Programme

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Useful information

X International School and Conference on Photonics
PHOTONICA 2025

August 25 - August 29, 2025
Serbian Academy of Sciences and Arts
Belgrade, Serbia

Conference Topics

1. Quantum optics and ultracold systems

2. Nonlinear optics

3. Optical materials

4. Biophotonics

5. Devices and components

6. Optical communications

7. Laser spectroscopy and metrology

8. Ultrafast optical phenomena

9. Laser - material interaction

10. Optical metamaterials and plasmonics

11. Machine learning in photonics

12. Other topics in photonics

Joint Events

PhoBioS COST Action - "Light and biological surface interaction for sensing applications"

BioQantSense Workshop - "Laser microscopy - classical and quantum"

SensSmart workshop - "Multimodal Sensor Systems and Artificial Intelligence in Service of Cardiovascular Diagnostics"

"Advanced nanosystems for photoconversion", Aerosol4solar and NIMPHA research projects

Organizing institutions

Institute of Physics Belgrade, University of Belgrade
Serbian Academy of Sciences and Arts
Optical Society of Serbia

Organizing committee

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Serbian Academy of Sciences and Arts:
Rosa Nikolić

PanaComp (technical organizers):
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Ivana Repac

Scientific committee

Aleksandar Krmpot, Serbia	Jovan Bajić, Serbia
Aleksandra Maluckov, Serbia	Ljupčo Hadžievski, Serbia
Bojan Resan, Switzerland	Luca Antonelli, United Kingdom
Boris Malomed, Israel	Marco Canepari, France
Branislav Jelenković, Serbia	Marko Krstić, Serbia
Carsten Ronning, Germany	Marko Spasenović, Serbia
Concita Sibilia, Italy	Milan Kovačević, Serbia
Darko Zibar, Denmark	Milena Milošević, Serbia
Dmitry Budker, Germany	Milivoj Belić, Qatar
Dragan Inđin, United Kingdom	Mirjana Novaković, Serbia
Edik Rafailov, United Kingdom	Nikola Stojanović, Germany
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Giannis Zacharakis, Greece	Nikos Pleros, Greece
Goran Isić, Serbia	Pavle Andjus, Serbia
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Ivana Vasić, Serbia	Sergei Turitsyn, United Kingdom
Jasna Crnjanski, Serbia	Vladan Pavlović, Serbia
Jelena Radovanović, Serbia	Vladan Vuletić, United States of America
Jelena Stašić, Serbia	Vladana Vukojević, Sweden
Jerker Widengren, Sweden	Zoran Grujić, Serbia

Conference location

Belgrade

Belgrade (Beograd) is the capital of Serbia having about 2 million inhabitants. Belgrade is situated in South-Eastern Europe, on the Balkan Peninsula. It lies at the confluence of the Sava and Danube Rivers in north central Serbia, where the Pannonian Plain meets the Balkan Peninsula. Belgrade is the capital of Serbian culture, education, science and economy. As a result of its tumultuous history, a lot of nations have been living in Belgrade for centuries, and Serbs of Orthodox christian religion are the majority of population (90%). The official language is Serbian, while foreigners are recommended to use English in communication.

Belgrade is one of the oldest cities in Europe and since ancient times it has been an important traffic focal point, an intersection of the roads of Eastern and Western Europe. Its history lasts full 7000 years. The area around two great rivers, the Sava and the Danube has been inhabited as early as palaeolithic period.

Conference venue

Serbian Academy of Sciences and Arts - SASA
35, Knez Mihailova Str.
11000 Belgrade

Dress code

Serbian Academy of Sciences and Arts is a distinguished institution of supreme national importance. We kindly ask you to respect a dress code and not to wear :

- short skirts and pants (above the knee)
- spaghetti straps, tank top, and sleeveless shirts
- flip-flops and open-toed sandals

SASA HALLS

SESSION	HALL	FLOOR
Opening ceremony	**Main hall**	2
Tutorial, keynote, invited lectures, progress report		
Closing ceremony		
Registration desk	**Main hall - vestible**	2
Coffe breaks		
Sponsor exibitions		
Contributed talks	**Main hall**	2
	102	1
COST Action - CA21159-PhoBioS	**102**	1
BioQantSense workshop	**103**	1
SensSmart workshop		
Workshop on Advanced nanosystems for photoconversion		
Welcome cocktail	**SASA Club**	mezzanine
Poster sessions	**SASA Club**	mezzanine

Registration

Sunday 24 August: 17:00 – 20:00 – SASA Foyer
Monday 25 - Wednesday 27 August : 08:00 – 17:00 vestibule of the Main hall

Information for speakers

All the presentations of the morning sessions should be prepared and loaded before each session from 8:00 to 09:00.

All the presentations of the afternoon sessions should be prepared and loaded during the lunch breaks.

Poster sessions

Poster session 1: Tuesday, August 26th 2025.
18:30 - 20:00 h

Topics: 1, 2, 3, 4, 11 Club SASA;
Poster session 2: Thursday, August 28th 2025.
17:30 - 19:00 h

Topics: 5, 6, 7, 9, 10, 12 Club SASA;

For topics and poster numbers, please refer to the Book of abstracts.

Posters can be set up 3 hours prior to the poster session and removed by the end of the session.

Poster awards

The three best poster presentations at PHOTONICA2025 will be awarded. The student will be asked at the registration desk whether they wish to be considered for the Best Student Presentation award.

The awards will be selected by a scientific jury, based on the originality and depth of the research accomplished, and the quality of the poster presentation.

Manuscript submission

Selected peer-reviewed manuscripts will be published in the Topical Collection of **Applied Physics B**.

Social programme
Please, don't forget to bring your invitation cards for each of the social events. The invitation cards are provided at registration.

Welcome cocktail

Serbian Academy of Sciences and Arts
35, Knez Mihailova Str.
Club SASA, mezzanine

Monday, 25th August
18.40 – 20.00h

Excursion

You are welcome to join us on a memorable excursion to Oplenac, Topola. Expect a beautiful journey through history, richness of cultural heritage, and wonderful nature.

Departure: Students Square GPS: 44.8495616, 20.3816960

Wednesday, 27th August
14.30-22.00h

Departure to excursion is ate 14:30h from Students Square. Participants are kindly requested to be there at least 15 minutes before the departure**.**

Conference dinner

Aeroklub restaurant,
4, Uzun Mirkova Str. 2nd floor

GPS: 44.820068, 20.455795

Thursday, 28th August
19.30 - 23:30h

Moving around

Tourist information

http://www.tob.rs/en

Local transportation

You can use the Moovit app, BeogradPlus or Google Maps to navigate public transportation.

Public transport in Belgrade is free, except minibus A1 to Airport (400 rsd) and E minibus lines. In mini busses with the letter E in front of the number, you can only buy a ticket from the driver for 200 dinars. They accept only cash. Buses, trams, trolleys and even Bg voz city trains are free.
Information about public transport and taxi within Belgrade can be found at
https://www.tob.rs/en/info/useful-info/city-public-transport

Emergency numbers
Police Department: 192
Fire Department: 193
Medical emergencies: 194

If you dial 112 from any phone, you will be connected to the emergency service. The control center will forward the call to the appropriate emergency services, depending on the nature of the emergency.

Tips for Serbia and Belgrade

Languages

Serbian is the official language of Serbia. The language serves as the native language of about 88% of the country's population. It is the only European language to be written using two distinct scripts. Serbian can be written using both the Latin and the Cyrillic alphabets. The Constitution of Serbia declares the Serbian Cyrillic as the official script of the nation while the Latin script is described as "script in official use." English is the most popular foreign language spoken in Serbia.

Time zone

Belgrade and Serbia are located in the Central European time zone region – GMT +1 and/or GMT +2 as of the last week in the third month until the Saturday prior to the last week of the tenth month.

Electricity

As in most cities of Continental Europe, the electricity voltage in Belgrade is 220V. Electrical outlets are standard European.

Water

Tap water in Belgrade is safe to drink.

Currency

The official currency in Serbia is **dinar**, abbreviated RSD. Money may be exchanged in all banks and post offices, as well as in authorized exchange offices. Exchange rate for 1 EUR is around 120 RSD.

Detailed Timetable

Monday, August 25th - SASA Main Hall

8.30 - 09.00	Opening ceremony

Memorial lectures Dr. A. Balaž

Chairman: B. Jelenkovic

09.00 - 09.35	**E. Demler** *(tutorial lecture)* "Lighting up superconductivity"
09.35 - 09.45	Discussion break
09.45 - 10.20	**E. Demler** *(tutorial lecture)* "Lighting up superconductivity"
10.20 - 10.40	Coffee break

Chairman: I. Vasic

10.40 - 11.25	**S. Giorgini** *(keynote lecture)* "Bose mixtures : magnetic and condensation phenomena"
11.25 - 11.35	Discussion break
11.35 - 12.05	**A. Pelster** *(invited lecture)* "Overview of photon Bose-Einstein condensates"
12.05 - 12.35	**B. Dakic** *(invited lecture)* "Tomography and Verification of Large-Scale Quantum Systems: Scalable Methods for Photonic Platforms"
12.35 - 12.50	**A. Hudomal** *(contributed talk)* "Exploring the Phase Diagram of Quantum Many-Body Scars with Programmable Rydberg Atom Arrays"
12.50 - 14.30	Lunch break

Chairman: M. Spasenovic

14.30 - 15.15	**E. Kymakis** *(keynote lecture)* "Perovskite Photovoltaics: Addressing Stability Challenges for Real-World Applications"
15.15 - 15.25	Discussion break
15.25 - 15.55	**L. Ozyuzer** *(invited lecture)* "Quantum Cascade Lasers and Their Applications in Gas Sensing and Biomedical Fields"
15.55 - 16.10	**G. Aygun** *(contributed talk)* "Magnetron Sputtered Grown $LiCoO_2$ and Li7La3Zr2O12 Thin Film Layers for All-Solid-State Lithium-ion Batteries"
16.10 - 16.25	**M. Ozdemir** *(contributed talk)* "Optimized AR Facet Coatings for 4.6 μm QCLs in Directed Infrared Countermeasures"
16.25 - 16.40	Coffee break

16.40 - 17.00	**P. Bojović** *(progress report)* "Analog Quantum Simulation and Digital Quantum Computation with Ultracold Atoms in Optical Lattices"
17.00 - 17.20	**D. Galiakhmetova** *(progress report)* "Illuminating the Brain: Pipedream or Impending Reality for Minimally Invasive Neurostimulation?"
17.20 - 17.40	**A. Jakovljević** *(progress report)* "AFM analysis of astrocyte membrane remodeling induced by immunoglobulin G from patients with amyotrophic lateral sclerosis"
17.40 - 18.10	**QuEra O. Markovic (special invited lecture)** "Neutral atom quantum computing at QuEra Computing"
18.10 - 18.25	**M. Spasenovic** *(contributed talk)* "Laser-Induced Graphene and MXene on Biocompatible Polymer Substrates as Physical Sensors"
18.25 - 18.40	**M. Lobok** *(contributed talk)* "Terahertz wave generation from laser-irradiated near-critical-density plasmas"
18.40 - 20.00	Cocktail (Club SASA)

Monday, August 25th - Hall 102

Chairman: B. Dakic

16.40 - 16.55	**A. Cantas** *(contributed talk)* "Impact of Growth Pressure on the Physical Properties of Two-Step Grown Sb_2Se_3 Absorbers for Thin Film Solar Cell Applications"
16.55 - 17.10	**A. Haboub** *(contributed talk)* "Inverse Design for Femtosecond-Laser Photonic Surfaces with Direct Gradient Optimization"
17.10 - 17.25	**L. C. Razo** *(contributed talk)* "Computational capacity of LA-VCSEL devices with complex resonator shapes"
17.25 - 17.40	**J. Obradovic** *(contributed talk)* "Morphological transformation of (In,Ga)N nanoshells grown around pencil-like GaN nanowires"
17.40 - 17.55	**M. Ekmekcioglu** *(contributed talk)* "Electromagnetic Shielding Performance of Transparent ZTO/Ag/ZTO Multilayer Electrodes Deposited on Polymer Substrates"
17.55 - 18.10	**K. Aras** *(contributed talk)* "Etching-Based Mesa Formation for Quantum Cascade Laser Waveguides"
18.40 – 20.00	Cocktail (Club SASA)

Monday, August 25th - Hall 103

16.00 - 18.40	SensSmart workshop
18.40 – 20.00	Cocktail (Club SASA)

Tuesday, August 26th - Main Hall

Chairman: I. Meglinski

09.00 - 09.35	**V. Tuchin** *(tutorial lecture)* "Tissue optical clearing as an innovative means for optical imaging and phototherapy from UV to terahertz"
09.35 - 09.45	Discussion break
09.45 - 10.20	**V. Tuchin** *(tutorial lecture)* "Tissue optical clearing as an innovative means for optical imaging and phototherapy from UV to terahertz"
10.20 - 10.40	Coffee break

Chairman: A. Daskalova

10.40 - 11.25	**R. Bizzarri** *(keynote lecture)* "Seeing is believing: the modern approach to intracellular biochemistry"
11.25 - 11.35	Discussion break
11.35 - 12.05	**P. Loza Alvarez** *(invited lecture)* "Selected biomedical applications in Light sheet microscopy"
12.05 - 12.35	**I.M. Schiessl** *(invited lecture)* "Serial 2-photon imaging of the kidney reveals the dynamics of kidney fibrosis after acute injury"
12.35 - 14.30	Lunch break

Chairman: I. Drvenica

14.30 - 15.00	**A. Daskalova** *(invited lecture)* "Sustainable Surface Engineering of Stainless Steel: Antimicrobial and Antiviral Functionalization via Femtosecond Laser Processing and Magnetron Deposition of Cu and Ag"
15.00 - 15.30	**R. Sroka** *(invited lecture)* "Potential of 5-ALA in Neurosurgery – Fluorescence and Photodynamic Therapy"
15.30 - 15.45	**M. Kosowska** *(contributed talk) online* "Fiber optic sensors enhanced by diamond structures for biomedical and environmental sensing"
15.45 - 16.00	**M. Suplewski** *(contributed talk)* "Novel Phosphorene-based Photodetector for biomarker analysis at UV range"
16.00 - 16.15	**P. Sokolowski** *(contributed talk)* "Fiber Optic Based Sensors For Viral Biomarkers Detection"
16.15 - 16.30	Coffee break

Chairman: A. Krmpot

16.30 - 16.50	**M. Radmilović** *(progress report)* "Label-free characterization of red blood cells using advanced optical techniques"
16.50 - 17.10	**T. Pajić** *(progress report)* "Multiphoton Live-Cell Metabolic Imaging and Femtosecond Laser Nanosurgery of Filamentous Fungi"
17.10 - 17.30	**K. Stevanović** *(progress report)* "Comparative Study of Ion Channels in Filamentous Fungi Following the Novel Development of Laser Nanosurgery for Cell Wall Removal"

17.30 - 17.45	**I. Bobrinetskiy** *(contributed talk) online* "Fluorescent proteins as perspective elements of optoelectronic devices"
17.45 - 18.00	**Y. Demirhan** *(contributed talk)* "Graphene Based Plasmon-Induced Terahertz Metamaterial for High-Performance Multispectral Detecting"
18.00 - 18.15	**M. Vinic** *(contributed talk)* "Enhancement of LIBS Signal via NELIBS and LIPSS for Biomedical Applications"
18.15 - 18.30	**A. Shirkavand** *(contributed talk)* "Thermal Damage Modeling of CO2 Fractional Laser Induced Skin Micro-Tunnels"
18.30 - 20.00	Posters (Club SASA) Topics 1,2,3,4,11

Wednesday, August 27th - Main Hall

Chairman: P. Loza-Alvarez

09.00 - 09.35	**M. Farsari** *(tutorial lecture)* "3D Printing at the nanoscale using MultiPhoton Lithography"
09.35 - 09.45	Discussion break
09.45 - 10.20	**M. Farsari** *(tutorial lecture)* "3D Printing at the nanoscale using MultiPhoton Lithography"
10.20 - 10.40	Coffee break

Chairman: I. M. Schiessl

10.40 - 11.25	**L. Banares** *(keynote lecture)* "Manipulation of photoinduced reaction dynamics with strong laser fields"
11.25 - 11.35	Discussion break
11.35 - 12.05	**I. Meglinski** *(invited lecture)* "Twisted Light in Scattering Medium: From Optical Angular Momentum to Biomedical Diagnostics"
12.05 - 12.35	**E. Rafailov** *(invited lecture)* "Direct photosensitizer-free laser treatment of cancers"
12.35 - 14.30	Lunch break

14.30 - 22.00	Excursion (Oplenac, Topola)

Wednesday, August 27th - Hall 102

09.00 - 17.00	COST Action CA21159-PhoBioS

Wednesday, August 27th - Hall 103

12.00 - 15.00	Workshop on Advanced nanosystems for photoconversion

Thursday, August 28th - Main Hall

Chairman: E. Rafailov

09.00 - 09.35	**E. Kapon** *(tutorial lecture)* "Integrated Quantum Photonics: Physics, technology, applications"
09.35 - 09.45	Discussion break
09.45 - 10.20	**E. Kapon** *(tutorial lecture)* "Integrated Quantum Photonics: Physics, technology, applications"
10.20 - 10.40	Coffee break

Chairman: T. Gric

10.40 - 11.25	**Z. Zalevsky** *(keynote lecture)* "Super-resolved imaging of obscured objects"
11.25 - 11.35	Discussion break
11.35 - 12.05	**F. Riboli** *(invited lecture) online* "Nonlinear disordered photonics for cryptography and optical isolation"
12.05 - 12.35	**K. Vyrsokinos** *(invited lecture)* "SiN PICs and PPICs for Photonic Neural Networks, High-Speed Transmitters, and Sensors"
12.35 - 12.50	**Tevus d.o.o. P. Srejic** *(industrial lecture)* „Edinburgh instruments Multimodal Confocal Raman Microscopes and Photoluminescence spectrometers: short overview of scientific grade high-end instruments and lasers"
12.50 - 14.30	Lunch break

Memorial lectures Prof. V. Milanovic

Chairman: J. Radovanovic

14.30 - 14.35	**J. Radovanović** *(memorial lecture)* "Modelling of Terahertz Quantum Cascade Laser Self-Mixing Dynamics"
14.35 - 15.05	**Z. Ikonić** *(memorial lecture)* "Progress in group-IV photonics based on SiGeSn materials"
15.05 - 15.35	**Lj. Hadžievski** *(memorial lecture)*
15.35 - 15.55	**D. Indjin** *(memorial lecture)* "30+ years of quantum-cascade laser: progress in terahertz frequency range - development and applications"
15.55 - 16.15	**N. Vukmirović** *(memorial lecture)* "Electronic transport in semiconductors: from textbook knowledge to modern problems"
16.15 - 16.30	Coffee break

16.30 - 16.50	**M. Stojanović** *(progress report)* "Propagation and Stability of Compact Localized Modes in 2D Photonic Flat-band Lattices"
16.50 - 17.10	**P. Atanasijević** *(progress report)* "Real-time imaging using *Morpho didius* wing scales as biophotonic microcantilever pixels"
17.10 - 17.30	**J. Jakovac** *(progress report)* "Electron-plasmon Scattering in Doped Graphene"
17.30 - 19.00	Posters (Club SASA) Topics 5,6,7,9,10,12
19.30 - 23.30	Conference dinner (Aeroklub)

Thursday, August 28th - Hall 102

09.00 - 17.00	COST Action CA21159-PhoBioS
17.30 - 19.00	Posters (Club SASA) Topics 5,6,7,9,10,12
19.30 - 23.30	Conference dinner (Aeroklub)

Thursday, August 28th - Hall 103

14.30 - 17.30	BioQantSense workshop
17.30 - 19.00	Posters (Club SASA) Topics 5,6,7,9,10,12
19.30 - 23.30	Conference dinner (Aeroklub)

Friday, August 29th - Main Hall

Chairman: N. Vukmirovic

09.00 - 09.35	**D. Zibar** *(tutorial lecture)* "Advancing the next generation of photonic systems using machine learning"
09.35 - 09.45	Discussion break
09.45 - 10.20	**D. Zibar** *(tutorial lecture)* "Advancing the next generation of photonic systems using machine learning"
10.20 - 10.40	Coffee break

Chairman: P. Andjus

10.40 - 10.55	**A. Milosavljević** *(contributed talk)* "Studying electronic properties and plasmonic reactivity of (functionalized) nanoparticles by x-ray aerosol photoelectron spectroscopy (XAPS)"

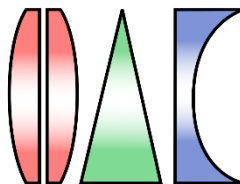|	
10.55 - 11.10	**N. Petrovic** *(contributed talk)* "Solutions to variants of the resonant nonlinear Schrödinger equation using the Jacobi elliptic function expansion method"
11.10 - 11.40	**E. S. Bozin** *(invited lecture)* "Ultrafast pair distribution function as a probe of hidden states in quantum materials"
11.40 - 12.10	**V. Amendola** *(invited lecture) online* "On the optical properties of laser-generated plasmonic nanoalloys and their use for the assessment of biodegradable nanomedicines"
12.10 - 12.40	**K. Zhou** *(invited lecture) online*
12.40 - 14.30	Lunch break

Chairman: Lj. Hadzievski

14.30 - 15.00	**F. Renzoni** *(invited lecture)* "Electromagnetic Induction Imaging with Atomic Magnetometers: Coming of Age"
15.00 - 15.30	**C. Hermann** *(invited lecture)* "Bright and Quantum: Toward Intense and Non-Gaussian Quantum Light"
15.30 - 15.45	**M. Banović** *(contributed talk)* "The interference effects in injection-locking-based reservoir computing: a case study of a Fabry-Perot laser diode under optical injection"
15.45 - 16.00	**M. Likhachev** *(contributed talk)* "Single-Frequency DFB Laser based on High-Yb-doped photosensitive fiber"
16.00 - 16.15	**M. Pereira** *(contributed talk) online* "TERA-MIR Photonic Functionalities and Applications"
16.15 - 16.30	Coffee break

Chairman: A. Milosavljevic

16.30 - 16.45	**T. Apostolova** *(contributed talk) online* "Laser Polarization Control of High Harmonics in Centrosymmetric and Non-Centrosymmetric Semiconductors"
16.45 - 17.00	**L. Stoyanov** *(contributed talk)* "Controllable Splitting and Coherently Recombining Intense Femtosecond Pulses Using Structured Light"
17.00 - 17.15	**A. Miranda** *(contributed talk)* "Cross waveguide design for color-centers in diamond"
17.15 - 17.30	**A. Ilic** *(contributed talk)* "Data transmission rate estimates for OAM-carrying waves generated by various discrete EM radiating sources"
17.30 - 17.45	**M. Krstic** *(contributed talk)* "Reconfigurable NAND/NOR/S-R latch all-optical circuit based on a dual injection-locked Fabry-Pérot laser"
17.45 - 18.00	**T. Gric** *(contributed talk)* "Semiconductor-driven tunable nanostructured metamaterial with epsilon-near-zero transition layer"

18.00	Closing

The support of the sponsors of PHOTONICA 2025 is gratefully acknowledged:

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