

22nd Polish-Slovak-Czech Optical Conference on Wave and
Quantum Aspects of Contemporary Optics,
5-9 September 2022, Wojanów, Poland

CONFERENCE PROGRAM

[Updated on 31 August, 2022]

Monday 05.09.2022

15:00 - 21:00 arrival/registration

| Date | 06.09.2022 | | 07.09.2022 | | 08.09.2022 | 09.09.2022 |
|---------------|---|---|--------------------------------------|--|------------------------|----------------------|
| Day | Tuesday | | Wednesday | | Thursday | Friday |
| 8:30 – 8:45 | Opening | | Hot Topics II | | Hot Topics III | |
| 8:45 – 9:00 | Hot Topics I | | M. Parniak | | S. Pustelny | |
| 9:00 – 9:15 | A. Miranowicz | | L. Slodička | | K. Lemr | Hot Topics IV |
| 9:15 – 9:30 | D. Pudis | | M. Wojtkowski | | J. Jabczyński | M. Śmietana |
| 9:30 – 9:45 | O. Číp | | R. Buczyński | | M. Trusiak | J. Fiurášek |
| 9:45 – 10:00 | M. Wielgus | | Coffee break | | Coffee break | P. Wróbel |
| 10:00 – 10:15 | Coffee break | | Optical Trapping | | Photonic Techn. | Coffee break |
| 10:15 – 10:30 | Coffee break | | V. Svak | | Z. Orzechowska | Wave Optics |
| 10:30 – 10:45 | XUV Optics I | | G. Bánó | | P. Koleják | L. Jaroszewicz |
| 10:45 – 11:00 | S. Fuchs | | S. Bernatová | | A. Korneluk | S. Panezai |
| 11:00 – 11:15 | T. Tyliczszak | | A. Korzeniewska | | T. Kohut | D. Litwin |
| 11:15 – 11:30 | R. Hudec | | P. Karpinski | | P. Nyga | M. Cywińska |
| 11:30 – 11:45 | J. Nejdł | | A. Korzeniewska | | T. Stefaniuk | J. Bolek |
| 11:45 – 12:00 | Lunch | | P. Karpinski | | I. Richter | Closing |
| 12:00 – 12:15 | Lunch | | Lunch | | Lunch | |
| 12:15 – 12:30 | Lunch | | Lunch | | Lunch | |
| 12:30 – 12:45 | Lunch | | Lunch | | Lunch | |
| 12:45 – 13:00 | Lunch | | Lunch | | Lunch | |
| 13:00 – 13:15 | Lunch | | Lunch | | Lunch | |
| 13:15 – 13:30 | Lunch | | Lunch | | Lunch | |
| 13:30 – 13:45 | Lunch | | Lunch | | Lunch | |
| 13:45 – 14:00 | Lunch | | Lunch | | Lunch | |
| 14:00 – 14:15 | Lunch | | Lunch | | Lunch | |
| 14:15 – 14:30 | Lunch | | Lunch | | Lunch | |
| 14:30 – 14:45 | Lunch | | Lunch | | Lunch | |
| 14:45 – 15:00 | Quantum Optics I K. Thapliyal | XUV Optics II H. Fiedorowicz | Fiber Optics I M. Franczyk | Eye & Vision M. Marzejon | | |
| 15:00 – 15:15 | J. Peřina Jr | A. Bartnik | P. Honzatko | D. Borycki | | |
| 15:15 – 15:30 | E. Lange | A. Arikatt | A. Anuszkiewicz | A. Jóźwik | | |
| 15:30 – 15:45 | B. Ahmadi | M. Majszyk | K. Żońnacz | M. Sobczak | | |
| 15:45 – 16:00 | R. Rodriguez | M. Wardzińska | D. Budaszewski | A. Gupta | | |
| 16:00 – 16:15 | Coffee break | | A. Paździor | K. Karnowski | | |
| 16:15 – 16:30 | Coffee break | | | I. Grulkowski | | |
| 16:30 – 16:45 | Optical Sensing M. Zatorska | Quantum Optics II G. Chimczak | Coffee break | | Excursion | |
| 16:45 – 17:00 | G. Gomółka | S. Abo | Optical Imaging P. Miček | Fiber Optics II G. Stępniewski | | |
| 17:00 – 17:15 | J. Oulehla | J. Kalaga | P. Jákl | M. Bernaś | | |
| 17:15 – 17:30 | P. Marć | J. Soubusta | M. Rogalski | P. Socha | | |
| 17:30 – 17:45 | R. Sobierajski | W. Leoński | P. Arcab | K. Stefańska | | |
| 17:45 – 18:00 | | | | | | |
| | 18:00–20:00 Poster Session | | | | 19:30–23:00 | |
| | 20:00-23:00 Grill | | | | Banquet | |
| | Wojanowska room | | | | Karkonoska room | |

Monday, September 5, 2022

15:00 – 21:00 Arrival/registration

19:00 – 21:00 Supper

Tuesday, September 6, 2022

Hot Topics I

Wojanowska Room

Chairmen: Waclaw Urbańczyk and Jan Masajada, Wrocław University of Science and Technology, Poland

8:30 Opening

8:45 *Ultrastrong coupling between light and matter for quantum technologies*, **Adam Miranowicz**^{a,b}, Anton Kockum^{b,c}, Simone De Liberato^{a,d}, Salvatore Savasta^{a,e} and Franco Nori^{a,f}, ^aRiken Wako, Japan, ^bAdam Mickiewicz University, Poznań, Poland, ^cChalmers University of Technology, Sweden, ^dSouthampton University, UK, ^eUniversita di Messina, Italy, ^fUniversity of Michigan, Ann Arbor, USA, (invited)

9:15 *3D photonics for applications on a chip and optical fiber*, **Dušan Pudis**^{a,b}, P. Maniaková^a, P. Miček^a, T. Mizera^a, A. Kuzma^{c,d}, P. Gašo^a, D. Jandura^a, I. Lettrichová^a, J. Durišová^a, M. Gorauš^a, L. Šušlik^a, ^aDept. of Physics, Faculty of Electrical Engineering and Information Technology, University of Žilina, Slovakia, ^bUniversity Science Park of the University of Žilina, Slovakia, ^cFaculty of Electrical Engineering and Information Technology, Institute of Electronics and Photonics, Slovak University of Technology in Bratislava, Slovakia, ^dInternational Laser Center, Bratislava, Slovakia (invited)

9:45 *Optical ion clocks: from single ion to Coulomb crystals*, **Ondřej Číp**^a, Tuan M. Pham^a, Adam Lesundak^a, Martin Cizek^a, Petr Jedlicka^a, Simon Rerucha^a, Jakub Grim^a, Artem Kovalenko^b, Petr Obsil^b, Lukas Slodicka^b, ^aDept. of Coherence Optics, Institute of Scientific Instruments of the CAS, Brno, Czech Republic, ^bDept. of Optics, Palacky University, Olomouc, Czech Republic (invited)

10:15 *Event Horizon Telescope and the progress in very long baseline interferometry*, **Maciej Wielgus**^a, Maria Cywińska^b, ^aMax-Planck-Institut für Radioastronomie, Bonn, Germany, ^bWarsaw University of Technology, Faculty of Mechatronics, Poland (invited)

10:45 – 11:15 Coffee Break

XUV Optics I

Wojanowska Room

Chairman: Henryk Fiedorowicz, Military University of Technology, Warsaw, Poland

11:15 *Nanoscale laboratory-based coherence tomography with extreme ultraviolet and soft X-ray light*, **Silvio Fuchs**^{a,b}, Johann J. Abel^{a,b}, Felix Wiesner^{a,b}, Martin Wünsche^{a,b}, Julius Reinhard^{a,b}, Jan Nathanael^a, Christian Rödel^{b,c}, Sławomir Skruszewicz^{a,b,d}, Antony J. Arikatt^e, Andrzej Bartnik^e, Przemysław Wachulak^e, Henryk Fiedorowicz^e and Gerhard G. Paulus^{a,b}, ^aInstitute of Optics and Quantum Electronics, Friedrich Schiller University Jena, Jena, Germany, ^bHelmholtz Institute Jena, Jena, Germany, ^cInstitute of Nuclear Physics, TU Darmstadt, Schlossgartenstraße 9, 64289 Darmstadt, ^dDeutsches Elektronen Synchrotron DESY, Notkestraße 85, 22607 Hamburg, ^eInstitute of Optoelectronics, Military University of Technology, Warsaw, Poland (invited)

11:45 *Challenges in soft X-ray spectromicroscopy using Fresnel zone plates*, **Tolek Tyliczszak**, Lawrence Berkeley National Laboratory, Berkeley, USA, SOLARIS National Synchrotron Radiation Centre, Krakow, Poland (invited)

12:15 *Astronomical X-ray optics*, **René Hudec**, Czech Technical University in Prague and Astronomical Institute Ondřejov, Czech Republic (invited)

12:45 *Laser-driven X-ray sources for user experiments at ELI Beamlines*, **Jaroslav NejdI**, ELI Beamlines Center, Institute of Physics AS, Czech Republic (invited)

13:15 – 14:45 Lunch

Quantum Optics I

Wojanowska Room

Chairman: Konrad Banaszek, University of Warsaw, Poland

14:45 *Stokes and anti-Stokes photon-pair generation in Raman scattering*, **Kishore Thapliyal^a**, J. Peřina Jr.^b, ^aJoint Laboratory of Optics of Palacký University and Institute of Physics of CAS, Faculty of Science, Palacký University, Olomouc, Czech Republic, ^bJoint Laboratory of Optics of Palacký University and Institute of Physics of CAS, Institute of Physics, Olomouc, Czech Republic

15:00 *Two-beam light with simultaneous anti-correlations in photon-number fluctuations and sub-Poissonian statistics*, **Jan Peřina Jr.^a**, Václav Micháleka, Radek Machulka, Ondřej Haderka^b, ^aJoint Laboratory of Optics of Palacký University and Institute of Physics of the Czech Academy of Sciences, Faculty of Science, Olomouc, Czech Republic, ^bInstitute of Physics of the Czech Academy of Sciences, Olomouc, Czech Republic

15:15 *Unconventional photon blockade in a passive RT-symmetric system*, **Ewelina Lange**, Grzegorz Chimczak, Jan Wójcik, Institute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland

15:30 *Catalysis in Charging Quantum Batteries*, **Borhan Ahmadi^a**, P. Mazurek^a, S. Barzanjeh^b, R. Alicki^a, R. R. Rodriguez^a, P. Horodecki^a, ^aInternational Centre for Theory of Quantum Technologies, University of Gdansk, Poland, ^bElectrical and Software Engineering, Institute for Quantum Science and Technology, University of Calgary, Canada

15:45 *Optimal Quantum Control of Charging Quantum Batteries*, **Ricard Ravell Rodriguez^a**, B. Ahmadi^a, G. Suarez^a, P. Mazurek^a, S. Barzanjeh^b, P. Horodecki^a, ^aInternational Centre for Theory of Quantum Technologies, University of Gdansk, Poland, ^bElectrical and Software Engineering, Institute for Quantum Science and Technology, University of Calgary, Canada

XUV Optics II

Karkonoska Room

Chairman: Jaroslav NejdI, ELI Beamlines Centre, FZU - Institute of Physics ASCR, Prague, Czech Republic

14:45 *Laser plasma sources of soft X-rays and extreme ultraviolet based on a gas puff target*, Andrzej Bartnik, Tomasz Fok, Roman Jarocki, Mateusz Majszyk, Przemysław Wachulak, Łukasz Węgrzyński, **Henryk Fiedorowicz**, Military University of Technology, Warsaw, Poland

15:00 *Spatio-temporal measurements of laser or EUV induced plasmas, in soft X-ray and optical range*, **Andrzej Bartnik**, K. Jach, R. Świerczyński, Ł. Węgrzyński, T. Fok, M. Majszyk, H. Fiedorowicz, Institute of Optoelectronics, Military University of Technology, Warsaw, Poland

15:15 *Nanoscale optical coherence tomography using extreme ultraviolet radiation produced with a laser plasma source based on a gas puff target*, **Antony Jose Arikatt^a**, Przemysław Wachulak^a, Henryk Fiedorowicz^a, Andrzej Bartnik^a, Silvio Fuchs^b, Gerhard Paulus^b, ^aMilitary University of Technology, Warsaw, Poland, ^bUniversity of Jena, Germany

15:30 *Investigations of laser produced plasmas in a low-pressure gas environment*, **Mateusz Majszyk^a**, A. Bartnik^a, W. Skrzeczanowski^a, ^aInstitute of Optoelectronics, Military University of Technology, Warsaw, Poland

15:45 *Ray-tracing simulations of a UV/VUV beamline for the PoFEL free electron laser*, Andrzej Bartnik¹, Tomasz Fok¹, Jacek Krzywiński², Mateusz Majszyk¹, Karolina Szamota-Leandersson², Przemysław Wachulak¹, **Martyna Wardzińska¹**, Ł. Węgrzyński¹ and H. Fiedorowicz^{1*}, ¹Military University of Technology, ul. gen. Sylwestra Kaliskiego 2, 00-908 Warsaw, Poland, ²National Centre for Nuclear Research, ul. Andrzeja Sołtana 7, 05-400 Otwock, Poland

16:00 – 16:30 Coffee Break

Chairman: Jan Peřina Jr., Institute of Physics ASCR, Olomouc, Czech Republic

- 16:30** *Decay of one subsystem as a counterpoise to decay of another in quantum computing*, **Grzegorz Chimczak**, Institute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, Poznan, Poland
- 16:45** *Nonclassical correlation of photon-phonon in cross mode of the hybrid system*, **Shilan Abo**, Grzegorz Chimak, Ravindra Chhajlany, Anna Kowalewska-Kudlaszyk, Adam Miranowicz, Institute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, 61-614 Poznan, Poland
- 17:00** *Entanglement generation in a system of two interacting anharmonic quantum oscillators*, **Joanna K. Kalaga^a**, Wiesław Leoński^a, Anna Kowalewska-Kudlaszyk^b, Radosław Szczęśniak^c, Marcin W. Jarosik^c, ^aQuantum Optics and Engineering Division, Institute of Physics, University of Zielona Góra, Poland, ^bInstitute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland, ^cDivision of Physics, Częstochowa University of Technology, Poland
- 17:15** *Measuring concurrence in qubit Werner states without an aligned reference frame*, Kateřina Jiráková^a, Artur Barasiński^b, Antonín Černoš^a, Karel Lemr^a, **Jan Soubusta^a**, ^aJoint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic, ^bInstitute of Theoretical Physics, University of Wrocław, Wrocław, Poland
- 17:30** *Transfer of EPR quantum steering along two non-interacting qubit chains*, **Wiesław Leoński^a**, Joanna K. Kalaga^a, Radosław Szczęśniak^b, ^aQuantum Optics and Engineering Division, Institute of Physics, University of Zielona Góra, Poland, ^bDivision of Physics, Częstochowa University of Technology, Poland

Optical Sensing

Chairman: Ryszard Buczyński, University of Warsaw, Poland

- 16:30** *Laser spectroscopy of methane near 1650 nm using photoacoustic spectroscopy combined with a fiber amplifier*, **Magdalena Zatorska**, Grzegorz Gomółka, Michał Nikodem, Department of Optics and Photonics, Wrocław University of Science and Technology
- 16:45** *Mid-infrared laser-based gas sensing inside hollow-core fibers*, **Grzegorz Gomółka^a**, Grzegorz Stępniewski^{b,c}, Dariusz Pysz^c, Ryszard Buczyński^{b,c}, Mariusz Klimczak^b, Michał Nikodem^a, ^aDepartment of Optics and Photonics, Wrocław University of Science and Technology, Wrocław, Poland, ^bFaculty of Physics, University of Warsaw, Poland, ^cGlass Department, Łukasiewicz Research Network - Institute of Microelectronics and Photonics, Warsaw, Poland
- 17:00** *The optical performance of anti-reflective coatings in iodine-filled absorption cells*, **Jindřich Oulehla**, Pavel Pokorný, Jan Hrabina, Miroslava Holá, Ondřej Číp, Dept. of Coherence Optics, Institute of Scientific Instruments, Czech Academy of Sciences, Brno, Czech Republic
- 17:15** *Light beam polarization scrambling by the umbilical defects in the liquid crystals cell*, **Paweł Marć¹**, Nouredine Bennis¹, Anna Pakuła², Estera Pawlikowska³, Anna Spadło¹, Olga Strzeżysz¹, Leszek Roman Jaroszewicz¹, ¹New—Technologies and Chemistry Faculty, Military University of Technology, Warsaw, Poland, ²Institute of Micromechanics and Photonics, Warsaw University of Technology, Warsaw
- 17:30** *Rapid structural transformations in metals after sub-ps pulsed laser annealing*, **Ryszard Sobierajski^a**, P. Zalden^b, K. Sokolowski-Tinten^c, A. Olczak^d, C. Bressler^b, M. Chojnacki^a, P. Dziegielewski^d, G. Evangelakis^e, A.R. Fernandez^b, K. Fronc^a, W. Gawęda^b, K. Georgarakis^f, A.L. Greer^g, I. Jacyna^a, R.W.E. van de Kruijs^h, R. Kaminskiⁱ, D. Khakhulin^b, D. Klinger^a, K. Kosyl^a, K. Kubicek^b, I. Milov^h, N. Panagiotopoulos^f, M. Sikoraⁱ, P. Sun^j, H. Yousef^b and J. Antonowicz^d ^aInstitute of Physics Polish Academy of Sciences, Warsaw, Poland, ^bEuropean XFEL, Schenefeld, Germany, ^cFaculty of Physics and Center for Nanointegration Duisburg-Essen (CENIDE), University of Duisburg-Essen, Germany, ^dFaculty of Physics, Warsaw University of Technology, Poland, ^eSchool of Aerospace, Transport and Manufacturing, Cranfield University, UK, ^fDepartment of

Materials Science & Metallurgy, University of Cambridge, UK, ^gIndustrial Focus Group XUV Optics, MESA+ Institute for Nanotechnology, University of Twente, Enschede, Netherlands, ^hDepartment of Chemistry, University of Warsaw, Poland, ⁱAcademic Centre for Materials and Nanotechnology, AGH University of Science and Technology, Krakow, Poland, ^jSLAC National Accelerator Laboratory, Menlo Park, USA

18:00 – 20:00 Poster Session

20:00 – 23:00 Grill

Wednesday, September 7, 2022

Hot Topics II

Wojanowska Room

Chairman: Jan Masajada, Wrocław University of Science and Technology, Poland

- 8:30** *Pushing the boundaries of entanglement with light, atoms and optomechanics*, **Michał Parniak**^{a,b}, ^aCentre for Quantum Optical Technologies, Centre of New Technologies, University of Warsaw, Poland, ^bQUANTOP, Niels Bohr Institute, University of Copenhagen, Denmark (invited)
- 9:00** *Quantum non-Gaussianity of multi-phonon states of trapped ions*, **Lukáš Slodička**^a, L. Podhora^a, L. Lachman^a, A. Kovalenko^a, A. Lešundák^b, T. Pham^b, M. Čížek^b, O. Číp^b, R. Filip^a, ^aDepartment of Optics, Palacký University, 17. listopadu 12, 77146 Olomouc, Czech Republic, ^bInstitute of Scientific Instruments of the Czech Academy of Sciences, Brno, Czech Republic (invited)
- 9:30** *Spatio-temporal optical imaging – new step in noninvasive biopsy*, **Maciej Wojtkowski**, International Center for Translational Eye Research (ICTER), Warsaw, Poland, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland (invited)
- 10:00** *Free-form gradient index microoptics using nanostructure engineering*, **Ryszard Buczyński**^{a,b}, Hue Thi Nguyen^{a,b,c}, Grzegorz Stepniewski^{a,b}, Adam Filipkowski^{a,b}, Dariusz Pysz^a, Krzysztof Świtkowski^d, Ryszard Stepień^a, Wiesław Krolikowski^{e,f}, Rafał Kasztelaniec^{a,b}, ^aLukasiewicz Research Network – Institute of Microelectronics and Photonics, Warsaw, Poland, ^bUniversity of Warsaw, Faculty of Physics, Warsaw, Poland, ^cFaculty of Natural Sciences, Hong Duc University, Thanh Hoa, Vietnam, ^dWarsaw University of Technology Faculty of Physics, Warsaw, Poland, ^eScience Program, Texas A&M University at Qatar, Doha, Qatar, ^fLaser Physics Centre, Research School of Physics, Australian National University (invited)

10:30 – 11:00 Coffee Break

Optical Trapping

Wojanowska Room

Chairman: Szymon Pustelny, Jagiellonian University, Kraków, Poland

- 11:00** *Vacuum levitation of nanoparticles*, **Vojtěch Svak**^a, Jana Flajšmanová^a, Martin Šiler^a, Oto Brzobohatý^a, Stephen H. Simpson^a, Petr Jákl^a, Alexandr Jonáš^a, Jan Ježek^a, Pavel Zemánek^a, ^aInstitute of Scientific Instruments of the CAS, v. v. I, Brno, Czech Republic (invited)
- 11:30** *Optically trappable flexible micro-structures*, **Gregor Bánó**^a, Jana Kubacková^b, Cyril Slabý^a, Andrej Hovan^a, Zoltán Tomori^b, Lóránd Kelemen^c, Gaszton Vizsnyiczai^c, Gergely T. Iványi^c, ^aDepartment of Biophysics, Faculty of Science, P. J. Šafárik University, Košice, Slovakia, ^bDepartment of Biophysics, Institute of Experimental Physics SAS, Košice, Slovakia, ^cBiological Research Centre, Institute of Biophysics, Eötvös Loránd Research Network (ELKH), Szeged, Hungary (invited)
- 12:00** *Optical force aggregation of gold nanoparticles as a tool to fabrication a multifunctional sensor*, **Silvie Bernatová**^a, M. Kizovský^a, M. G. Donato^b, A. Foti^b, P. Zemánek^a, O. Samek^a, O. M. Maragò^b, P. G. Gucciardi^b, ^aInstitute of Scientific Instruments of the CAS, Brno, Czech Republic, ^bCNR-IPCF, Istituto per i Processi Chimico-Fisici, Messina, Italy
- 12:15** *Compliance of numerical modelling with experiment in optical tweezers in geometric regime*, **Aleksandra K. Korzeniewska**^{*a}, Jakub Ślęzak^b, Sławomir Drobczyński^a, ^aFaculty of Fundamental Problems of Technology, Wrocław University of Science and Technology, Poland, ^bFaculty of Pure and Applied Mathematics, Wrocław University of Science and Technology, Poland
- 12:30** *Optically powered train of microparticles*, **Paweł Karpinski**, Advanced Materials Engineering and Modelling Group, Faculty of Chemistry, Wrocław University of Science and Technology

13:00 – 14:30 Lunch

Fiber Optics I

Wojanowska Room

Chairman: Tomasz Woliński, Warsaw University of Technology, Poland

- 14:30** *Phosphate glass nanostructured core fiber for laser with dual wavelength emission*, **Marcin Franczyk^a**, Dariusz Pysz^a, Ryszard Stępień^a, Jarosław Cimek^a, Ivan Kasik^b, Pavel Peterka^b, Ryszard Buczyński^{a,c}, ^aInstitute of Microelectronics and Photonics, Lukaszewicz Research Network, Warsaw, Poland, ^bInstitute of Photonics and Electronics of the Czech Academy of Sciences, Prague, Czech Republic, ^cFaculty of Physics, Warsaw University, Poland
- 14:45** *Negative curvature hollow-core silica optical fibres with extended spectral transmission range*, A. Jasim, O. Podrazky, I. Barton, A.A. Borodkin, T. Feng, M. Slechta, M. Grabner, **Pavel Honzatko**, Institute of Photonics and Electronics of the Czech Academy of Sciences, Prague, Czech Republic
- 15:00** *Nanostructured large mode area fiber for laser applications*, **Alicja Anuszkiewicz^{a,b}**, M. Franczyk^a, D. Pysz^a, F. Włodarczyk^b, A. Filipkowski^{a,c}, R. Buczyński^{a,c}, T. Osuch^{b,d}, ^aLukaszewicz Research Network-Institute of Microelectronics and Photonics, Photonic Materials Group, Warsaw, Poland, ^bWarsaw University of Technology, Faculty of Electronics and Information Technology, Institute of Electronic Systems, Warsaw, Poland, ^cUniversity of Warsaw, Faculty of Physics, Poland, ^dNational Institute of Telecommunications, Warsaw, Poland
- 15:15** *Selective excitation of different combinations of LP₀₁ and LP₁₁ polarization modes in a birefringent optical fiber using a Wollaston prism*, **Kinga Żołnacz^a**, Marta Bernas^a, Pawel Mergo^b and Waclaw Urbanczyk^a, ^aDepartment of Optics and Photonics, Wrocław University of Science and Technology, Poland, ^bLaboratory of Optical Fiber Technology, Maria Curie-Skłodowska University, Lublin, Poland
- 15:30** *Spectral properties of photonic crystal fibers infiltrated with ferroelectric liquid crystals doped with nanoparticles*, **Daniel Budaszewski^a**, Dharmendra P. Singh^b, and Tomasz R. Woliński^a, ^aFaculty of Physics Warsaw University of Technology, Warsaw, Poland, ^bUniversite du Littoral Cote d'Opale, Calais, France
- 15:45** *Fiber-optic distributed monitoring of temperature change in active layer of permafrost*, **Adam Paździor^a**, K. Kultys^b, K. Misztal^b, M. Dobek^c, P. Zagórski^c, R. Dobrowolski^c, A. Bieganski^d, P. Mergo^{a,e}, ^aLaboratory of Optical Fibre Technology, Maria Curie-Skłodowska University, Lublin, Poland, ^bECOTECH-COMPLEX Analytical and Programme Centre for Advanced Environmentally-Friendly Technologies, Lublin, Poland, ^cInstitute of Earth and Environmental Sciences, Maria Curie-Skłodowska University

16:00 – 16.30 Coffee Break

Eye and Vision

Karkonoska Room

Chairman: Jacek Pniewski, University of Warsaw, Poland

- 14:30** *Two-photon vision – infrared light perception in the function of duty cycle and wavelength*, **Marcin J. Marzejon^{a,b}**, Agnieszka Zielińska^c, Łukasz Kornaszewski^d, Dorota Stachowiak^e, Jakub Bogusławski^{d,e}, Grzegorz Soboń^e, Maciej Wojtkowski^{a,d}, and Katarzyna Komar^{c,d}, ^aDepartment of Physical Chemistry of Biological Systems, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland, ^bDepartment of Metrology and Optoelectronics, Faculty of Electronics, Telecommunications and Informatics, Gdańsk University of Technology, Gdańsk, Poland, ^cInstitute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University in Toruń, Toruń, Poland, ^dInternational Centre for Translational Eye Research, Warsaw, Poland, ^eLaser & Fiber Electronics Group, Faculty of Electronics, Photonics and Microsystems, Wrocław University of Science and Technology, Wrocław, Poland

- 14:45** *Spatio-temporal optical coherence tomography (STOC-T) for high-resolution, wide-field structural and blood flow imaging of the human retina in vivo*, **Dawid Borycki**^{a,b}, Egidijus Auksorius^{b,c}, Piotr Węgrzyn^b, Kamil Liżewski^a, Sławomir Tomczewski^a, Ieva Žičkienė^c, Karolis Adomavičius^c, and Maciej Wojtkowski^{a,b}, ^aInternational Centre for Translational Eye Research, Warsaw, Poland, ^bInstitute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland, ^cCenter for Physical Sciences and Technology (FTMC), Vilnius, Lithuania
- 15:00** *The mechanism of the self-adjustment of the human eye*, **Agnieszka Jóźwik**^a, M. Asejczyk^a, P. Kurzynowski^a, ^aDepartment of Optics and Photonics, Wrocław University of Science and Technology, Wrocław
- 15:15** *Birefringence of the cornea*, **Marcelina Sobczak**, Magdalena Asejczyk, Piotr Kurzynowski, Wrocław University of Science and Technology, Poland
- 15:30** *Age-related changes in the morphology and optical density of the crystalline lens*, **Ashish Gupta**^a, E. Safarian Balaujeh^a, D. Ruminski^a, A. Jimenez-Villar^a, R. Duarte-Toledo^b, G. Gondek^a, P. Artal^b, I. Grulkowski^a, ^aInstitute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University, Toruń, Poland, ^bLaboratorio de Óptica, Universidad de Murcia, Murcia, Spain
- 15:45** *Probing asymmetries in corneal biomechanical properties with optical coherence tomography*, **Karol Karnowski**^{a,b,c}, Jadwiga Milkiewicz^{a,c}, Angela Pachacz^{a,c}, Andrea Curatolo^{a,c}, Onur Cetinkaya^{a,c}, Rafal Pietruch^{a,c}, Alejandra Consejo^{a,d}, Maciej M. Bartuzel^e, Piotr Ciąčka^{a,c}, Ashkan Elias^f, Ahmed Abass^f, Ahmed Elsheikh^f, Susana Marcos^{g,h} and Maciej Wojtkowski^{a,c,e}, ^a Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland, ^b School of Electrical, Electronic and Computer Engineering, The University of Western Australia, Perth, Australia, ^c International Center for Translational Eye Research, Polish Academy of Sciences, Warsaw, Poland, ^d Department of Applied Physics, University of Zaragoza, Spain, ^e Institute of Physics, Nicolaus Copernicus University, Torun, Poland, ^f School of Engineering, University of Liverpool, Liverpool, United Kingdom, ^g Instituto de Óptica "Daza de Valdés", Consejo Superior de Investigaciones Científicas, Madrid, Spain, ^h Center for Visual Science, The Institute of Optics, Flaum Eye Institute, University of Rochester, New York, USA
- 16:00** *Engineering of light delivery system to improve the imaging capabilities of optical coherence tomography instruments*, **Ireneusz Grulkowski**^a, Daniel Rumiński^a, Spozmai Panezai^a, Grzegorz Gondek^a, Alfonso Jimenez Villar^a, Ewa Mączyńska-Walkowiak^a, Ashish Gupta^a, ^aInstitute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University, Torun, Poland

16:15 – 16.45 Coffee Break

Optical Imaging

Wojanowska Room

Chairman: Andrzej Kołodziejczyk, Warsaw University of Technology, Poland

- 16:45** *3D printed HMM metamaterial near-field probe for sub-diffraction imaging*, **Patrik Miček**^a, Thomas Ioannidis^b, Tatjana Gric^b, ^aDept. of Physics, University of Žilina, Univerzitná 8215/1, Žilina, 010 26, Slovakia, ^bDept. of Electronic Systems, VILNIUS TECH, Lithuania
- 17:00** *Calibration procedure of the multimode optical fibre micro-endoscope*, **Petr Jákl**^a, Martin Šiler^a, Pavel Zemánek^a, Tomáš Čižmár^{abc}, ^a Institute of Scientific Instruments of the CAS, Brno, Czech Republic, ^b Leibniz Institute of Photonic Technology, Jena, Germany, ^c Institute of Applied Optics, Friedrich Schiller University Jena, Jena, Germany
- 17:15** *Extended depth of focus lensless holographic microscopy imaging*, **Mikołaj Rogalski**^a, Julianna Winnik^a, Jose Angel Picazo-Bueno^b, Piotr Zdańkowski^a, Vicente Micó^b, Maciej Trusiak^a, ^aWarsaw University of Technology, Institute of Micromechanics and Photonics, Warsaw, Poland, ^bDepartamento de Óptica y de Optometría y Ciencias de la Visión, Universitat de Valencia, Spain

- 17:30** *Optimization of signal-to-noise ratio and attempt to increase resolution in lensless in-line digital holographic microscopy*, **Piotr Arcab**^a, B. Mirecki^a, M. Stefaniuk^b, M. Pawłowska^b, M. Trusiak^a, ^aWarsaw University of Technology, Institute of Micromechanics and Photonics, Warsaw, Poland, ^bLaboratory of Neurobiology, BRAINCITY, Nencki Institute of Experimental Biology of Polish Academy of Sciences, Poland

Fiber Optics II

Karkonoska Room

Chairman: Pavel Honzatko, Institute of Photonics and Electronics, ASCR, Prague, Czech Republic

- 16:45** *Nonlinearity shaping in nanostructured glass-diamond hybrid materials for optical fiber preforms*, **Grzegorz Stępniewski**^{a,b}, A. Filipkowski^{a,b}, M. Głowacki^c, Y. Stepanenko^d, P. Hänzle^e, A. Heidt^e, R. Buczyński^{a,b}, M. Klimczak^a, ^aUniversity of Warsaw, Faculty of Physics, Poland, ^bŁukasiewicz Research Network, Institute of Microelectronics and Photonics, Warsaw, Poland, ^cGdańsk University of Technology, Faculty of Electronics, Telecommunications and Informatics, Poland, ^dInstitute of Physical Chemistry, Warsaw, Poland, ^eUniversity of Bern, Institute of Applied Physics, Switzerland
- 17:00** *Gradually twisted highly birefringent optical fiber for vortex modes generation*, **Marta Bernaś**^a, K. Żołączak^a, M. Napiórkowski^a, G. Statkiewicz-Barabach^a, P. Mergo^b and W. Urbańczyk^a ^aDepartment of Optics and Photonics, ^aWrocław University of Science and Technology, Poland, ^bLaboratory of Optical Fiber Technology, Maria Curie-Skłodowska University, Lublin, Poland
- 17:15** *Development of single crystal CsPbBr₃ perovskite core optical fiber*, **Paweł Socha**^a, D. Pysz^a, K. Bartosiewicz^b, A. Lechna^a, R. Buczyński^a, ^a Łukasiewicz Research Network – Institute of Microelectronics and Photonics, Warsaw Poland, ^b Institute of Physics, Kazimierz Wielki University, Bydgoszcz, Poland
- 17:30** *Observation of soliton trapping in the microstructured optical fibers with different group birefringence*, **Karolina Stefańska**^a, Sylwia Majchrowska^a, Karolina Gemza^a, Rafał Cichowski^a, Grzegorz Sobon^b, Jarosław Sotor^b, Paweł Mergo^c, Karol Tarnowski^a, and Tadeusz Martynkien^a, ^aDepartment of Optics and Photonics, Wrocław University of Science and Technology, Poland, ^bLaser & Fiber Electronics Group, Wrocław University of Science and Technology, Poland, ^cLaboratory of Optical Fiber Technology, Maria Curie-Skłodowska University, Lublin, Poland

Thursday, September 8, 2022

Hot Topics III

Wojanowska Room

Chairman: Maciej Wojtkowski, Int. Center for Translational Eye Research (ICTER), Warsaw, Poland

- 8:30** *Optical detection of nuclear magnetic resonance at zero magnetic field*, **Szymon Pustelny**, Institute of Physics, Jagiellonian University in Kraków, Kraków, Poland (invited)
- 9:00** *Quantum machine learning with linear optics*, **Karel Lemr^a**, Karol Bartkiewicz^b, Antonín Černoš^a, Tomáš Fürst^c, Clemens Gneiting^d, Jan Jašek^a, Kateřina Jiráková^a, Franco Nori^d, Jan Roik^a, Vojtěch Trávníček^a, ^aJoint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic, ^bInstitute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland, ^cDepartment of Mathematical Analysis and Application of Mathematics, Faculty of Science, Palacký University Olomouc, Czech Republic, ^dTheoretical Quantum Physics Laboratory, RIKEN Cluster for Pioneering Research, Wako-Shi, Japan (invited)
- 9:30** *Toward coherent beam combining*, **Jan Jabczyński**, Military University of Technology, Warsaw, Poland (invited)
- 10:00** *Computational techniques in lensless holographic microscopy for biomedical imaging*, Maciej Trusiak, Warsaw University of Technology, Institute of Micromechanics and Photonics, Warsaw, Poland (invited)

10:30 – 11.00 Coffee Break

Photonic Technologies

Wojanowska Room

Chairman: František Uherek, Slovak University of Technology and International Laser Center, Slovakia

- 11:00** *Paramagnetic nitrogen-vacancy color centers in diamonds for magnetic mapping and sensing*, **Zuzanna Orzechowska^a**, Mariusz Mrózek^a, Adam Wojciechowski^a, Wojciech Gawlik^a, ^aDepartment of Photonics, Jagiellonian, University Poland
- 11:15** *Magnetization rotation-based polarization control of spintronic terahertz emitter*, **Pierre Koleják^{a,b}**, Geoffrey Lezier^b, Kamil Postava^a, Jean-François Lampin^b, Nicolas Tiercelin^b, Mathias Vanwolleghem^{tb}, ^aTechnical University of Ostrava, IT4Innovations & Faculty of Materials Science and Technology, Czech Republic, ^bUniv. Lille, CNRS, Centrale Lille, Univ. Polytechnique Hauts-de-France, UMR 8520 - IEMN - Institut d'Electronique de Microélectronique et de Nanotechnologie, Lille, France
- 11:30** *Electrical tuning of optical properties in metal-oxide-semiconductor multilayer*, **Alexander Korneluk**, J. Szymczak, T. Stefaniuk, Faculty of Physics, University of Warsaw, Warsaw, Poland
- 11:45** *Optimisation of exposure parameters for direct laser writing in optical lithography*, **Tomas Kohut^{1,2}**, J. Toběrný^{1,2} and K. Postava^{1,2}, ¹IT4Innovations, VŠB – Technical University of Ostrava, Czech Republic, ²Faculty of Materials Science and Technology, VŠB – Technical University of Ostrava, Czech Republic
- 12:00** *Laser color printing on semicontinuous aluminum films*, **Piotr Nyga^a**, Michał P. Nowak^a, Bogusz Stępak^b, Mateusz Pielach^c, Yuriy Stepanenko^c, Tomasz Wojciechowski^d, Bartosz Bartosewicz^a, Urszula Chodorow^e, Przemysław Wachulak^a, ^a Institute of Optoelectronics, Military University of Technology, Warsaw, Poland, ^bFluence sp. z o.o., Warsaw, Poland, ^c Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw Poland, ^dInternational Research Centre MagTop, Institute of Physics, Polish Academy of Sciences, Warsaw, Poland, ^e Institute of Applied Physics, Faculty of New Technologies and Chemistry, Military University of Technology, Warsaw, Poland
- 12:15** *Hot-electron driven optical phenomena in metamaterial structures*, A. Korneluk^a, **Tomasz Stefaniuk^a**, ^aFaculty of Physics, University of Warsaw, Poland

12:30 *Advanced functionalities in subwavelength photonic and plasmonic structures*, **Ivan Richter**, Czech Technical University in Prague

12:45 – 14.30 Lunch

15:30 – 18.30 Excursion

19.30 – 23.00 Banquet

Friday, September 9, 2022

Hot Topics IV

Wojanowska Room

Chairman: Wiesław Leoński, University of Zielona Góra, Poland

- 9:00** *Nanocoated Optical Fiber Sensors and Biosensors*, **Mateusz Śmietana**, Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, Poland (invited)
- 9:30** *Optical noiseless quantum amplifiers*, **Jaromír Fiurášek**, Palacky University, Olomouc, Czech Republic (invited)
- 10:00** *Surface plasmon resonance enhanced photonic devices*, **Piotr Wróbel**, Faculty of Physics, University of Warsaw, Poland (invited)
- 10:30 – 11:00 Coffee Break**

Wave Optics

Wojanowska Room

Chairman: Dušan Pudiš, University of Žilina, Slovakia

- 11:00** *Field investigations of the FOS5-04 huge fiber-optic rotational seismograph operating in a closed-loop configuration*, **Leszek R. Jaroszewicz^{a,b}**, Anna Kurzych^{a,b}, Michał Dudek^{a,b}, Paweł Marć^{a,b}, ^aInstitute of Technical Physics, Military University of Technology., 2 gen. S. Kaliskiego St., Warsaw, Poland PL-00-908
^bElproma Elektronika Ltd., 2A Duńska St., Czosnów Poland PL-05-152
- 11:15** *Propagation of non-diffracting beams through scattering media*, **Spozmai Panezai**, I. Grulkowski, Institute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University in Toruń, Poland
- 11:30** *A microscope-based interferometer with the variable wavelength illumination system*, **Dariusz Litwin**, Kamil Radziak, Jacek Galas, Łukasiewicz Research Network-Tele- and Radio Research Institute, Warsaw, Poland
- 11:45** *DeepVID: deep-learning accelerated variational image decomposition for filtration of different types of fringe patterns*, **Maria Cywińska**, Krzysztof Patorski, Maciej Trusiak, Warsaw University of Technology, Institute of Micromechanics and Photonics, Faculty of Mechatronics, Poland
- 12:00** *Study of impact of decentration of Light Sword Lens in a patient's eye on vision quality*, Krzysztof Petelczyc^a, **Jan Bolek^a**, Karol Kakarenko^a, Izabela Ducin^a, Andrzej Kołodziejczyk^a, Zbigniew Jaroszewicz^{b,c}, Narcyz Błocki^b, ^aFaculty of Physics, Warsaw University of Technology, ^bŁukasiewicz Research Network - Tele & Radio Research Institute, Warsaw, ^cNational Institute of Telecommunications, Warsaw, Poland
- 12:15 Closing**

12:30 – 14:00 Lunch

Poster Session, Tuesday, September 6, 18:00 – 20:00

1. *Experimental Measurement of the Hilbert-Schmidt Distance between Two-Qubit States as a Means for Reducing the Complexity of Machine Learning*, **Vojtěch Trávníček**^a, Karol Bartkiewicz^{a,b}, Antonín Černocho^a and Karel Lemr^a
^aJoint Laboratory of Optics of Palacký University and Institute of Physics of Academy of Sciences of the Czech Republic, ^bFaculty of Physics, Adam Mickiewicz University, Poznań , Poland
2. *Entanglement detection and quantification from collective measurements processed by artificial intelligence*, **Jan Roik**^a, Karol Bartkiewicz^b, Antonín Černocho^a and Karel Lemr^a
^aJoint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic, ^bInstitute of Spintronics and Quantum Information, Adam Mickiewicz University, Poznan Poland
3. *Intensity modulation/direct detection optical key distribution*, **Konrad Banaszek**^a, M. Jachura^a, P. Kolenderski^b, M. Lasota^b
^aCentre for Quantum Optical Technologies, CeNT, Warsaw, ^bFaculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University, Toruń, Poland
4. *Experimental hierarchy of quantum correlations of Werner-like states*, **Kateřina Jiráková**^a, Antonín Černocho^b, Karel Lemr^a, Karol Bartkiewicz^{a,c}, Adam Miranowicz^c
^aRCPTM, Joint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic; ^bInstitute of Physics of the Czech Academy of Sciences, Joint Laboratory of Optics of PU and IP AS CR, Olomouc, Czech Republic; ^cInstitute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
5. *Comparison of optical properties of 1x8 Y-branch and MMI splitter based on Silicon Nitride material platform*, **Stanislava Serecunova**^{a,c}, D. Seyringer^b, F. Uherek^{c,d}, H. Seyringer^a
^aV-Research GmbH, Dornbirn, Austria, ^bResearch Centre for Microtechnology, Vorarlberg University of Applied Sciences (FHV), Dornbirn Austria, ^cInstitute of Electronics and Photonics, FEI STU, Bratislava, Slovakia; ^dInternational Laser Centre, Bratislava, Slovakia
6. *Using a commercially available LIDAR scanner in cultural heritage research*, **Jindřich Švihel**, Antonín Černocho, Karel Lemr
RCPTM, Joint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic
7. *Polarization controlled terahertz time domain spectroscopy using dual-color plasma*, **Iva Hlobílková**^a, Pierre Koleják^{a,b}, Martin Mičica^a, Kamil Postava^a
^aTechnical University of Ostrava, IT4Innovations & Faculty of Materials Science and Technology, Czech Republic, ^bUniversité de Lille, Institut d'Electronique de Microélectronique et de Nanotechnologie, Lille, France
8. *EPR quantum steering in a two- and three-mode PT-symmetric system*, **Małgorzata Kostrzewa**^{a,b}, Vinh Le Duc^a, Joanna Kalaga^a, Wiesław Leoński^a
^aQuantum Optics and Engineering Division, Institute of Physics, University of Zielona Góra, Poland, ^bDivision of Theoretical Physics, Jan Długosz University in Częstochowa, Częstochowa, Poland
9. *Custom-terminated multimode fibre probe for holographic microendoscopy*, **Miroslav Stibůrek**^{a,d}, Beatriz M. Silveira^{b,c}, Tomáš Pikálek^a, Ivo Leite^{b,c}, Petr Jákl^a, Petra Ondráčková^a, Hana Uhlířová^a and Tomáš Čižmár^{a,b,c}
^a Institute of Scientific Instruments of the CAS, Brno, Czech Republic, ^b Leibniz Institute of Photonic Technology, Jena, Germany, ^c Institute of Applied Optics, Friedrich Schiller University Jena, Germany, ^d Institute of Physical Engineering FME, BUT, Brno, Czech Republic

10. *Sensor probes for monitoring temperature changes in active layer of permafrost*, **Aadam Paździor**^a, J. Kopeć^a, P. Mergo^{a,b}
^aLaboratory of Optical Fibre Technology, Maria Curie-Skłodowska University, Lublin, Poland, ^bCeReClimEn - Centre for Climate Change and Environment Research, Lublin, Poland
11. *Comparison of optical methods for 3D model generation*, **Antonín Černoč**, Jindřich Švihel, Vojtěch Trávníček, Karel Lemr
 Joint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic
12. *Lab-on-a-chip sensing based on 1DPhC resonant cavity*, **Jana Durisova**^a, T. Mizera^a, R. Kanok^b, P. Hlubina^b, D. Pudis^{a,c}, P. Gaso^a, D. Jandura^a
^aDept. of Physics, Faculty of Electrical Engineering and Information Technology, University of Žilina, Slovakia, ^bDepartment of Physics, Technical University Ostrava, Czech Republic, ^cUniversity Science Park of the University of Zilina, Slovakia
13. *Open Source Workflow for Multispectral Imaging Based on Artificial Neural Networks*, **Daniela Růžičková**, Jindřich Švihel, Antonín Černoč, Karel Lemr
 Palacký University Olomouc, Faculty of Science, Joint Laboratory of Optics of Palacký University and Institute of Physics of the Czech Academy of Sciences, Olomouc, Czech Republic
14. *Design of 256-channel 25-GHz AWG for Ultra-Dense Wavelength Division Multiplexing*, **Dana Seyringer**^a, Stanislava Serecunova^{b,c}, František Uherek^{c,d}, Heinz Seyringer^b
^aVorarlberg University of Applied Sciences, Research Centre for Microtechnology, Hochschulstraße 1, 6850 Dornbirn, Austria, ^bV-Research GmbH, Stadtstr. 33, 6850 Dornbirn, Austria, ^cInstitute of Electronics and Photonics, FEI STU, Ilkovicova 3, 812 19 Bratislava, Slovakia, ^dSlovak Centre of Scientific and Technical Information, International Laser Center, Ilkovicova 3, 841 04 Bratislava, Slovakia
15. *Mode locked and free running operation of Nd,Gd:CaF₂ crystal fiber laser*, **Václav Kubeček**^a, M. Jandera^a, J. Olšan^a, M. Jelínek^a, F. Ma^b, D. Jiang^b, L. Su^b
^aFaculty of Nuclear Sci. and Phys. Eng., CTU Prague, Czech Republic, ^bKey Laboratory of Transparent and Opto-functional Inorganic Materials, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China
16. *How does ultra-resolution spectrometry help to measure femtosecond impulses?* **Marcin Jastrzębski**^{a,b}, S. Kurzyna^{a,b}, M. Lipka^b, M. Parniak^b
^aFaculty of Physics, University of Warsaw, Poland, ^bCentre for Quantum Optical Technologies, Centre of New Technologies, University of Warsaw, Poland
17. *IP-Dip inverted pyramids for application in SERS*, **Ivana Lettrichova**^a, Daniel Jandura^a, Peter Gaso^a, Dusan Pudis^a, Patrik Micek^a, Jaroslav Kovac Jr.^b, Agata Laurencikova^c
^aDept. of Physics, University of Zilina, Slovakia, ^bInst. of Electronics and Photonics, Slovak University of Technology, ^cInst. of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia
18. *Optimalisation of 3D laser printing process for reflective polymer surfaces*, **Matej Goraus**, Ivan Martincek
 Dept. of Physics, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia
19. *Split-step methods for numerical modeling of synchronously pumped crystalline Raman laser*, **Milan Frank**, David Vyhřídál, Jan Olšan, Miroslav Čech, Václav Kubeček
^aFaculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Czech Republic
20. *3D photonic structures for optoelectronics applications*, **Lubos Suslik**^a, Peter Gaso^a, Daniel Jandura^a, Anton Kuzma^b
^aDept. of Physics, University of Zilina, Slovakia, ^bInst. of Electronics and Photonics, Slovak University of Technology, Bratislava, Slovakia

21. *Polymer Inverted Refractive-Index-Contrast Grating prepared by laser lithography on Si substrate*, **Daniel Jandura**^a, P. Gaso^a, J. Suffczyński^b, T. Czystanowski^c, D. Pudis^a
^aDepartment of Physics, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia, ^bInstitute of Experimental Physics, Faculty of Physics, University of Warsaw, Poland, ^cPhotonics Group, Institute of Physics, Łódź University of Technology, Poland

22. *Spin-lasers with periodic gratings: toward ultrafast polarization modulation*, **Oliver Hejtman**,^{a,b} Tibor Fördös,^{a,c} Mariusz Drong,^{a,b,d} Tomáš Kohut,^a Kamil Postava^{a,b}
^aIT4Innovations, VSB - Technical University of Ostrava, Czech Republic, ^bFaculty of Materials Science and Technology, VSB - Technical University of Ostrava, Czech Republic, ^cNanotechnology Centre, VSB-Technical University of Ostrava, Czech Republic, ^dLSI, CEA/DRF/IRAMIS, CNRS, École Polytechnique, Institut Polytechnique de Paris, France

23. *Micromanipulation of macromolecules and colloidal particles in complex environment by optical and thermo-optical traps*, **Tomáš Kužela**^a, P. Kaloda^a, K. Bradac^a, M. Burdik^b, M. Ingr^a
^aTomas Bata University in Zlín, Faculty of Technology, Department of Physics and Materials Engineering, Zlin, Czech Republic, ^bTomas Bata University in Zlín, Faculty of Applied Informatics, Department of Informatics and Artificial Intelligence, Zlin, Czech Republic

24. *Compact vacuum setup for Al⁺ and Ca⁺ ion trapping*, **Jakub Grim**, I. Vlček, P. Jedlička, M.T. Pham, A. Lešundák, S. Řeřucha, M. Čížek, A. Kovalenko, L. Slodička, O. Číp, Institute of Scientific Instruments of the Czech Academy of Sciences, Brno, Czech Republic

25. *Mid-infrared tunable diode pumped Cr:ZnSe laser continuously tunable from 2.1 μm up to 2.7 μm operated at room temperature*, **Adam Říha**^a, Helena Jelínková^a, Karel Veselský^a, Maxim E. Doroshenko^b, Jan Šulc^a, Michal Němec^a, Miroslav Čech^a, Nazar Kovalenko^c
^aFNSPE, Czech Technical University in Prague, Czech Republic, ^bProkhorov General Physics Institute, Moscow, Russian Federation, ^cInstitute for Single Crystals, NAS of Ukraine, Kharkiv, Ukraine

26. *Optical 1:9 splitter based on MMI, prepared by 3D lithography*, T. Mizera^a, D.Pudis^a, **Peter Gaso**^a, A.Kuzma^{b,c}, Patrik Micek^a, D. Seyringer^{c,d}, S. Serecunova^{b,c,d,e}
^aDepartment of Physics, University of Zilina, Slovakia, ^b Institute of Electronics and Photonics, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology in Bratislava, Slovakia, ^cInternational Laser Centre, Bratislava, Slovakia, ^dResearch Centre for Microtechnology, Vorarlberg University of Applied Sciences (FHV), Austria, ^eV-research GmbH, Dornbirn, Austria

27. *Tunable decoherence of single photons*, **Josef Kadlec**,¹ Jan Roik,¹ Karol Bartkiewicz,² Adam Miranowicz,² Antonín Černoš,¹ and Karel Lemr¹
¹Joint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic, ²Institute of Spintronics and Quantum Information, Adam Mickiewicz University, Poznań, Poland

28. *Spectral and magnetic field dependence of the birefringence of a magnetic fluid*, **Norbert Tarjányi**^a, Daniel Káčik^a
^aDepartment of Physics, Faculty of Electrical Engineering and Information Technology, University of Žilina, Slovakia

29. *Electro-optic shearing interferometry of femtosecond impulses in Hong-Ou-Mandel interferometer* **Stanisław Kurzyňa**^a, M. Jastrzębski^a, M. Lipka^b, M. Parniak^b
^aPhysics Faculty, Warsaw University, Poland, ^bQOT, Centre of New Technologies, Warsaw, Poland

30. *High-precision measurement of the center frequencies of the hydrogen cyanide (HCN) hyperfine transitions in the 1.5 μm wavelength band*, **Martin Hošek**, Š. Řeřucha, J. Hrabina, M. Čížek, L. Pravdová, O. Číp
Institute of Scientific Instruments of the Czech Academy of Sciences, Brno, Czech Republic

31. *Analysis of the possibilities to generate and analyze different polarization states of light by twisted nematic liquid crystal*, **Monika Owczarek**, Władysław A. Woźniak
Department of Optics and Photonics, Wrocław University of Science and Technology, Poland
32. *Applications of machine learning to long-range quantum routing*, **Patrycja Tulewicz**^a, Karol Bartkiewicz^{a,b}
^aInstitute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland, ^bRCPTM, Joint Laboratory of Optics of Palacký University and Institute of Physics of Czech Academy of Sciences, Olomouc, Czech Republic
33. *Quantum process tomography of exceptional points in Liouvillian spectrum*, Shilan Ismael Abo¹, **Anna Kowalewska-Kudłaszuk**¹, Grzegorz Chimczak¹, Jan Peřina Jr.², Şahin K. Özdemir³, Adam Miranowicz¹
¹Institute of Spintronics and Quantum Information, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland, ²Joint Laboratory of Optics, Faculty of Science, Palacký University, Olomouc, Czech Republic, ³Department of Engineering Science and Mechanics, and Materials Research Institute, Pennsylvania State University, Pennsylvania 16802, USA
34. *Cavity cooling of a levitated nanoparticle by coherent scattering*, **Vojtěch Liška**, Oto Brzobohatý, Vojtěch Svak, Pavel Zemánek
Institute of Scientific Instruments of the CAS, Brno, Czech Republic
35. *Low-noise detection of an optically levitating nanoparticle*, **Martin Dučaň**, Alexandr Jonáš, Oto Brzobohatý, Pavel Zemánek
Institute of Scientific Instruments of the CAS, Brno, Czech Republic
36. *Methods for determining the contrast sensitivity function for two-photon vision*, **Oliwia Kaczkoś**¹, Agnieszka Zielińska², Marcin Marzejon^{3,4}, Juliusz Solarz- Niesłuchowski¹, Katarzyna Komar^{2,3,5}
¹Faculty of Physics, University of Warsaw, Poland. ²Institute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University in Toruń, Poland, ³Department of Physical Chemistry of Biological Systems, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland, ⁴Department of Metrology and Optoelectronics, Faculty of Electronics, Telecommunications and Informatics, Gdańsk University of Technology, Poland, ⁵International Centre for Translational Eye Research, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland
37. *Study of polarization properties of 1D self-organizing optofluidic photonic structures*, **Miłosz Chychłowski**^a, Marta Kajkowska^a, Oleksandra Gridyakina^{a,b}, Natalia Kasian^{a,c}, Tomasz R. Woliński^a, Piotr Lesiak^a
^aFaculty of Physics, Warsaw University of Technology, Warsaw, Poland, ^bNational Aviation University, Kiev, Ukraine, ^cNanostructured Materials Department, Institute for Scintillation Materials NAS of Ukraine, Kharkiv, Ukraine
38. *Measuring sensitivity of optical frequency transfers to acoustic vibrations in photonic networks*, **Martin Cizek**^a, Lenka Pravdova^a, Jan Hrabina^a, Pavel Rajmic^b, Tomas Horvath^b, Jiri Schimmel^b, Petr Dejdar^b, Ondrej Mokry^b, Ondrej Cip^a, Petr Munster^b
^aDept. of Coherence Optics, Institute of Scientific Instruments of the CAS, Brno, Czech Republic, ^bDept. of Telecommunications, Faculty of Electrical Engineering and Communication, Brno University of Technology, Brno, Czech Republic
39. *Molecular chirality from the viewpoint of Mueller polarimetry*, **Daniel Vala**^{a,b}, Martin Mičica^{a,c}, and Kamil Postava^{a,b}
^aIT4Innovations, National Supercomputing Center, VŠB – Technical University of Ostrava, Czech Republic, ^bFaculty of Materials Science and Technology, VŠB – Technical University of Ostrava, Czech Republic, ^cLaboratoire de Physique de l'École Normale Supérieure, CNRS UMR, Paris, France

40. *National infrastructure for dissemination of precise time and interconnection of quantum sources of ultra-stable optical frequency—CITAF*, **Josef Vojtech**^a, Ondrej Havlis^a, Martin Slapak^a, Lada Altmannova^a, Vladimir Smotlacha^a, Petr Pospisil^a, Jan Kundrat^a, Rudolf Vohnout^a, Radek Velc^a, Martin Cizek^b, Jan Hrabina^b, Simon Rerucha^b, Lenka Pravdova^b, Josef Lazar^b, Ondrej Cip^b, Alexander Kuna^c, Jaroslav Roztocil^d
^aCESNET z.s.p.o., Prague, Czechia; ^bInstitute of Scientific Instruments of the Czech Academy of Sciences, Brno, Czechia; ^cInstitute of Photonics and Electronics of the Academy of Sciences of the Czech Republic, Prague, Czechia; ^dFaculty of Electrical Engineering, Czech Technical University, Prague Czech Republic
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42. *Free Space Optical Link Phase Noise Measurement*, **Jan Hrabina**^a, Martin Čížek^a, Lenka Pravdová^a, Ondřej Číp^a, Peter Barčík^b, Zdeněk Kolka^b, Petr Skryja^b
^aDept. of Coherence Optics, Institute of Scientific Instruments, Czech Academy of Sciences, Brno, Czech Republic, ^bDept. of Radioelectronics, Faculty of Electrical Engineering and Communications, Brno University of Technology, Czech Republic
43. *Optical cavity for ultra-narrow linewidth laser system*, **Lenka Pravdová**^a, J. Hrabina^a, T. M. Pham^a, M. Holá^a, M. Čížek^a, O. Číp^a, F. Procháska^b, J. Beneš^b, Z. Rail^b, D. Tomka^b, V. Lédl^b
^aDept. of Coherence Optics, Institute of Scientific Instruments, Czech Academy of Sciences, Brno, Czech Republic, ^bRegional center for special optics and optoelectronic systems (TOPTec), Institute of Plasma Physics, Czech Academy of Sciences, Prague, Czech Republic
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Department of Optics and Photonics, Wrocław University of Science and Technology, Poland
47. *Spectrally-resolved microscopy study of the effect of microplastics on water moss *Fontinalis antipyretica**, **Martin Uherek**^a, D. Chorvát^a, A. Marček Chorvátová^b
^aDepartment of Biophotonics, International Laser Center, Slovak Centre of Scientific and Technical Information, Bratislava, Slovakia, ^bDepartment of Biophysics, FNS, Univ. Ss Cyril and Methodius, Trnava, Slovakia
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^aDepartment of Optics and Photonics, Wrocław University of Science and Technology, Poland, ^bWrocław Centre for Networking and Supercomputing, Wrocław University of Science and Technology, Poland, ^cLaboratory of Optical Fiber Technology, Maria Curie-Skłodowska University, Lublin, Poland
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¹Faculty of Physics, Warsaw University of Technology, ²Department of Optics and Photonics, Wrocław University of Science and Technology, Poland