 million neutron/sec for applications

Author(s): **Károly Osvay**, Univ. of Szeged (Hungary); **Laszlo Stuhl**, Institute for Basic Science (Korea, Republic of), Institute for Nuclear Research (Hungary); **Parvin Varmazyar**, **Tibor Gilinger**, Univ. of Szeged (Hungary); **Barna Biró**, Institute for Nuclear Research (Hungary); **Máté Karnok**, **Zoltan Jager**, **Előd Buzas**, **Javaria Razzaq**, **Istva Krajcz**, Univ. of Szeged (Hungary); **László Csedreki**, **Zoltán Elekes**, Institute for Nuclear Research (Hungary); **András Fenyvesi**, HUN-REN, Institute for Nuclear Research (Hungary); **Zsolt Fülöp**, **Zoltán Halász**, Institute for Nuclear Research (Hungary); **Zeren Korkulu**, Institute for Basic Science (Korea, Republic of), Institute for Nuclear Research (Hungary); **István Kuti**, Institute for Nuclear Research (Hungary); **Ádám Börzsönyi**, **Janos Csontos**, ELI-ALPS Research Institute (Hungary); **Árpád Mohácsi**, Univ. of Szeged (Hungary), ELI-ALPS (Hungary); **Tamás Somoskoi**, **László Tamás Tóth**, **Szabolcs Tóth**, ELI-ALPS Research Institute (Hungary)

13535-24 • 9:50 - 10:10

First dosimetric commissioning of a 20 MeV laser-driven proton beam at the ELIMAIA-ELIMED facility

Author(s): **Pablo G. Cirrone**, **Giada Petringa**, **Roberto Catalano**, **Alfio Domenico Pappalardo**, **Giacomo Cuttone**, **Mariacristina Guarrera**, Istituto Nazionale di Fisica Nucleare (Italy); **Pavel Bláha**, **Francesco Schillaci**, **Filip Grepl**, **Maksym Tryus**, **Valeriia Istokskaia**, **Lorenzo Giuffrida**, **Daniele Margarone**, ELI Beamlines (Czech Republic); **Alma Kurmanova**, Istituto Nazionale di Fisica Nucleare (Italy)

Coffee Break 10:10 - 10:40**SESSION 7: LASER-PRODUCED SECONDARY SOURCES AND APPLICATIONS II**

9 April 2025 • 10:40 - 11:50 | Nadir

Session Chair(s): **Bedřich Rus**, ELI Beamlines (Czech Republic)

13535-25 • 10:40 - 11:10

Toward extreme selective dose delivery in cancer therapy: progress with laser-driven ion beams (*Invited Paper*)

Author(s): **Katalin Hideghéty**, ELI-ALPS Research Institute (Hungary), Univ. of Szeged (Hungary); **Emilia Rita Szabo**, **Reka Molnar**, **Robert Polanek**, **Júlia R. Dudás**, **Attila Ébert**, ELI-ALPS Research Institute (Hungary)

13535-26 • 11:10 - 11:30

A new user platform for radiobiological research with laser-driven protons at ELI Beamlines: first experiments

Author(s): **Pavel Bláha**, ELI Beamlines (Czech Republic); **Pankaj Chaudhary**, National Physical Lab. (United Kingdom); **Marco Borghesi**, Queen's University Belfast (United Kingdom); **Pablo G. Cirrone**, **Roberto Catalano**, Istituto Nazionale di Fisica Nucleare (Italy); **Filip Grepl**, **Valeria Istokskaia**, ELI Beamlines (Czech Republic); **Adrian McCay**, Queen's Univ. Belfast (United Kingdom); **Alfio Domenico Pappalardo**, National Physical Lab. (United Kingdom); **Giada Petringa**, Istituto Nazionale di Fisica Nucleare (Italy); **Kevin M. Prise**, Queen's Univ. Belfast (United Kingdom); **Giuseppe Schettino**, National Physical Lab. (United Kingdom); **Francesco Schillaci**, **Maksym Tryus**, **Daniele Margarone**, **Lorenzo Giuffrida**, ELI Beamlines (Czech Republic)

13535-27 • 11:30 - 11:50

First in vivo radiobiology with laser-driven electron beams

Author(s): **Emília Rita Szabó**, **Júlia R. Dudás**, **Reka Molnar**, **Robert Polanek**, **Attila Ébert**, ELI-ALPS Research Institute (Hungary); **Carlo Maria Lazzarini**, ELI Beamlines (Czech Republic); **Daniel Papp**, **Christos Kamperidis**, **Nasr A. M. Hafiz**, ELI-ALPS Research Institute (Hungary); **Sebastian Lorenz**, **Illia Zymak**, ELI Beamlines (Czech Republic); **Alžběta Špádová**, Czech Technical Univ. in Prague (Czech Republic), ELI Beamlines (Czech Republic); **Gabriele M. Grittani**, ELI Beamlines (Czech Republic); **Katalin Hideghéty**, ELI-ALPS Research Institute (Hungary)

Lunch/Exhibition Break 11:50 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 8: ULTRAINTENSE LASER-MATTER INTERACTION AND LASER TECHNOLOGIES

9 April 2025 • 15:40 - 17:20 | Nadir

Session Chair(s): **Victor Armand Malka**, Weizmann Institute of Science (Israel)

13535-43 • 15:40 - 16:00

ELBA laser-electron collider at ELI Beamlines

Author(s): **Gabriele Maria Grittani**, ELI Beamlines (Czech Republic); **Michal Nevrlka**, **Jiri Sisma**, **Filip Vitha**, ELI Beamlines (Czech Republic), Czech Technical University (Czech Republic); **Carlo Maria Lazzarini**, ELI Beamlines (Czech Republic); **Martin Jirka**, **Matej Jech**, ELI Beamlines (Czech Republic), Czech Technical University (Czech Republic); **Sebastian Lorenz**, ELI Beamlines (Czech Republic); **Alzbeta Spadova**, ELI Beamlines (Czech Republic), Czech Technical University (Czech Republic); **Petr Valenta**, **Leonardo Vilanova**, **Illia Zymak**, **Sergei V. Bulanov**, ELI Beamlines (Czech Republic)

13535-8 • 16:00 - 16:20

Generation of multi-MeV photon beams at sub-PW laser power

Author(s): **Gaetan Fauvel**, ELI ERIC (Czech Republic), Czech Technical Univ. (Czech Republic); **Kavin Tangtartharakul**, **Alexey V. Arefiev**, Univ. of California, San Diego (United States); **Tomáš Lastovicka**, **Kobi Hall**, **Raj Laxmi Singh**, ELI Beamlines (Czech Republic); **Mario Manuel**, General Atomics (United States); **Stefan Weber**, ELI ERIC (Czech Republic); **Florian Condamine**, ELI Beamlines (Czech Republic)

13535-29 • 16:20 - 16:40

Orbital angular momentum on the petawatt scale: characterization and utilization in relativistically transparent solid density targets

Author(s): **Nick Czaplá**, SLAC National Accelerator Lab. (United States); **Anthony Zingale**, **German Tiscareno**, **Derek M. Nasir**, **Douglass W. Schumacher**, The Ohio State Univ. (United States); **Mihail O. Cernaianu**, **Petru Ghenuche**, **Domenico Doria**, **Florin Negoita**, Extreme Light Infrastructure Nuclear Physics (Romania); **Alexey V. Arefiev**, **David Blackman**, Univ. of California, San Diego (United States); **Dan Stutman**, Extreme Light Infrastructure Nuclear Physics (Romania), Johns Hopkins Univ. (United States)

13535-30 • 16:40 - 17:00

Optical probing of laser-driven discharge pulses by Faraday rotation

Author(s): **Nicolas Fefeu**, **Christos Vlachos**, **Thibaut Vacek**, Ctr. Lasers Intenses et Applications (France); **Shubham Agarwal**, Institute of Physics of the CAS, v.v.i. (Czech Republic), Charles Univ. (Czech Republic); **Hamad Ahmed**, STFC Rutherford Appleton Lab. (United Kingdom); **Jon Imanol Apiñaniz**, Ctr. de Laseres Pulsados (Spain); **Mihail O. Cernaianu**, Extreme Light Infrastructure Nuclear Physics (Romania); **Diego de Luis**, Ctr. de Laseres Pulsados (Spain); **Jean-Luc Dubois**, Ctr. Lasers Intenses et Applications (France); **Giancarlo Gatti**, Ctr. de Laseres Pulsados (Spain); **Darius Guguu**, Extreme Light Infrastructure Nuclear Physics (Romania); **Alejandro Huerta**, Ctr. de Laseres Pulsados (Spain); **Michal Krupka**, Institute of Physics of the CAS, v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Roberto Lera**, **Antonia Morabito**, Ctr. de Laseres Pulsados (Spain); **Deepak Sangwan**, Extreme Light Infrastructure Nuclear Physics (Romania); **Nigel Woolsey**, York Plasma Institute (United Kingdom); **Joao Jorge Santos**, Ctr. Lasers Intenses et Applications (France); **Michael Ehret**, Ctr. de Laseres Pulsados (Spain); **Philip Bradford**, Central Laser Facility (United Kingdom)

13535-31 • 17:00 - 17:20

The influence of flashlamp water cooling on long-term aberrations in large aperture Nd:glass amplifiers

Author(s): **Martin Metternich, Dirk Reemts, Christian Brabetz, Albert Quandt, Dustin Lehmann, Bernhard Zielbauer**, GSI Helmholtzzentrum für Schwerionenforschung GmbH (Germany); **Vincent Bagnoud**, GSI Helmholtzzentrum für Schwerionenforschung GmbH (Germany), Technische Univ. Darmstadt (Germany)

POSTERS-WEDNESDAY

9 April 2025 • 17:40 - 19:15 | Conference Foyer

13535-32 • 17:40 - 19:15

First measurement of neutrons at the ELIMAIA-ELIMED laser-driven ion beamline

Author(s): **Helena Lefebvre, Francesco Schillaci, Pavel Bláha, Anna Cimmino, Veronika Olšovcová, Lorenzo Giuffrida**, ELI ERIC (Czech Republic)

13535-33 • 17:40 - 19:15

Anti-reflective decorations influence on the prepulse-target interaction and preplasma behavior

Author(s): **Alexei Zubarev**, Extreme Light Infrastructure Nuclear Physics (Romania), National Institute for Laser, Plasma and Radiation (Romania); **Marina Cuzminschi**, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania); **Ovidiu Tesileanu**, Extreme Light Infrastructure Nuclear Physics (Romania)

13535-34 • 17:40 - 19:15

Online XUV pulse energy diagnostic and other advances in HHG at ELI beamlines

Author(s): **Matyáš Staněk, Ondrej Hort, Lucie Jurkovičová, Martin Albrecht, Ondrej Finke**, ELI Beamlines (Czech Republic); **Balázs Nagyillés, Balázs Farkas, Tamás Czismadia, Tímea Grósz, Andor Körmöczi, Zsolt Divéki**, ELI-ALPS Research Institute (Hungary); **Jaroslav Nejdí**, ELI Beamlines (Czech Republic)

13535-35 • 17:40 - 19:15

Cryogenic liquid target station for laser-plasma interaction at high-repetition rate

Author(s): **Timofej Chagovets**, ELI Beamlines (Czech Republic)

13535-36 • 17:40 - 19:15

Advanced scintillator stack detectors for real-time analysis of energetic X-rays and proton bunches from laser-driven plasmas

Author(s): **Valeria Istokskaia, Benoit Lefebvre, Helena Lefebvre, Francesco Schillaci, Filip Grepl, Maksym Tryus, Andriy Velyhan, Roberto Versaci**, ELI Beamlines (Czech Republic); **Pablo G. Cirrone, Giada Petringa**, Istituto Nazionale di Fisica Nucleare (Italy); **Veronika Olšovcová, Lorenzo Giuffrida**, ELI Beamlines (Czech Republic)

13535-37 • 17:40 - 19:15

Development of ultra-low density double layer targets for laser-plasma interaction

Author(s): **Alexandru Magureanu**, Extreme Light Infrastructure Nuclear Physics (Romania), Univ. Politehnica din Bucuresti (Romania); **Gabriela Dorcioman, Petronela Prepelita**, Institutul National pentru Fizica Laserilor, Plasmei si Radiatiei (Romania); **Gabriel Petrisor G. Bleotu**, Extreme Light Infrastructure Nuclear Physics (Romania); **Stefan A Irimiciuc**, Institutul National pentru Fizica Laserilor, Plasmei si Radiatiei (Romania); **Radu Udrea**, Institutul National pentru Fizica Laserilor, Plasmei si Radiatiei (Romania); **Alexei Zubarev**, Extreme Light Infrastructure Nuclear Physics (Romania), Institutul National pentru Fizica Laserilor, Plasmei si Radiatiei (Romania); **Daniel Ursescu**, Extreme Light Infrastructure Nuclear Physics (Romania); **Valentin Craciun**, Extreme Light Infrastructure Nuclear Physics (Romania), Institutul National pentru Fizica Laserilor, Plasmei si Radiatiei (Romania); **Catalin M. Ticos**, Extreme Light Infrastructure Nuclear Physics (Romania), Engineering and Applications of Lasers and Accelerators Doctoral School (SDIALA) (Romania)

13535-38 • 17:40 - 19:15

Development of gas targets for various laser-plasma experiments

Author(s): **Sebastian Lorenz, Leonardo Vila Nova Goncalves, Gabriele M. Grittani, Uddhab Chaulagain**, ELI Beamlines (Czech Republic); **Carlo Maria Lazzarini, Michal Nevrla, Marek Raclavsky, Jiří Šišma, Alžběta Špádová**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Petr Valenta**, ELI Beamlines (Czech Republic); **Filip Vitha**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Illia Zymak**, ELI Beamlines (Czech Republic); **Sergei V. Bulanov**, ELI Beamlines (Czech Republic), National Institutes for Quantum Science and Technology (Japan)

13535-39 • 17:40 - 19:15

Basic commissioning of the ELIMED ion beam transport line

Author(s): **Francesco Schillaci, Filip Grepl, Maksym Tryus, Andriy Velyhan, Helena Lefebvre, Nina V. Gamaniyova, Timofej Chagovets, Arsenio Hadjikiakos, Vasiliki Kantarelou, Pavel Bláha, Valeriia Istokskaia, Stanislav Stancek**, ELI Beamlines (Czech Republic); **Pablo G. Cirrone**, Istituto Nazionale di Fisica Nucleare (Italy); **Daniele Margarone, Lorenzo Giuffrida**, ELI Beamlines (Czech Republic)

13535-40 • 17:40 - 19:15

Optimization of Franz-Nodvik model for high power solid-state amplifiers

Author(s): **Dmitrii Nistor**, Extreme Light Infrastructure Nuclear Physics (Romania)

13535-41 • 17:40 - 19:15

Radiobiological investigation of a low-intensity neutron beam using the zebrafish embryo model

Author(s): **Emília Rita Szabó, Júlia R. Dudás, Reka Molnar, Robert Polanek, Attila Ébert**, ELI-ALPS Research Institute (Hungary); **Előd Buzas**, National Laser Transmutation Lab. (Hungary); **Parvin Varmazyar**, Univ. of Szeged (Hungary); **András Fenyvesi**, HUN-REN, Institute for Nuclear Research (Hungary); **Barna Biró, Zsolt Fülöp**, Institute for Nuclear Research (Hungary); **Károly Osvay**, Univ. of Szeged (Hungary); **Katalin Hideghéty**, ELI-ALPS Research Institute (Hungary)

13535-42 • 17:40 - 19:15

Thermal neutron imaging for laser-driven neutron sources

Author(s): **Ryuya Yamada, Yasunobu Arikawa**, Osaka Univ. (Japan)

CONFERENCE 13536

X-Ray Free-Electron Lasers: Advances in Source Development and Instrumentation VII

8 - 10 April 2025 | Tycho

Conference Chair(s): **Thomas Tschentscher**, European XFEL GmbH (Germany); **Luc Patthey**, Paul Scherrer Institut (Switzerland); **Kai Tiedtke**, Deutsches Elektronen-Synchrotron (Germany); **Marco Zangrando**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy)

Program Committee: **Enrico Allaria**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Intae Eom**, Pohang Accelerator Lab. (Korea, Republic of); **Eduard Prat Costa**, Paul Scherrer Institut (Switzerland); **Evgeny A. Schneidmiller**, Deutsches Elektronen-Synchrotron (Germany); **Frank Siewert**, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); **Makina Yabashi**, RIKEN SPring-8 Ctr. (Japan); **Diling Zhu**, SLAC National Accelerator Lab. (United States)

Tuesday 8 April 2025

TUESDAY PLENARY SESSION

8 April 2025 • 9:00 - 10:40 | Nadir

9:00 to 9:05

Welcome and Introduction

Pavel Bakule, ELI Beamlines (Czech Republic)

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chairs

13535-600 • 9:05 - 9:50

Laser-plasma interaction studies for advanced direct-drive ignition (Plenary Presentation)

Author(s): **Emma Hume**, Istituto Nazionale di Ottica-CNR (Italy)

13532-601 • 9:55 - 10:40

Advancements in attosecond technology and applications (Plenary Presentation)

Author(s): **Francesca Calegari**, Deutsches Elektronen-Synchrotron (Germany)

SESSION 1: UPDATES ON FACILITIES AND NEW FEL SOURCES

8 April 2025 • 13:20 - 15:10 | Tycho

Session Chair(s): **Eduard Prat Costa**, Paul Scherrer Institut (Switzerland)

13536-1 • 13:20 - 13:50

Progress in SHINE endstations construction (*Invited Paper*)

Author(s): **Zhi Liu**, **Tsu-Chien Weng**, ShanghaiTech Univ. (China)

13536-3 • 13:50 - 14:10

The UK XFEL conceptual design and options analysis project

Author(s): **David Dunning**, Daresbury Lab. (United Kingdom)

13536-4 • 14:10 - 14:30

The EuPRAXIA project: a plasma-based FEL user facility for the next decade

Author(s): **Massimo Ferrario**, **Mario Galletti**, Istituto Nazionale di Fisica Nucleare (Italy)

13536-5 • 14:30 - 14:50

Laser-plasma-accelerator-based compact free electron laser at ELI-Beamlines

Author(s): **Alexander Molodzhentsev**, **Srimanta Maity**, **Alex Whitehead**, **Pavel Sasorov**, **Alexandr Jancarek**, **Petr Zimmermann**, **Sebastian Niekrasz**, **Mihail Miceski**, ELI Beamlines (Czech Republic)

13536-6 • 14:50 - 15:10

Operation of the variable polarization undulator on the 3rd harmonic of a SASE FEL

Author(s): **Juliane Roensch-Schulenburg, Markus Braune, Pardis Niknejadi, Evgeny Schneidmiller, Johann Zemella, Mathias Vogt, Pavel Vagin, Markus Tischer, Andreas Schoeps, Lucas Schaper, Marion Kuhlmann, Siarhei Dziarzhyski, Günter Brenner**, Deutsches Elektronen-Synchrotron (Germany)

Coffee Break 15:10 - 15:40

SESSION 2: ADVANCED LASING SOURCES AND TECHNIQUES

8 April 2025 • 15:40 - 17:50 | Tycho

Session Chair(s): **Evgeny A. Schneidmiller**, Deutsches Elektronen-Synchrotron (Germany)

13536-7 • 15:40 - 16:10

High repetition rate hard x-ray self-seeding at the European XFEL *(Invited Paper)*

Author(s): **Gianluca A. Geloni**, European XFEL GmbH (Germany)

13536-8 • 16:10 - 16:30

Experimental demonstration of mode-coupled and high-brightness SASE in an x-ray FEL

Author(s): **Eduard Prat Costa**, Paul Scherrer Institut (Switzerland); **Wenxiang Hu**, Paul Scherrer Institut (Switzerland), ETH Zürich (Switzerland); **Christopher Arrell, Marco Calvi, Philipp Dijkstal, Rolf Follath, Sven Reiche**, Paul Scherrer Institut (Switzerland)

13536-9 • 16:30 - 16:50

Commissioning and operation of the Apple-X undulator at the European XFEL

Author(s): **Suren Karabekyan**, European XFEL GmbH (Germany); **Evgeny Schneidmiller**, Deutsches Elektronen-Synchrotron (Germany)

13536-10 • 16:50 - 17:10

Design considerations for a CBXFEL facility driven by the LCLS-II HE linac at SLAC

Author(s): **Diling Zhu, Zhirong Huang**, SLAC National Accelerator Lab. (United States)

13536-11 • 17:10 - 17:30

Advances in high-temperature superconducting undulators: progress and future directions

Author(s): **Marco Calvi**, Paul Scherrer Institut (Switzerland)

13536-12 • 17:30 - 17:50

The superconducting undulator development program at the European XFEL

Author(s): **Sara Casalbuoni, Suren Abeghyan, Jacques Abenhaim, Johann Baader**, European XFEL GmbH (Germany); **Serena Barbanotti, Winfried Decking**, Deutsches Elektronen-Synchrotron (Germany); **Massimiliano Di Felice, Amir Doosti**, European XFEL GmbH (Germany); **Hans-Joerg Eckoldt**, Deutsches Elektronen-Synchrotron (Germany); **Englisch Uwe, Gianluca A. Geloni**, European XFEL GmbH (Germany); **Axel Hauberg, Christian Helwich**, Deutsches Elektronen-Synchrotron (Germany); **Achim Hobl**, Bilfinger Nuclear & Energy Transition GmbH (Germany); **Kay Jensch**, Deutsches Elektronen-Synchrotron (Germany); **Suren Karabekyan, Daniele La Civita**, European XFEL GmbH (Germany); **Lutz Lilje, Shan Liu, Lukas Mueller**, Deutsches Elektronen-Synchrotron (Germany); **Ajit Nandawadekar, Ahmed Elghandour Shetiwy, Giovanni Perosa**, European XFEL GmbH (Germany); **Evgeny Schneidmiller**, Deutsches Elektronen-Synchrotron (Germany); **Thomas Schmidt, Harald Sinn**, European XFEL GmbH (Germany); **Alexander Vatagin, Wolfgang Walter**, Bilfinger Nuclear & Energy Transition GmbH (Germany); **Riko Wichmann, Torsten Wohlenberg, Wu Jiacheng**, Deutsches Elektronen-Synchrotron (Germany); **Mikhail Yakopov, Pawel Ziolkowski**, European XFEL GmbH (Germany)

Wednesday 9 April 2025

SESSION 3: ATTOSECOND FEL RADIATION PULSES

9 April 2025 • 8:30 - 10:20 | Tycho

Session Chair(s): **Diling Zhu**, SLAC National Accelerator Lab. (United States)

13536-13 • 8:30 - 9:00

Attosecond pulses from X-ray free-electron lasers: status and outlook *(Invited Paper)*

Author(s): **Sven Reiche**, Paul Scherrer Institut (Switzerland)

13536-14 • 9:00 - 9:20

Hard x-ray attosecond pulses at LCLS

Author(s): **Aliaksei Halavanau, River Robles, Agostino Marinelli, David Cesar, Nick Sudar, Zhen Zhang, Veronica Guo, Takahiro Sato, Sanghoon Song, Diling Zhu**, SLAC National Accelerator Lab. (United States)

13536-15 • 9:20 - 9:40

Attosecond time-resolved measurements of electron and photon beams with a variable polarization X-band RF deflector at an X-ray free-electron laser

Author(s): **Eduard Prat Costa, Zheqiao Geng**, Paul Scherrer Institut (Switzerland); **Alexander Malyzhenkov**, CERN (Switzerland); **Fabio Marcellini**, Paul Scherrer Institut (Switzerland); **Christoph Kittel**, Paul Scherrer Institut (Switzerland), Univ. of Malta (Malta); **Sven Reiche**, **Thomas Schietinger**, **Paolo Craievich**, Paul Scherrer Institut (Switzerland)

13536-16 • 9:40 - 10:00

Characterization of spectral and temporal properties of x-ray pulses enhanced by data science methods

Author(s): **Ivette Bermudez Macias**, **Luca Gelisio**, **Danilo Ferreira de Lima**, **Philipp Schmidt**, **Tim Berberich**, European XFEL GmbH (Germany)

13536-17 • 10:00 - 10:20

Designs of hard x-ray attosecond delay lines for pump-probe and nonlinear spectroscopy

Author(s): **Yanwen Sun**, SLAC National Accelerator Lab. (United States); **Haoyuan Li**, Stanford Univ. (United States); **Diling Zhu**, SLAC National Accelerator Lab. (United States)

Coffee Break 10:20 - 10:50

SESSION 4: PHYSICAL AND VIRTUAL DIAGNOSTICS OF FEL BEAMS

9 April 2025 • 10:50 - 12:40 | Tycho

Session Chair(s): **Kai Tiedtke**, Deutsches Elektronen-Synchrotron (Germany)

13536-18 • 10:50 - 11:20

Precision x-ray/optical experiment timing at LCLS (*Invited Paper*)

Author(s): **James Glowonia**, **Mina Bionta**, **Mathew Britton**, **Giacomo Coslovich**, SLAC National Accelerator Lab. (United States); **Jun Wang**, Stanford Univ. (United States)

13536-19 • 11:20 - 11:40

Operation of hard X-ray single-shot spectrometer for MHz spectral measurement at European XFEL

Author(s): **Naresh Gandhi Kujala**, **Wolfgang Freund**, **Joakim Laksman**, **Theophilos Maltezopoulos**, **Jia Liu**, **Jan Grünert**, European XFEL GmbH (Germany)

13536-49 • 11:40 - 12:00

Virtual photon diagnostics at SwissFEL for real-time spectral analysis

Author(s): **Christopher Arrell**, **Markus Schölmerich**, **Philipp Dijkstal**, **Sven Reiche**, Paul Scherrer Institut (Switzerland)

13536-21 • 12:00 - 12:20

Surrogate models for x-ray pulse diagnostics at the European XFEL

Author(s): **Fady Bishara**, European XFEL GmbH (Germany)

13536-22 • 12:20 - 12:40

Beamline diagnostic tools for SHINE project

Author(s): **Zhi Guo**, Shanghai Advanced Research Institute (China)

Lunch/Exhibition Break 12:40 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 5: X-RAY OPTICS AND WAVEFRONT SENSING

9 April 2025 • 15:40 - 17:50 | Tycho

Session Chair(s): **Marco Zangrando**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy)

13536-23 • 15:40 - 16:10

Ultraintense 7 nm focusing of hard X-ray free-electron laser at SACLA (*Invited Paper*)

Author(s): **Jumpei Yamada**, Osaka Univ. (Japan); **Ichiro Inoue**, **Taito Osaka**, **Gota Yamaguchi**, RIKEN SPring-8 Ctr. (Japan); **Yuichi Inubushi**, Japan Synchrotron Radiation Research Institute (Japan); **Kenji Tamasaku**, RIKEN SPring-8 Ctr. (Japan); **Daisetsu Toh**, **Yasuhisa Sano**, **Kazuto Yamauchi**, Osaka Univ. (Japan); **Makina Yabashi**, RIKEN SPring-8 Ctr. (Japan)

13536-24 • 16:10 - 16:30

Preliminary characterization of a plasma polished channel cut for future monochromator applications at European XFEL

Author(s): **Maurizio Vannoni**, **Kelin R. Tasca**, **Silja Schmidtchen**, **Idoia Freijo Martin**, **Liubov Samoylova**, **Harald Sinn**, European XFEL GmbH (Germany)

13536-25 • 16:30 - 16:50

Advancements in diffractive optics for X-ray free-electron laser applications

Author(s): **Talgat Mamyrbayev**, **Alexios Parthenopoulos**, **Damien Eschimese**, **Jan Erjawetz**, **Adam Kubec**, **Florian Döring**, XRnanotech AG (Switzerland)

13536-26 • 16:50 - 17:10

High-resolution hard X-ray Hartmann wavefront sensor

Author(s): **Jérémie Meslem**, **Guillaume Dovillaire**, **Martin Piponnier**, **Alok Kumar Pandey**, **Rafael Porcar-Guezenc**, Imagine Optic SA (France)

13536-27 • 17:10 - 17:30

Wavefront sensing at FELs: old tricks and new challenges with OAM beams, structured illumination and source metrology

Author(s): **Michele Manfredda**, **Marco Zangrando**, **Flavio Capotondi**, **Francesco Guzzi**, **George Kourousias**, **Luka Novinec**, **Matteo Pancaldi**, **Emanuele Pedersoli**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Giovanni De Nino**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy), Univ. of Nova Gorica (Slovenia); **Primož Rebernik Ribič**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Jenny Morgan**, **Erik Hemsing**, SLAC National Accelerator Lab. (United States); **Enrico Allaria**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Benedikt Rösner**, Paul Scherrer Institut (Switzerland)

13536-28 • 17:30 - 17:50

Design of a wavefront sensor for nanofocusing characterization at SHINE

Author(s): **Yajun Tong**, **Jiacheng Gu**, **Zhihao Guan**, **Qiao Zhi**, **Zhibin Sun**, **Jiadong Fan**, **Huaidong Jiang**, **Zhi Liu**, ShanghaiTech Univ. (China)

POSTERS-WEDNESDAY

9 April 2025 • 17:40 - 19:15 | Conference Foyer

13536-39 • 17:40 - 19:15

Characterization of ultrashort pulses at FLASH

Author(s): **Matthias Dreimann**, Univ. Münster (Germany); **Evgeny Schneidmiller**, Deutsches Elektronen-Synchrotron (Germany); **Ruven Quenter**, Univ. Münster (Germany); **Fabiano Lever**, Deutsches Elektronen-Synchrotron (Germany); **Julius Schwarz**, Univ. Hamburg (Germany); **Tobias Reiker**, **Victor Kärcher**, **Dennis Eckermann**, **Mark von Piechowski**, **Paul Geo Shine**, Univ. Münster (Germany); **Dennis Mayer**, Deutsches Elektronen-Synchrotron (Germany); **Sebastian Roling**, Univ. Münster (Germany); **Sven Toleikis**, **Elke Plönjes**, **Rolf Treusch**, Deutsches Elektronen-Synchrotron (Germany); **Michael Martins**, Univ. Hamburg (Germany); **Markus Gühr**, Deutsches Elektronen-Synchrotron (Germany); **Helmut Zacharias**, Univ. Münster (Germany)

13536-40 • 17:40 - 19:15

Two-bunch seeding of soft x-ray FELs

Author(s): **Evgeny Schneidmiller**, **Igor Zagorodnov**, Deutsches Elektronen-Synchrotron (Germany)

13536-41 • 17:40 - 19:15

Laser pulse shaping driven high-quality electron bunch generation and longitudinal phase space optimization for advanced FEL applications

Author(s): **Ye Chen, Frank Brinker**, Deutsches Elektronen-Synchrotron (Germany); **Meng Cai**, Deutsches Elektronen-Synchrotron (Germany), Univ. Hamburg (Germany); **Winfried Decking, Ingmar Hartl, Denis Ilia**, Deutsches Elektronen-Synchrotron (Germany); **Wolfgang Hillert**, Univ. Hamburg (Germany), Deutsches Elektronen-Synchrotron (Germany); **Alexander Klemps**, Technische Univ. Hamburg-Harburg (Germany); **Chen Li, Tianyun Long, Christoph Mahnke, Harsha Panuganti, Federico Pressacco, Henrik Tuennermann**, Deutsches Elektronen-Synchrotron (Germany)

13536-42 • 17:40 - 19:15

Analysis of spectral quality of OK-HGHG seeded FEL

Author(s): **Marie Zielinski, Paolo Cinquegrana**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Eugenio Ferrari**, Deutsches Elektronen-Synchrotron (Germany); **Evgeny Schneidmiller**, Deutsches Elektronen-Synchrotron (Germany); **Paolo Sigalotti, Carlo Spezzani, Giovanni De Nino, Enrico Allaria**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy)

13536-43 • 17:40 - 19:15

Generation of controllable, ultrashort current spikes for FEL experiments

Author(s): **Carsten Mai, Philipp Amstutz**, Technische Univ. Dortmund (Germany); **Christopher Gerth**, Deutsches Elektronen-Synchrotron (Germany); **Shaukat Khan**, Technische Univ. Dortmund (Germany); **Christoph Mahnke**, Deutsches Elektronen-Synchrotron (Germany); **Arjun Radha Krishnan**, Technische Univ. Dortmund (Germany)

13536-44 • 17:40 - 19:15

Beamlines of S3FEL in Shenzhen and some pre-study work

Author(s): **Meiyi Wu, Qinming Li, Chuan Yang, Zhongmin Xu, Hongliang Qin, Weiqing Zhang**, Institute of Advanced Science Facilities, Shenzhen (China)

13536-45 • 17:40 - 19:15

Ultrafast 3d transition metal L-edge X-ray magnetic circular dichroism of CoPt at FLASH

Author(s): **Martin Pavelka**, Uppsala Univ. (Sweden); **Ru-Pan Wang**, Deutsches Elektronen-Synchrotron (Germany); **Simon Marotzke**, Deutsches Elektronen-Synchrotron (Germany), Christian-Albrechts-Univ. zu Kiel (Germany); **Günter Brenner, Sjarhei Dziarzhyski**, Deutsches Elektronen-Synchrotron (Germany); **Somnath Jana, Clemens von Korff Schmising**, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); **Deeksha Gupta**, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); **Igor Vaskivskyi**, Jožef Stefan Institute (Slovenia); **Tim Amrhein, Nele Thielemann-Kühn, Martin Weinelt**, Freie Univ. Berlin (Germany); **Ronny Knut**, Uppsala Univ. (Sweden); **Rolf Treusch, Evgeny Schneidmiller**, Deutsches Elektronen-Synchrotron (Germany); **Christian Schübler-Langeheine**, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); **Martin Beye**, Deutsches Elektronen-Synchrotron (Germany), Stockholm Univ. (Sweden); **Niko Pontius**, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); **Hermann Dürr**, Uppsala Univ. (Sweden)

13536-46 • 17:40 - 19:15

Enhancement of scattering and absorption cross-sections by transient resonances in copper and iron

Author(s): **Robert G. Radloff**, Univ. Hamburg (Germany), Ctr. for Free-Electron Laser Science (Germany); **Nils Muthreich**, Technische Univ. Darmstadt (Germany); **Felix Zimmermann**, Physikalisch-Technische Bundesanstalt (Germany); **Yanwen Sun**, SLAC National Accelerator Lab. (United States); **Taito Osaka, Gota Yamaguchi**, RIKEN SPring-8 Ctr. (Japan); **Jumpei Yamada**, Osaka Univ. (Japan); **Anatoli Ulmer, Slawomir Skruszewicz**, Univ. Hamburg (Germany), Ctr. for Free-Electron Laser Science (Germany); **Phay J. Ho**, Argonne National Lab. (United States); **Ichiro Inoue**, RIKEN SPring-8 Ctr. (Japan); **Tais Gorkhover**, Univ. Hamburg (Germany), Ctr. for Free-Electron Laser Science (Germany); **Stephan Kuschel**, Technische Univ. Darmstadt (Germany)

13536-47 • 17:40 - 19:15

Diamonds for X-ray optics at EuXFEL: challenges, specifications, and current availability

Author(s): **Kelin R. Tasca, Maurizio Vannoni, Silja Schmidtchen, Liubov Samoylova, Harald Sinn**, European XFEL GmbH (Germany)

13536-48 • 17:40 - 19:15

Demonstration of space-charge-enhanced energy modulation at FERMI

Author(s): **Shaukat Khan**, TU Dortmund University (Germany)

Thursday 10 April 2025

SESSION 6: FEL SCIENCE APPLICATIONS I

10 April 2025 • 8:30 - 10:20 | Tycho

Session Chair(s): **Thomas Tschentscher**, European XFEL GmbH (Germany)

13536-29 • 8:30 - 9:00

Nanoscale structured illumination microscopy with ultrafast extreme-ultraviolet transient gratings (Invited Paper)

Author(s): **Ginevra Lautizi**, University of Trieste (Italy); **Clarissa Albertazzi**, Cinquepascal S.r.l. (Italy); **Claudio Masciovecchio, Emiliano Principi, Filippo Bencivenga, Laura Foglia, Naman Agarwal, Riccardo Mincigrucci**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy)

13536-30 • 9:00 - 9:20

Attosecond inner shell X-ray lasing

Author(s): **Thomas M. Linker**, Stanford PULSE Institute. (United States); **Uwe Bergmann**, Univ. of Wisconsin-Madison (United States)

13536-31 • 9:20 - 9:40

Temporal characterization of the new time-delay-compensating monochromator beamline at FLASH and first user experiments

Author(s): **Günter Brenner**, Deutsches Elektronen-Synchrotron (Germany)

13536-32 • 9:40 - 10:00

Time-domain EUV diffuse scattering phonon spectroscopy

Author(s): **Flavio Capotondi**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy)

13536-33 • 10:00 - 10:20

Liquid sheets and heterostructures for FEL and laser applications

Author(s): **Jake D. Koralek**, **David Hoffman**, **Dan DePonte**, SLAC National Accelerator Lab. (United States)

Coffee Break 10:20 - 10:50

SESSION 7: FEL SCIENCE APPLICATIONS II

10 April 2025 • 10:50 - 13:10 | Tycho

Session Chair(s): **Thomas Tschentscher**, European XFEL GmbH (Germany)

13536-50 • 10:50 - 11:20

Probing ultrafast electron motion with attosecond XFELs (Invited Paper)

Author(s): **James P. Cryan**, SLAC National Accelerator Lab (United States)

13536-34 • 11:20 - 11:50

Unveiling the photoinduced transient phases of metallic films with the pump-probe dark-field X-ray microscopy (Invited Paper)

Author(s): **Sangsoo Kim**, **Daewoong Nam**, Pohang Univ. of Science and Technology (Korea, Republic of); **Sungsoo Ha**, **Hyunjung Kim**, Sogang Univ. (Korea, Republic of)

13536-35 • 11:50 - 12:10

Single-pulse in-line holography for ultrafast imaging of extended objects with 10 nm resolution

Author(s): **Gota Yamaguchi**, RIKEN SPring-8 Ctr. (Japan); **Jumpei Yamada**, **Kota Shioi**, Osaka Univ. (Japan); **Taito Osaka**, **Ichiro Inoue**, RIKEN SPring-8 Ctr. (Japan); **Yuichi Inubushi**, **Takashi Kameshima**, Japan Synchrotron Radiation Research Institute (Japan), RIKEN SPring-8 Ctr. (Japan); **Kazuto Yamauchi**, Osaka Univ. (Japan); **Makina Yabashi**, RIKEN SPring-8 Ctr. (Japan), Japan Synchrotron Radiation Research Institute (Japan)

13536-36 • 12:10 - 12:30

Coherent diffraction imaging at PAL-XFEL: multiplex imaging endstation and nanobeam X-ray experiments instrument

Author(s): **Daewoong Nam**, **Sangsoo Kim**, **Changyong Song**, **Intae Eom**, Pohang Univ. of Science and Technology (Korea, Republic of)

13536-37 • 12:30 - 12:50

Ultrafast BCDI on individual few-nanometer Au clusters in the hard x-ray regime

Author(s): **Rasmus Buchin**, **Robert G. Radloff**, Univ. Hamburg (Germany); **Ichiro Inoue**, RIKEN SPring-8 Ctr. (Japan); **Jan Leutloff**, Technische Univ. Darmstadt (Germany); **Tais Gorkhover**, Univ. Hamburg (Germany); **Stephan Kuschel**, Technische Univ. Darmstadt (Germany); **Sven Gieschen**, **Florian Schulz**, **Juan Barrios**, **Holger Meyer**, **Xin Liu**, Univ. Hamburg (Germany); **Samuel Sahel-Schackis**, **Sandra Mous**, **Andrew Aquila**, **Sebastien Boutet**, SLAC National Accelerator Lab. (United States)

13536-38 • 12:50 - 13:10

A compact terahertz source for time-resolved terahertz pump-EUV probe experiments at FERMI

Author(s): **Emanuele Pedersoli**, **Matteo Pancaldi**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Stefano Bonetti**, Univ. Ca' Foscari di Venezia (Italy); **Ivaylo P. Nikolov**, **Flavio Capotondi**, **Adriana Valerio**, **Michele Manfreda**, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); **Riccardo Piccoli**, Ca' Foscari University of Venice (Italy); **Massimiliano d'Aquino**, **Salvatore Perna**, Univ. degli Studi di Napoli Federico II (Italy); **Gaspare Varvaro**, Istituto di Struttura della Materia (Italy)

CONFERENCE 13537

Compact Radiation Sources from EUV to Gamma-rays: Development and Applications II

9 - 10 April 2025 | Taurus

Conference Chair(s): Carmen S. Menoni, Colorado State Univ. (United States); Jaroslav Nejd, ELI Beamlines (Czech Republic)

Program Committee: Cord L. Arnold, Lund Univ. (Sweden); Davide Bleiner, EMPA (Switzerland); Uddhab Chaulagain, ELI Beamlines (Czech Republic); Liming Chen, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China); Henryk Fiedorowicz, Wojskowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland); Ondrej Hort, ELI Beamlines (Czech Republic); Subhendu Kahaly, ELI-HU Nonprofit Ltd. (Hungary); Tetsuya Kawachi, National Institutes for Quantum and Radiological Science and Technology (Japan); Hyung Taek Kim, APRI, GIST (Korea, Republic of); Annie Klisnick, Institut des Sciences Moléculaires d'Orsay (France); Maria Krikunova, Dong-Du Mai, ELI Beamlines (Czech Republic); Catalin Matei, Extreme Light Infrastructure Nuclear Physics (Romania); Zulfikar Najmudin, Imperial College London (United Kingdom); Tomáš Parkman, Czech Technical Univ. in Prague (Czech Republic); Jorge J. Rocca, Colorado State Univ. (United States); Stéphane Sebban, LOA, ENSTA (France); Bernd Schütte, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Jens Uhlig, Lund Univ. (Sweden)

Wednesday 9 April 2025

SESSION 1: XUV FROM HIGHLY IONIZED MATTER AND APPLICATIONS

9 April 2025 • 8:40 - 10:00 | Taurus

Session Chair(s): Jaroslav Nejd, ELI Beamlines (Czech Republic)

13537-1 • 8:40 - 9:10

Laser-produced plasma soft X-ray and extreme ultraviolet sources based on gaseous targets in studies on laboratory astrophysics (Invited Paper)

Author(s): Andrzej S. Bartnik, Henryk Fiedorowicz, Wojciech Skrzeczanowski, Mateusz Majszyk, Przemyslaw Wachulak, Tomasz Fok, Lukasz Wegrzynski, Wojskowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland)

13537-2 • 9:10 - 9:35

Progress on laser-driven soft x-ray lasers (Invited Paper)

Author(s): Stéphane Sebban, Ecole Nationale Supérieure de Techniques Avancées (France)

13537-3 • 9:35 - 10:00

Integration of X-rays and visible light toward innovative applications (Invited Paper)

Author(s): Thanh-Hung Dinh, National Institutes for Quantum Science and Technology (Japan)

Coffee Break 10:00 - 10:30

SESSION 2: HHG AND NONLINEAR LASER PROPAGATION IN GASES

9 April 2025 • 10:30 - 12:30 | Taurus

Session Chair(s): Stéphane Sebban, Ecole Nationale Supérieure de Techniques Avancées (France)

13537-4 • 10:30 - 10:55

XUV yield optimization of two-color high-order harmonic generation in gases (Invited Paper)

Author(s): Cord L. Arnold, Ann-Kathrin Raab, Melvin Redon, Lund Univ. (Sweden); Sylvianne Roscam Abbing, ASML Netherlands B.V. (Netherlands); Yuman Fang, Chen Guo, Lund Univ. (Sweden); Peter Smorenburg, ASML Netherlands B.V. (Netherlands); Johan Mauritsson, Anne-Lise Viotti, Anne L'Huillier, Lund Univ. (Sweden)

13537-5 • 10:55 - 11:15

Boosting XUV intensity with propagation: from high-order harmonic generation to high-order frequency mixing

Author(s): **Margarita Khokhlova**, King's College London (United Kingdom)

13537-6 • 11:15 - 11:40

Prospects on XUV science at ELI Beamlines *(Invited Paper)*

Author(s): **Ondrej Hort**, ELI ERIC (Czech Republic); **Lucie Jurkovičová**, **Matyáš Staněk**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Jan Vabek**, ELI ERIC (Czech Republic); **Fauzul Rizal**, **Ondřej Finke**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Martin Albrecht**, **Jaroslav Nejdli**, ELI ERIC (Czech Republic)

13537-7 • 11:40 - 12:00

Updates on multiscale modular approach to modelling high-harmonic generation in gases

Author(s): **Jan Vabek**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Stefan Skupin**, Institut Lumière Matière, Univ. Claude Bernard Lyon 1 (France); **Fabrice Catoire**, Ctr. Lasers Intenses et Applications (France); **Tadeáš Němec**, ELI ERIC (Czech Republic)

13537-8 • 12:00 - 12:30

Strong-field drivers based on high-energy soliton dynamics *(Invited Paper)*

Author(s): **Martin Gebhardt**, **Nikoleta Kotsina**, **Michael Heynck**, **Joleik Nordmann**, **Teodora Grigороva**, **Christian Brahms**, **John C. Travers**, Heriot-Watt Univ. (United Kingdom)

Lunch/Exhibition Break 12:30 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)

WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter *(Plenary Presentation)*

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all *(Plenary Presentation)*

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 3: APPLICATION OF ULTRASHORT COHERENT XUV PULSES

9 April 2025 • 15:40 - 17:45 | Taurus

Session Chair(s): **Ondrej Hort**, ELI Beamlines (Czech Republic)

13537-9 • 15:40 - 16:10

Attosecond Soft-X-ray spectroscopy in the gas and liquid phases *(Invited Paper)*

Author(s): **Hans Jakob Wörner**, ETH Zurich (Switzerland)

13537-10 • 16:10 - 16:30

Fast spectroscopic imaging using extreme ultraviolet interferometry

Author(s): **Matthijs Jansen**, **Hannah C. Strauch**, I. Physikalisches Institut, Georg-August-Univ. Göttingen (Germany); **Fengling Zhang**, Advanced Research Ctr. for Nanolithography (Netherlands); **Stefan Mathias**, I. Physikalisches Institut, Georg-August-Univ. Göttingen (Germany); **Thorsten Hohage**, Institut für Numerische und Angewandte Mathematik, Georg-August-Univ. Göttingen (Germany); **Stefan Witte**, Advanced Research Ctr. for Nanolithography (Netherlands), Technische Univ. Delft (Netherlands)

13537-11 • 16:30 - 16:50

Ultrafast dynamics in nanoscale matter using compact high-harmonic source at ELI Beamlines facility

Author(s): **Eva Klimesova**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Andreas H. Roos**, **Martin Albrecht**, **Keshav Sishodia**, ELI Beamlines (Czech Republic); **Matyáš Staněk**, **Lucie Jurkovičová**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Ondřej Hort**, ELI Beamlines (Czech Republic); **Jaroslav Nejdí**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Ltaief Ben Ltaief**, **Marcel Mudrich**, Aarhus Univ. (Denmark); **Jakob Andreasson**, ELI Beamlines (Czech Republic); **Maria Krikunova**, ELI Beamlines (Czech Republic), Technische Hochschule Wildau (Germany)

13537-12 • 16:50 - 17:15

All-attosecond transient absorption spectroscopy using high-harmonic generation *(Invited Paper)*

Author(s): **Bernd Schütte**, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany)

13537-13 • 17:15 - 17:45

Attohallen - a new attosecond science facility in Sweden *(Invited Paper)*

Author(s): **Richard J. Squibb**, **Massume Zaki**, **Helene Coudert-Alteirac**, **Sylvain Maclot**, **Andreas Hult Roos**, **Nihar Ranjan Behera**, **Veronica Ideböhn**, **Emelie Olsson**, **Antoine Gerbandier**, Göteborgs Univ. (Sweden); **Zehra Betül Duman**, Bogazici University (Turkey); **Cord Arnold**, **Per Eng-Johnsson**, **Anne L'Huillier**, Lund University (Sweden); **Raimund Feifel**, Göteborgs Univ. (Sweden)

POSTERS-WEDNESDAY

9 April 2025 • 17:40 - 19:15 | Conference Foyer

Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Wednesday afternoon. Enjoy light refreshments, ask questions, and network with colleagues in your field. 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.

Poster authors, visit [Poster Presentation Guidelines](#) for set-up instructions.

13537-30 • 17:40 - 19:15

Bayesian optimization for ultrafast X-ray generation from dual-stage laser-plasma accelerators *(Invited Paper)*

Author(s): **Dominik Čáp**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Orsolya Morvai**, ELI Beamlines (Czech Republic), Charles Univ. (Czech Republic); **Uddhab Chaulagain**, ELI Beamlines (Czech Republic); **Jaroslav Nejdí**, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Marcel Lamač**, ELI Beamlines (Czech Republic)

13537-31 • 17:40 - 19:15

Resonant betatron X-ray generation using chirped laser pulses *(Invited Paper)*

Author(s): **Orsolya Morvai**, **Dominik Čáp**, **Jaroslav Nejdí**, **Uddhab Chaulagain**, **Sergei V. Bulanov**, **Marcel Lamač**, ELI Beamlines (Czech Republic)

13537-32 • 17:40 - 19:15

Compact laser-driven plasma X-ray source for time-resolved diffraction, spectroscopy, and imaging experiments at ELI Beamlines *(Invited Paper)*

Author(s): **Yelyzaveta Pulnova**, ELI ERIC (Czech Republic), Charles Univ. (Czech Republic); **Tomáš Parkman**, **Jaroslav Nejdí**, ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic)

13537-33 • 17:40 - 19:15

High-sensitivity optical tomography of gas jet for laser-plasma accelerator *(Invited Paper)*

Author(s): **Vojtech Janota**, ELI Beamlines (Czech Republic); **Uddhab Chaulagain**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Jaroslav Nejdí**, **Marcel Lamač**, **Marek Raclavský**, ELI Beamlines (Czech Republic)

13537-34 • 17:40 - 19:15

High-order harmonic wavefront controlled by a highly bi-chromatic laser beam *(Invited Paper)*

Author(s): **Lucie Jurkovičová**, **Jan Vabek**, ELI ERIC (Czech Republic); **Xiaozhou Zou**, **Cong Zhao**, King's College London (United Kingdom); **Jaroslav Nejdí**, ELI ERIC (Czech Republic); **Eric Constant**, Institut Lumière Matière, Univ. Claude Bernard Lyon 1 (France); **Amelle Zair**, King's College London (United Kingdom); **Ondřej Hort**, ELI ERIC (Czech Republic)

13537-35 • 17:40 - 19:15

Compact XUV-beamline for time resolved ARPES at 500kHz *(Invited Paper)*

Author(s): **Tobias Reiker**, **Felix Rosenthal**, **Matthias Dreimann**, **Helmut Zacharias**, Univ. Münster (Germany)

13537-36 • 17:40 - 19:15

Lensless diffractive imaging at ELI Beamlines *(Invited Paper)*

Author(s): **Martin Albrecht**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Dong-Du Mai**, Institut für Nanophotonik Göttingen e.V. (Germany), ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Sarka Liskova**, Czech Technical Univ. in Prague (Czech Republic); **Maria Krikunova**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic), Technische Hochschule Wildau (Germany); **Eva Klimesova**, **Andreas H. Roos**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Keshav Sishodia**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic), Indian Institute of Technology Madras (India); **Ondrej Hort**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Matyáš Staněk**, **Lucie Jurkovicova**, **Jaroslav Nejdí**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); **Jakob Andreasson**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic)

13537-37 • 17:40 - 19:15

Compact laser-driven X-ray source for imaging and time-resolved measurements

Author(s): **Benjamin Barbrel**, **Aboubakr Bakkali**, **Emile Barjou**, ALPhANOV (France); **Antoine Courjaud**, Amplitude Laser (France); **Octave Delorme**, ALPhANOV (France); **Fabien Dorchies**, CELIA (University of Bordeaux – CNRS – CEA) (France); **Pauline Lehoux**, **Francesca Mastropietro**, **Panyi Song**, ALPhANOV (France)

Thursday 10 April 2025

SESSION 4: X-RAY SOURCES BASED ON RELATIVISTIC LASER-MATTER INTERACTION I

10 April 2025 • 8:30 - 10:30 | Taurus

Session Chair(s): **Alexander S. Pirozhkov**, National Institutes for Quantum Science and Technology (Japan)

13537-14 • 8:30 - 8:55

Relativistic Plasma Mirrors: Scaling in the Relativistic Transparency Regime *(Invited Paper)*

Author(s): **Sergei V. Bulanov**, ELI Beamlines (Czech Republic); **Timur Esirkepov**, KPSI-QST (Japan); **Gabriele Grittani**, **Tae Moon Jeong**, **Martin Jirka**, ELI Beamlines (Czech Republic); **Masaki Kando**, KPSI-QST (Japan); **Marcel Lamac**, **Alexander Macleod**, **Jaroslav Nejdí**, ELI Beamlines (Czech Republic); **Alexander Pirozhkov**, KPSI-QST (Japan); **Petr Valenta**, ELI Beamlines (Czech Republic); **Stepan Bulanov**, LBNL (United States)

13537-15 • 8:55 - 9:15

Attosecond gamma-ray flashes and electron-positron pairs in dyadic laser interaction with micro-wire

Author(s): **Prokopis Hadjisolomou**, ELI ERIC (Czech Republic)

13537-16 • 9:15 - 9:45

Plasma mirror boosters as a promising path to probe the strong field and fully non-perturbative regimes of QED *(Invited Paper)*

Author(s): **Henri Vincenti**, CEA-Paris-Saclay (France)

13537-17 • 9:45 - 10:10

Bright broadband X-ray sources driven by high-power lasers at ELI Beamlines facility *(Invited Paper)*

Author(s): **Uddhab Chaulagain**, ELI Beamlines (Czech Republic), ELI ERIC (Czech Republic); **Marcel Lamač**, **Dominik Čáp**, **Morvai Orsolya**, **Yelyzaveta Pulnova**, **Antonia Morabito**, **Tomáš Parkman**, **Jaroslav Nejdí**, ELI Beamlines (Czech Republic)

13537-18 • 10:10 - 10:30

Inverse Compton scattering with direct laser acceleration

Author(s): **Talia Meir**, Tel Aviv Univ. (Israel); **Itamar Cohen**, LULI, CNRS, École Polytechnique (France); **Kavin Tangtartharakul**, University of California San Diego (United States); **Tamir Cohen**, **Moshe Fraenkel**, Soreq NRC (Israel); **Alexey Arefiev**, University of California San Diego (United States); **Ishay Pomerantz**, Tel Aviv Univ. (Israel)

Coffee Break 10:30 - 10:50

SESSION 5: X-RAY SOURCES FROM RELATIVISTIC ELECTRON BEAMS

10 April 2025 • 10:50 - 12:45 | Taurus

Session Chair(s): **Silvia Cipiccia**, Univ. College London (United Kingdom)

13537-19 • 10:50 - 11:20

Distributed charge Compton systems and the path to precision detection and selective treatment of cancer *(Invited Paper)*

Author(s): **Christopher P. J. Bartý**, Univ. of California, Irvine (United States), Lumitron Technologies, Inc. (United States)

13537-20 • 11:20 - 11:45

Laser-Compton scattering sources: overview and future *(Invited Paper)*

Author(s): **Catalin Matei**, Extreme Light Infrastructure Nuclear Physics (Romania)

13537-21 • 11:45 - 12:15

Compact all-optical precision-tunable narrowband hard Compton X-ray source *(Invited Paper)*

Author(s): **Kristjan Poder, Simon Bohlen, Theresa Brümmer**, Deutsches Elektronen-Synchrotron (Germany); **Florian Grüner**, Univ. Hamburg (Germany); **Cristina Mariani, Martin Meisel, Jonathan Wood, Jens Osterhoff**, Deutsches Elektronen-Synchrotron (Germany)

13537-22 • 12:15 - 12:45

Demonstration of a reliable, high-gain laser plasma accelerator-driven free electron laser *(Invited Paper)*

Author(s): **Sam Barber, Finn Kohrell, Chris Doss, Kyle Jensen, Curtis Berger, Anthony Gonsalves, Kei Nakamura**, Lawrence Berkeley National Lab. (United States); **Guillaume Plateau, Reinier van Mourik, Stephen Milton**, TAU Systems, Inc. (United States); **Carl Schroeder, Eric Esarey, Jeroen van Tilborg**, Lawrence Berkeley National Lab. (United States)

Lunch Break 12:45 - 13:50

SESSION 6: X-RAY SOURCES BASED ON RELATIVISTIC LASER-MATTER INTERACTION II

10 April 2025 • 13:50 - 15:15 | Taurus

Session Chair(s): **Catalin Matei**, Extreme Light Infrastructure Nuclear Physics (Romania)

13537-23 • 13:50 - 14:20

BISER: towards terawatt compact coherent x-ray source *(Invited Paper)*

Author(s): **Alexander S. Pirozhkov**, National Institutes for Quantum Science and Technology (Japan); **T. A. Pikuz**, Osaka Univ. (Japan); **E. A. Vishnyakov**, ELI ERIC (Czech Republic); **A. Sagisaka, K. Ogura, Ko. Kondo**, National Institutes for Quantum Science and Technology (Japan); **Y. K. Liu, C. E. Lin**, National Taiwan Univ. (Taiwan); **S. Lorenz, M. Nevrlka, J. Šišma**, ELI ERIC (Czech Republic); **A. Kon, K. Huang, N. Nakanii, Y. Miyasaka, A. Bierwage, T. Wei**, National Institutes for Quantum Science and Technology (Japan); **J. K. Koga**, National Institutes for Quantum Science and Technology (Japan), Kyoto International Univ. Academy (Japan); **Pisin Chen**, National Taiwan Univ. (Taiwan); **G. M. Grittani**, ELI ERIC (Czech Republic); **M. Koike, T. Z. Esirkepov**, National Institutes for Quantum Science and Technology (Japan); **S. Namba**, Hiroshima Univ. (Japan); **H. Kiriyaama**, National Institutes for Quantum Science and Technology (Japan); **Sergei V. Bulanov**, ELI ERIC (Czech Republic); **M. Kando**, National Institutes for Quantum Science and Technology (Japan)

13537-24 • 14:20 - 14:50

MeV electrons generated using 100 GW level few-cycle IR laser pulses *(Invited Paper)*

Author(s): **Jeffrey Powell**, Institut National de la Recherche Scientifique (Canada); **Spencer W. Jolly**, Univ. Libre de Bruxelles (Belgium); **Simon Vallières**, Institut National de la Recherche Scientifique (Canada); **François Fillion-Gourdeau**, Infinite Potential Labs. (Canada); **Stéphane Payeur, Sylvain Fourmaux, Marianna Lytova**, Institut National de la Recherche Scientifique (Canada); **Michel Piché**, Univ. Laval (Canada); **Heide Ibrahim**, Institut National de la Recherche Scientifique (Canada); **Steve MacLean**, Infinite Potential Labs. (Canada); **François Legare**, Institut National de la Recherche Scientifique (Canada)

13537-25 • 14:50 - 15:15

Laser-driven bremsstrahlung MeV x-ray sources for radiography *(Invited Paper)*

Author(s): **Reed Hollinger, Shoujun Wang, Sina Anaraki-Zahedpour, Jim King**, Colorado State Univ. (United States); **Alejandro Figueroa Bengoa, Matt Sheats, Shannon Scott, James Hunter**, Los Alamos National Lab. (United States); **Yong Wang**, Colorado State Univ. (United States); **Ray Edwards, Matt Faulkner**, AWE plc (United Kingdom); **Jorge Rocca**, Colorado State Univ. (United States); **Cort Gautier**, Los Alamos National Lab. (United States)

Coffee Break 15:15 - 15:40

SESSION 7: APPLICATIONS OF INCOHERENT X-RAY SOURCES

10 April 2025 • 15:40 - 17:40 | Taurus

Session Chair(s): **Uddhab Chaulagain**, ELI Beamlines (Czech Republic)

13537-26 • 15:40 - 16:10

Compact laser-induced plasma source for advanced soft X-ray absorption spectroscopy *(Invited Paper)*

Author(s): **Jonathan Holburg, Anja Ahrens, Maik Lübbecke, Lars Sölter**, Institut für Nanophotonik Göttingen e.V. (Germany); **Jürgen Thieme**, Institut für Röntgenphysik, Georg-August-Univ. Göttingen (Germany); **Stephan Figul, Gerd Marowsky**, Advanced Microfluidic Systems GmbH (Germany); **Ales Charvat, Bernd Abel**, Institut für Technische Chemie, Univ. Leipzig (Germany); **Klaus Mann, Dong-Du Mai**, Institut für Nanophotonik Göttingen e.V. (Germany)

13537-27 • 16:10 - 16:40

Imaging applications of laser-driven x-ray sources *(Invited Paper)*

Author(s): **Silvia Cipiccia**, **Luca Fardin**, **Adam Doherty**, **Alessandro Olivo**, Univ. College London (United Kingdom); **Chris Armstrong**, **Dan Symes**, Central Laser Facility (United Kingdom); **Wiebe Stolp**, Ghent University (Belgium); **François Légaré**, INRS (Canada); **Yelyzaveta Pulnova**, **Iuliia Baranova**, **Uddhab Chaulagain**, **Tomáš Parkman**, ELI-beamlines (Czech Republic); **Zulfikar Najmudin**, Imperial College (United Kingdom); **Jonathan Wood**, DESY (Germany); **Sylvain Fourmaux**, INRS (Canada); **Jaroslav Nejdí**, ELI-beamlines (Czech Republic); **Matthieu Boone**, Ghent University (Belgium); **Marco Endrizzi**, **Alberto Astolfo**, Univ. College London (United Kingdom); **Ralf Ziesche**, Helmholtz-Zentrum Berlin (Germany); **Michela Fratini**, CNR-Nanotec (Italy); **Darren Batey**, Diamond Light Source (United Kingdom)

13537-28 • 16:40 - 17:10

Hard x-ray radiography using mJ lasers at multi kHz repetition rates *(Invited Paper)*

Author(s): **Krishnamurthy M.**, Tata Institute of Fundamental Research (India)

13537-29 • 17:10 - 17:40

study of the molybdenum solid-plasma transition by femtosecond x-ray absorption near-edge spectroscopy *(Invited Paper)*

Author(s): **Sylvain Briand**, Ctr. Lasers Intenses et Applications (France); **Adrian Grolleau**, **Fabien BRIEUC**, CEA (France); **Julien Gautier**, Lab. d'Optique Appliquée (France); **Vanina Recoules**, CEA (France); **Kim Ta Phuoc**, Lab. d'Optique Appliquée (France); **Fabien Dorchies**, Ctr. Lasers Intenses et Applications (France); **Ludovic Lecherbourg**, CEA (France)

CONFERENCE 13538

Coherent and Incoherent Radiation Sources based on Laser-driven Relativistic Plasma Waves

9 - 10 April 2025 | Quadrant (Wed AM) & Aquarius (Wed PM-Thur)

Conference Chair(s): **Dino A. Jaroszynski**, Univ. of Strathclyde (United Kingdom); **MinSup Hur**, Ulsan National Institute of Science and Technology (Korea, Republic of)

Program Committee: **Min Chen**, Shanghai Jiao Tong Univ. (China); **Bernhard Ersfeld**, Univ. of Strathclyde (United Kingdom); **John P. Farmer**, Heinrich-Heine-Univ. Düsseldorf (Germany); **Devki Nandan N. Gupta**, Univ. of Delhi (India); **Götz Lehmann**, Heinrich-Heine-Univ. Düsseldorf (Germany); **Inhyuk Nam**, Pohang Accelerator Lab. (Korea, Republic of); **Kenan Qu**, Princeton Univ. (United States); **Antoine Rousse**, Ecole Nationale Supérieure de Techniques Avancées (France); **Gennady B. Shvets**, Cornell Univ. (United States); **Luis O. Silva**, Univ. Técnica de Lisboa (Portugal); **Hyyong Suk**, Gwangju Institute of Science and Technology (Korea, Republic of); **Luca Volpe**, Univ. degli Studi di Milano-Bicocca (Italy)

Wednesday 9 April 2025

SESSION 1: ELECTRON-DRIVEN RADIATION SOURCES

9 April 2025 • 10:30 - 12:30 | Quadrant

Session Chair(s): **Nasr A. Md. Hafz**, Shanghai Jiao Tong Univ. (China)

13538-1 • 10:30 - 11:00

Coherent electron cyclotron maser emission in laser-ionized plasmas (*Invited Paper*)

Author(s): **Thales Silva**, **Pablo Bilbao**, **Luis Silva**, Instituto Superior Técnico, Univ. de Lisboa (Portugal)

13538-2 • 11:00 - 11:30

Plasma-driven XFEL near the cold beam limit (*Invited Paper*)

Author(s): **Bernhard Hidding**, **Fahim Habib**, Univ. of Strathclyde (United Kingdom)

13538-3 • 11:30 - 12:00

Exascale simulations of laser plasma accelerators, high energy density plasmas and astrophysical plasmas with PIconGPU (*Invited Paper*)

Author(s): **Michael Bussmann**, **Thomas Kluge**, **Richard Pausch**, **Klaus Steiniger**, **Tapish Narwal**, **Julian Lenz**, **Alexander Debus**, **René Widera**, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany)

13538-4 • 12:00 - 12:30

Development of segmented capillary gas-cell for laser wakefield acceleration (*Invited Paper*)

Author(s): **Inhyuk Nam**, UNIST (Korea, Republic of)

Lunch/Exhibition Break 12:30 - 13:30

WEDNESDAY PLENARY SESSION

9 April 2025 • 13:30 - 15:10 | Nadir

Joint Plenary Session Between SPIE Optics + Optoelectronics and WSOF

13:30 to 13:35

Welcome and Introduction

Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Optics + Optoelectronics Symposium Chair

14:20 to 14:25

Welcome and Introduction

Pavel Peterka, Institute of Photonics and Electronics, Czech Academy of Sciences (Czech Republic)
WSOF Chair

13536-700 • 13:30 - 14:15

High repetition rate femtosecond X-ray studies of dynamically compressed matter (Plenary Presentation)

Author(s): **Justin S. Wark**, Univ. of Oxford (United Kingdom)

13522-703 • 14:25 - 15:10

One (hollow) fibre to rule them all (Plenary Presentation)

Author(s): **Francesco Poletti**, Optoelectronics Research Ctr., Univ. of Southampton (United Kingdom)

Coffee Break 15:10 - 15:40

SESSION 2: COMPTON SCATTERING AND QED

9 April 2025 • 15:40 - 17:40 | Aquarius

Session Chair(s): **Julia Mikhailova**, Max-Planck-Institut für Quantenoptik (Germany)

13538-5 • 15:40 - 16:10

Coherent radiation from relativistic lepton beams in intense laser fields (Invited Paper)

Author(s): **Michael J. Quin**, Max-Planck-Institut für Kernphysik (Germany); **Antonino Di Piazza**, Univ. of Rochester (United States), Max-Planck-Institut für Kernphysik (Germany); **Christoph H. Keitel**, **Matteo Tamburini**, Max-Planck-Institut für Kernphysik (Germany)

13538-6 • 16:10 - 16:40

Compact all-optical precision-tunable narrowband hard Compton X-ray source (Invited Paper)

Author(s): **Kristjan Poder**, **Simon Bohlen**, **Theresa Brümmer**, Deutsches Elektronen-Synchrotron DESY (Germany); **Florian Grüner**, University of Hamburg (Germany); **Cristina Mariani**, **Martin Meisel**, **Jonathan Wood**, **Jens Osterhoff**, Deutsches Elektronen-Synchrotron DESY (Germany)

13538-7 • 16:40 - 17:10

Producing bright quantum optical states using plasmas (Invited Paper)

Author(s): **Kenan Qu**, Princeton Univ. (United States)

13538-8 • 17:10 - 17:40

Coherent radiation and radiation friction at moderate particle energies and laser intensities (Invited Paper)

Author(s): **Evgeny G. Gelfer**, The Extreme Light Infrastructure ERIC (Czech Republic); **Alexander Fedotov**, **Maxim Malakhov**, National Research Nuclear Univ MEPhI (Russian Federation); **Ondrej Klimo**, The Extreme Light Infrastructure ERIC (Czech Republic), Czech Technical University in Prague (Czech Republic); **Stefan Weber**, The Extreme Light Infrastructure ERIC (Czech Republic)

Thursday 10 April 2025

SESSION 3: PLASMA PHOTONICS

10 April 2025 • 8:50 - 10:20 | Aquarius

Session Chair(s): **Kenan Qu**, Princeton Univ. (United States)

13538-9 • 8:50 - 9:20

Plasma-grating-based laser pulse compression (Invited Paper)

Author(s): **Götz Lehmann**, **Karl-Heinz Spatschek**, Heinrich-Heine-Univ. Düsseldorf (Germany)

13538-10 • 9:20 - 9:40

Plasma photonic structures for high power laser beam transport systems

Author(s): **Dino A. Jaroszynski**, Univ. of Strathclyde (United Kingdom)

13538-11 • 9:40 - 10:00

Stable pulse compression in a gradient-plasma photonic crystal

Author(s): **Min Sup Hur**, Ulsan National Institute of Science and Technology (Korea, Republic of)

13538-12 • 10:00 - 10:20

Noise reduction and wavebreaking control in Raman backward amplification via multi-pump lasers

Author(s): **Dohyun Park**, **Jaeho Lee**, **Min Sup Hur**, Ulsan National Institute of Science and Technology (Korea, Republic of)

Coffee Break 10:20 - 10:50

SESSION 4: HIGH HARMONICS AND ATTOSECOND

10 April 2025 • 10:50 - 12:50 | Aquarius

Session Chair(s): **Bernhard Hidding**, Univ. of Strathclyde (United Kingdom)

13538-13 • 10:50 - 11:20

Plasma optics for ultrafast high-intensity light sources (*Invited Paper*)

Author(s): **Julia Mikhailova**, Princeton University (United States)

13538-14 • 11:20 - 11:50

Scattering of electromagnetic radiation at a plasma grating formed by ionisation (*Invited Paper*)

Author(s): **Bernhard Ersfeld**, Univ. of Strathclyde (United Kingdom); **Gregory Vieux**, Univ. of Strathclyde (United Kingdom), Bull (France); **George K Holt**, STFC Hartree Centre (United Kingdom), Univ. of Strathclyde (United Kingdom); **Enrico (Brunetti, Slav Ivanov, Samuel R Yoffe**, Univ. of Strathclyde (United Kingdom); **Min Sup Hur**, UNIST (Korea, Republic of); **Dino A Jaroszynski**, Univ. of Strathclyde (United Kingdom)

13538-15 • 11:50 - 12:20

TBA: high harmonics and attosecond II (*Invited Paper*)

Author(s): **Willow Pring**, Univ. of Strathclyde (United Kingdom)

13538-16 • 12:20 - 12:50

High-harmonic generation and spin-orbital interaction of light from the diffraction of a relativistic laser beam (*Invited Paper*)

Author(s): **Longqing Yi**, Shanghai Jiao Tong University (China)

Lunch Break 12:50 - 13:50

SESSION 5: PLASMA WAVE AND RADIATION

10 April 2025 • 13:50 - 15:40 | Aquarius

Session Chair(s): **Evgeny G. Gelfer**, ELI ERIC (Czech Republic)

13538-17 • 13:50 - 14:20

Strong THz pulse generation from underdense plasma and fs laser interactions (*Invited Paper*)

Author(s): **Hyyong Suk**, Gwangju Institute of Science and Technology (Korea, Republic of)

13538-18 • 14:20 - 14:50

Visualizing plasma waves and laser-matter interactions with few-cycle probing (*Invited Paper*)

Author(s): **Malte C. Kaluza**, Friedrich-Schiller-Univ. Jena (Germany)

13538-19 • 14:50 - 15:20

Laser wakefield acceleration beamlines at ELI ALPS Research Institute (*Invited Paper*)

Author(s): **Nasr A. M. Hafiz**, ELI-ALPS Research Institute (Hungary); **Daniel Papp**, ELI-HU Non profit Ltd (Hungary); **Zsolt Lecz, Tamas Lucza, Mohamed Samir, Christos Kamperidis**, ELI-ALPS Research Institute (Hungary)

13538-20 • 15:20 - 15:40

THz Radiation from Plasma Oscillators

Author(s): **Min Sup Hur**, Ulsan National Institute of Science and Technology (Korea, Republic of)