2026 OPAL

9th International Conference on Optics, Photonics and Lasers

Conference Programme

20-22 May 2026

Ibiza (Balearic Islands), Spain

IFSA

Message from Chairman

Dear Colleagues, Distinguished Speakers, Authors, and Guests !

It is my great pleasure to welcome you to the *9th International Conference on Optics, Photonics and Lasers (OPAL' 2026)*, which will be held on 20–22 May 2026 at the Ibiza Twiins Hotel (Balearic Islands) Spain.

OPAL has become a recognized international forum for scientists, engineers, researchers, industry specialists, and young professionals working in the broad fields of optics, photonics, lasers, optical materials, quantum and optical information processing, biomedical optics, and related technologies. The 2026 edition continues this tradition by bringing together participants from different countries and research communities to exchange new ideas, present recent achievements, and discuss future directions in this rapidly developing area.

This year's technical programme includes keynote lectures, invited presentations, regular oral sessions, a poster session, and scientific discussions covering a wide range of topics, from high-intensity laser physics and light–matter interaction to optical coherence tomography, photonic devices, advanced sensing, quantum optics, and optical information processing. I am especially pleased to welcome our keynote and invited speakers, whose expertise and vision will undoubtedly enrich the scientific level of the conference.

In addition to the scientific sessions, OPAL' 2026 offers valuable opportunities for networking and informal communication during the Welcome Cocktail, Gala Dinner and Farewell Cocktail. Such meetings are an essential part of every successful conference, as they help create new collaborations, strengthen existing partnerships, and inspire future joint research.

I would like to express my sincere gratitude to all authors, speakers, session chairs, members of the Advisory Committee, reviewers, sponsors, media partners, and the Conference and Publication Manager for their important contributions to the preparation of OPAL' 2026. Their support and dedication have made it possible to organize a high-quality scientific event.

I wish all participants a productive, inspiring, and enjoyable conference in Ibiza. May OPAL' 2026 provide you with new knowledge, fruitful discussions, professional contacts, and pleasant memories.

Welcome to OPAL' 2026 !

Prof., Dr. Sergey Y. Yurish
Conference Chairman

Conference Venue

The Conference will take place on 20-22 May 2026 in Ibiza Twiins Hotel, (Balearic Islands), Spain, Conference Room *Formentera.* Address: Playa d'en Bossa, Av. Pere Matutes Noguera, 79, 07800 Ibiza, Spain.

Insurance and Liability

The conference organizers accept no liability for any loss, damage, injury, illness, accident, delay, theft, or other incident affecting participants, accompanying persons, or their property in connection with attendance at the conference or related activities. Participants are solely responsible for arranging adequate personal, medical, travel, accident, liability, and property insurance as necessary. Attendance at the conference is at the participant's own risk.

Registration

The Registration Desk is open in the event Ibiza Twiins Hotel:

- Tuesday, 19 May, 20:00-21:30, in the Welcome Cocktail area - outdoors restaurant *La Cascada*, near the swimming pool.
- Wednesday, 20 May, 9:45-17:00, near the Conference Room *Formentera*
- Thursday, 21 May, 9:45-17:00, near the Conference Room *Formentera*
- Friday, 22 May, from 9:45-13:00, near the Conference Room *Formentera*

Language

The official language of the Conference is English. There will be no simultaneous interpretation.

Conference Identification Tag

The Organizing Committee request that you wear your identification tag (badge) at all times during the conference. Your conference identification tag will serve as your admission to all conference paper presentation sessions and social events.

Coffee/Tea Refreshment

Coffee/tea will be served in foyer near the Conference Room *Formentera* at the times indicated in the programme.

Dress Code

The event dress code is smart casual for all conference sessions and social programme.

Welcome Cocktail

19 May 2026, Tuesday (20:00-21:30), The Welcome Cocktail will take place in the Ibiza Twiins Hotel, outdoors restaurant *La Cascada*, and followed by Musical Show. Do not miss this opportunity to say the first "hello" to attendees and committee members !

Gala Dinner

21 May 2026, Thursday (19:00-21:30). The Gala Dinner will take place in the Ibiza Twiins Hotel, in *Dalt Vila* conference room, and followed by Musical Show.

Farewell Cocktail

22 May 2026, Friday (13:30-14:30). The Farewell Cocktail will take place in the Ibiza Twiins Hotel, in the conference room *Formentera.* It will be combined with the Poster Session and followed by the Closing Session. Do not miss it to know about the post-conference publications and the next conference's venue !

Special Issues of journals

Selected and extended papers from the conference will be published in one of the following open access journals:

- *Sensors & Transducers* journal (ISSN: 2306-8515, e-ISSN 1726-5479), Special issue on '*Optic, Photonics & Lasers*'. The journal is indexed in SCOPUS.
- *MDPI Quantum Beam Science* (ISSN 2412-382X), Special Issue on '*Advances in Quantum Beams, Photonic Sources and Laser-Driven Systems*'. The journal is indexed in ESCI and SCOPUS.

'*Advances in Optics*' Book Series

The limited number of papers will be selected by the journal's Editorial Board to extend into book chapters for the '*Advances in Optics*', Book Series, Vol. 8. This open access book volume will be published at the end of 2026. The first six volumes published in 2018-2022 have been accepted by all Optical Community with a great enthusiasm, and some of these volumes are indexed in Book Citation Index, Web of Science.

Best Papers Awards

In this year, two Best Paper Awards have been established and will be given to the authors at the Gala Dinner.

- MDPI '*Metrology*', includes 500.00 EUR and Certificate
- IFSA, includes Trophy, Certificate and free registration for OPAL' 2027

Organizing Committee

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Keynote Speakers

Prof., Dr. Mikas Vengris
Vilnius University, Faculty of Physics,
Laser Research Centre, Vilnius, Lithuania

High Intensity Laser Physics: from OPCPA Principle to Laser Particle Accelerators

Abstract: In this presentation four decades of progress in OPCPA laser technologies at Vilnius University and laser labs all over the world will be discussed. It will start from the inception of the OPCPA idea, look at its different implementations with ever increasing pulse intensities over the past 25 years, and survey the current systems tailored for different applications. The trade-off between the average and peak power will be discussed in the context of different experiments. We will also consider the place for building-sized and tabletop-sized lasers in the laser research applications. These issues will be based on the evolution of high-intensity OPCPA laser systems conceived at Vilnius University that grew to be commercialized by Lithuanian laser companies. Current developments of such systems and the measurements employing them at the labs of Vilnius University Laser Research Centre will be presented.

Short Biography: Dr. Mikas Vengris is a professor at the Laser Research Center, Faculty of Physics, Vilnius University. He studied physics at Vilnius University, and got his PhD degree at the Vrije Universiteit Amsterdam (the Netherlands) in 2005. Mikas's research interests focus on the ultrafast spectroscopy in molecular and solid-state systems. His ultrafast spectroscopy lab works on the photoinduced processes in photosensitive molecules, ranging from biological pigments and pigment-protein complexes to synthetic molecules and solid-state media (nonlinear and laser crystals, and optical coatings). He has also worked on investigating cascaded nonlinear phenomena occurring in laser cavities, nonlinear light transformations in bulk transparent media, and ultrafast holographic imaging. Additionally, as a part of his research work, Mikas is developing spectroscopic measurement and imaging equipment. Currently, Mikas is supervising the construction of the application and spectroscopy lab for high-harmonics and attosecond pulses, a part of High-Intensity Laser Laboratory at the Laser Research Center. Mikas has co-authored more than 100 peer-reviewed papers and served as a scientific advisor of 5 PhD students.

Prof., Dr. Valentin Freilikher
Bar-Ilan University,
Israel

Light-Matter Interaction: Laser Challenges Classical Laws of Diffusion

Abstract: In this presenttion, an overview of recent experimental and theoretical advances in the research of the photo-induced diffusion in amorphous chalcogenide films is presented. The recent studies reveal that photo-induced diffusion is a light-controlled non-equilibrium transport process rather than a purely thermally activated phenomenon. The effective transport rates and spatial redistribution patterns often deviate significantly from predictions based on classical diffusion models, indicating that optical excitation modifies both the mobility of structural units and the forces responsible for their displacement. It is also shown that although light propagation in random dielectric media is often described using diffusion theory, wave interference leads to fundamentally different transport behavior. In particular, transmission is governed by a set of eigenchannels with highly non-uniform transmission probabilities. The distribution of the transmission coefficients is bimodal, such that the most of the channels are either nearly fully open or strongly closed. Remarkably, these channels suppress transverse spreading and preserve their spatial structures throughout the sample, in striking contrast to the intuition built on classical particle diffusion Finally, it is demonstrated how light serves as a powerful non-invasive tool for probing and controlling material systems, enabling real-time access to dynamical processes in both solid-state and liquid environments.

Short Biography: Valentin Freilikher is Professor of Physics at Bar-Ilan University, Israel, where he has served since 1991. He received his M.Sc. in Physics from Kharkov State University in 1966, his Ph.D. from the USSR Academy of Science in 1970, and the Senior Research Scientist degree from the same Academy in 1976. Before joining Bar-Ilan University, he worked at the Institute of Radiophysics and Electronics of the USSR Academy of Science. From 1993 to 2010, he was Head of the Microwave Remote Sensing Center at Bar-Ilan University. He has held visiting positions at the University of California, Irvine, the University of Twente, Galway University, Sydney University of Technology, and RIKEN Institute. Since 1999, he has been a member of the Editorial Board of Waves in Complex and Random Media. Prof. Freilikher has authored/co-authored more than 190 publications.

Dr. Kanwarpal Singh
McMaster University, Canada
and Max Planck institute for the Science of Light
Erlangen, Germany

Optical Coherence Tomography and its Applications in Endoscopy

Abstract: Optical coherence tomography (OCT) is a high-resolution, non-invasive imaging modality that provides cross-sectional, micrometer-scale visualization of tissue microstructure using low coherence interferometry. Often described as the optical analogue of ultrasound, OCT measures the echo time delay and intensity of backscattered light to generate real-time, depth-resolved images of biological tissues, typically achieving axial resolutions of 1–10 μm and penetration depths of 1–3 mm. In endoscopy, OCT has emerged as a powerful adjunct to conventional white-light imaging by enabling in vivo “optical biopsy” without the need for tissue excision. Endoscopic OCT systems, including catheter-based and probe-based designs, have been applied extensively in the gastrointestinal tract, respiratory airways, and cardiovascular system. In gastroenterology, OCT allows detailed assessment of epithelial thickness, mucosal layering, glandular architecture, and subsurface abnormalities, aiding in the detection and staging of conditions such as Barrett’s esophagus, dysplasia, and early cancer. In cardiology, intravascular OCT is widely used to evaluate coronary artery disease by visualizing plaque morphology, fibrous caps, lipid pools, and stent apposition with exceptional clarity. Advanced extensions such as polarization-sensitive OCT and OCT angiography further enhance functional and vascular contrast.

Short Biography: Dr. Kanwarpal Singh is a researcher with expertise in biomedical optics and optical imaging, with a particular focus on optical coherence tomography (OCT) and its applications in biological and preclinical studies. His work integrates advanced optical microscopy, image processing, and tomographic imaging to investigate tissue structure and function in health and disease. He has strong experience in developing and applying OCT-based techniques for multi-depth imaging, quantitative tissue characterization, and correlation with histological and molecular markers. His current research interests include non-invasive imaging of the gut–heart axis, diet-induced inflammation, and cardiovascular and gastrointestinal pathologies using animal models. Dr. Singh is actively involved in interdisciplinary research bridging optics, biology, and translational medicine, and contributes to grant development, peer-reviewed publications, and training in biomedical imaging.

Programme at Glance

Time/Date (CET)	20.05.2026 Wednesday	21.05.2026 Thursday	22.05.2026 Friday
	Conference Room Formentera		
9:45-10:00	Registration	Registration	Registration
10:00-10:20	* Opening Session **Sergey Y. Yurish**	* Daily announcements	* Daily announcements
10:20-11:00	Keynote Speaker I ***Mikas Vengris*** Vilnius University *(Lithuania)*	Keynote Speaker II **Valentin Freilikher** *Bar-Ilan University (Israel)*	Keynote Speaker III **Kanwarpal Singh** *McMaster University (Canada)*
11:00-11:30	*Coffee Break*	*Coffee Break*	*Coffee Break*
11:30-13:30	Regular Session: **Lasers**	Regular Session: **Photonics**	Poster Session
13:30-15:00	*Lunch on your own*	*Lunch on your own*	*Farewell Cocktail & * Closing Session* ***Sergey Y. Yurish***
15:00-17:00	Regular Session: **Optics**	Regular Session: **Quantum and Optical Information Processing**	-
17-00-19:00	-	-	
19:00-21:30	-	*Gala Dinner (Dalt Vila)*	

* The must attend sessions.

Ibiza Twiins Hotel 3D Map:

Legend:

- *Dalt Vila*
- *Formentera* Conference Room

Technical Conference Programme

Day 1
20 May 2026, Wednesday

Regular Session: Lasers

Chairman: Prof., Dr. Mikas Vengris
Vilnius University, Lithuania

1. **A versatile high repetition rate and high average power laser source based on rod-type Yb-doped fiber amplifier and efficient nonlinear frequency conversion** (Invited Presentation)
   Julius Vengelis, Jokūbas Pimpė, Simona Armalytė, Jonas Banys, Vygandas Jarutis and Audrius Dubietis
   (Lithuania)

2. **A self-compression approach for generating ~150 fs laser pulses in the SWIR range based on transient SRS** (Invited Presentation)
   Paulius Mackonis, Augustė Grigaravičienė, Aleksej Rodin and Rugilė Pečiulytė
   (Lithuania)

3. **40 ps pulses at 1064 nm from SBS-compressor with trailing-edge reshaping by transient forward SRS**
   Aleksej Rodin, Augustė Grigaravičienė, Paulius Mackonis and Rugilė Pečiulytė
   (Lithuania)

4. **Two-stage hybrid Yb:YAG / Yb:LuAG ultra-high gain chirped pulse amplifier**
   Augustė Grigaravičienė, Paulius Mackonis and Aleksej Rodin
   (Lithuania)

5. **Probing the role of the dangling bonds on the ultrafast excited charge carriers' relaxation dynamics in silicon nanocrystals**
   Yazhou Xu, Anas Bokhari, Bernard Gelloz, Qingyan Han, Andrey Kaplan and Faisal Alayed
   (UK, Japan, China)

Regular Session: Optics

Chairman: Dr. Julius Vengelis,
Vilnius University, Lithuania

1. **Silicon nonlinear optics and photonics (Invited Presentation)**
   Hans Joachim Eichler
   (Germany)

2. **A novel technique for simultaneous measurements of particles' concentration and velocity in a fluid flow**
   Aysa Samareh Abolhassani and Brahim Chebbi
   (Canada)

3. **Design of a porous polydimethylsiloxane metamaterial for passive daytime radiative cooling**
   Namazzade Nigar and Baron Alexandre
   (France)

4. **Chromatic Compatibility Analysis for Enhanced Simultaneous Camera–Projector Calibration in Structured Light 3D Systems**
   (pre-recorded video)
   Fabio Vega Nieto, Eberto Benjumea, Juan Manuel Vilardy Ortiz and Rigoberto Juarez
   (Colombia, Mexico)

5. **Machine learning–based design of a bimetallic SPR sensor**
   (pre-recorded video)
   Jihad Chakir and Zekriti Mohssin
   (Morocco)

Day 2
21 May 2026, Thursday

Regular Session: Photonics

Chairman: Prof., Dr. Valentin Freilikher
Bar-Ilan University, Israel

1. **Photonic crystal spatial filters for microchip lasers**
   (Invited Presentation)
   Kestutis Staliunas
   (Spain)

2. **Au–Ag impregnated porous silicon offering broad band SERS response, enhanced detection volume, and high internal surface area**
   Faisal Alayed, Yazhou Xu, Andre Kaplan and Qingyan Han
   (United Kingdom, China)

3. **Picowell arrays for microfluorescence, written directly by ion microbeam in a cyclic olefin copolymer: Quality dependence on fabrication parameters**
   István Bányász, István Rajta, Vladimir Havránek, András József Laki, Ágnes Nagyné Szokol, Miklós Kellermayer, Zoltán Szittner, Szabolcs Novák and Gyula Nagy
   (Hungary, Czech Republic, Austria)

4. **Reducing spectral dispersion in an athermal 100 GHz cyclic AWG via linear-and-quadratic angle-mapping corrections**
   Jozef Chovan, Dana Seyringer, Anton Kuzma Kuzma, Martin Tomáška and Ignác Bugár
   (Slovakia, Austria)

5. **Precision engineered sensing: simulation-driven analysis and design of chirped fiber Bragg grating** (pre-recorded video)
   Vivekanand Mishra, Dharmendra Dhadhal and Arnav
   (India)

Regular Session:
Quantum and Optical Information Processing

Chairman: Prof., Dr. Kestutis Staliunas
Universitat Politècnica de Catalunya (UPC), Spain

1. **Exploring Proxima Centauri b** (Invited presentation)
   Claude Phipps
   (USA)

2. **Non-Gaussianity as an indicator for security of entanglement-based quantum key distribution**
   M. Gumberidze and Vladyslav Usenko
   (Czech Republic)

3. **Orthogonal sampling expansions for finite Fresnel transform** (pre-recorded video)
   Tomohiro Aoyagi and Kouichi Ohtsubo
   (Japan)

4. **Ultra-sensitive plasmonic sensor based on MgF_2 –Al-graphene structure for chemical entity identification** (pre-recorded video)
   Imed Sassi
   (Tunisia)

Day 3
22 May 2026, Friday

Poster Session

Chairman: Prof., Dr. Sergey Y. Yurish
IFSA, Barcelona, Spain

1. **Replication of microstructure artifacts in polymers cast and embossed by femtosecond-laser-textured metal dies**
   Aleksej Rodin, Oleksiy Myronyuk, Denys Baklan and Anna Bilousova
   (Lithuania, Ukraine)

2. **High-quality 3D visualization of light field microscopy with 2D/3D switchable holographic optical element micro lens array**
   Ki-Chul Kwon, H.Y. Wu, Nam Kim, Sung-Hoon Kim and Kwan-Hee Yoo
   (South Korea)

3. **Photonic bandgap - mediated Raman and SERS enhancement in one-dimensional porous silicon photonic crystals**
   Maria Krajacic, Nikola Baran, Ana Tolić, Lara Mikac, Mile Ivanda, Ozren Gamulin and Marko Skrabic
   (Croatia)

4. **Optimization of the structure of spatially multiplexed single-photon sources**
   András Kaszás, Matyas Mechler and Peter Adam
   (Hungary)

5. **A 24-channel optical trigger for use in 3D holographic display systems**
   Ginka Ivanova, Branimir Ivanov and Deyan Dimov
   (Bulgaria)

6. **Generation of multiphoton states by multiplexing of heralded photon sources with optimized input**
   Balint Morgan Szilasi, Matyas Mechler and Peter Adam
   (Hungary)

7. **Linear stokes polarimeter for THz frequencies**
   Rebeca Tudor
   (Romania)

8. **Statistical properties of the displaced Fock and squeezed states**
   Juan Vega and Didier Ojeda
   (Mexico)

9. **Design and fabrication of a 24-channel holographic optical trigger for high-speed optical computation**
   Branimir Ivanov, Ginka Ivanova and Deyan Dimov
   (Bulgaria)

10. **Physical-Mathematical Model of Opto-Mechanical Processes in a Distributed Fiber-Optic Sensor**
    Raushan Aimagambetova
    (Kazakhstan)

11. **Modeling bifilar-effect excitation for energy enhancement in 46.9 nm Ar^{8+} capillary lasers**
    Sergei Kukhlevsky and Kiss Matayas
    (Hungary)

12. **End-to-end software tool for 3D reconstruction via fringe projection profilometry**
    Fabio Vega, Juan Manuel Vilardy Ortiz, Eberto Benjumea and Rigoberto Juarez-Salazar
    (Colombia, Mexico)

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