

PROGRAMME
of the IOS'2024 Conference -
Integrated Optics - Sensors, Sensing Structures and Methods
Szczyrk, 26 February – 01 March 2024

26.02.2024 Monday	
13.00	<i>Lunch</i>
15.00 – 15.10	OPENING CEREMONY of the Conferences 18th IOS'2024 51st WSEAV 52nd WSWQA
15.10 – 16.00	JUBILEE OF PROFESSOR WIESŁAW WOLIŃSKI AND PROFESSOR ANTONI ŚLIWIŃSKI
15.10 – 16.00	Addresses and speeches
16.00 – 17.00	<i>Coffee Break</i>
17.00 – 18.30	<i>Jubilee Plenary Session</i>
17.00 – 17.30	Plenary lecture of IOS Conference Photonic integrated circuits – on the road from telecom to sensing <u>R. PIRAMIDOWICZ</u> , S. STOPIŃSKI, K. ANDERS, A. JUSZA, A. PAŚNIKOWSKA, M. LELIT, A. POŁATYŃSKI, A. BIENIEK-KACZOREK, A. KAŹMIERCZAK, M.A. BUTT, P. WIŚNIEWSKI, M. SŁOWIKOWSKI, M. JUCHNIEWICZ, K. PAVŁOV, K. PIERŚCIŃSKI, D. PIERŚCIŃSKA, J. JUREŃCZYK, M. LIEBERT
17.30 – 18.00	Plenary lecture of WSWQA Conference The essence of a pulse compression and SAW technology application for signal processing in a modern radar systems <u>A. KAWALEC</u>
18.00 – 18.30	Plenary lecture of WSEAV Conference Advancements in Computational Techniques for Analyzing Aircraft Noise: Addressing Challenges and Refining Models A. CHYLA, <u>O. ZAPOROZHETS</u> , A. NOWOŚWIAT, M. BUKAŁA
18.30 – 19.30	<i>Supper</i>
19.30	MUSIC GLANCE

27.02.2024 Tuesday	
8.00	<i>Breakfast</i>
13.00	<i>Lunch</i>
14.30 – 16.30	Photonic Structures
14.30-15.00	Invited lecture Optical vortices in nematic liquid crystals U.A. LAUDYN, J. PIŁKA, M. KWAŚNY, <u>M.A. KARPIERZ</u>
15.00 – 15.30	Invited lecture Recent advances in tunability, dispersion and active properties of chosen structures of hyperbolic metamaterials K. SIELEZIN, U. CHODOROW, R. KOWERDZIEJ, <u>J. PARKA</u>
15.30 – 15.50	Optical sensor based on directly drawing D-shape fiber <u>R. KASZTELANIC</u> , G. STĘPNIEWSKI, A. FILIPKOWSKI, D. PYSZ, R. BUCZYŃSKI, M. ŚMIETANA
15.50-16.10	Development of ASPIC-based interrogators for rock mass monitoring <u>S. STOPIŃSKI</u> , K. ANDERS, A. JUSZA, S. SZOSTAK, A. BIENIEK-KACZOREK, P. BORTNOWSKI, F. ZABIEROWSKI, A. KAŹMIERCZAK, B. MARCINIAK, P. MERGO, A. PAŽDZIOR, Ł. WZOREK, Ł. BEDNARSKI, K. SKRZYPKOWSKI, R. PIRAMIDOWICZ
16.10 – 16.30	Manipulating light with anisotropic metamaterial waveguides <u>B. JANASZEK</u> , A. TYSZKA-ZAWADZKA, M. KIELISZCZYK, P. SZCZEPANIŃSKI
16.30 – 17.00	<i>Coffee Break</i>

17.00 – 18.40	Photonic Sensor Structures
17.00 – 17.20	Invited lecture Sensing device of capillary action for diesel type fuels fit for use determination <u>M. BORECKI, M. GECA, J. SZMIDT, M. KORWIN-PAWLOWSKI</u>
17.20 – 17.40	Invited lecture High-resolution optical low-coherence interferometry and electrochemistry for in situ detection of organic substances <u>M. SOBASZEK, M. STRĄKOWSKI, J.PLUCIŃSKI</u>
17.40 – 18.00	From Theory to Practice: Implementing effective control strategies in QKD and QRNG systems <u>W. ŻOŁNOWSKI, M. ŻYCZKOWSKI</u>
18.00 – 18.20	Light-activated conductive polymer - nanostructured ZnO blends for sub-ppm NO₂ sensing <u>P. KAŁUŻYŃSKI, M. PROCEK, A. STOLARCZYK, T. JAROSZ, E. MACIAK</u>
18.20 – 18.40	Shedding light on electrochemical processes: optoelectrochemical setup employing fiber-optic sensor and diamond structures <u>M. KOSOWSKA, P. JAKÓBCZYK, M. RYCEWICZ, M. SZCZERSKA</u>
20.00	<i>Festive Supper</i>

28.02.2024 Wednesday	
8.00	<i>Breakfast</i>
13.00	<i>Lunch</i>
14.30 – 16.30	Photonic Crystals
14.30 – 15.00	Invited lecture Optical wave processing in nonlinear photonic crystals <u>W. KRÓLIKOWSKI, S. LIU, Y. SHENG</u>
15.00 – 15.30	PT-symmetry manifestation in dual-core optical fibers <u>B. PAŁUBA, R. BUCZYŃSKI, M. TRIPPENBACH</u>
15.30 – 15.50	Free space optical communication – toward integrated photonic transceivers <u>K. ANDERS, S. STOPIŃSKI, A. PAŚNIKOWSKA, P. ANDERSON, Ł. KUSTOSZ, M. ROJEWSKI, A. JUSZA, F. ŁABAJ, J. KALWAS, R. PIRAMIDOWICZ</u>
15.50 – 16.10	DAS – Distributed Acoustic Sensing with optical fibers– technology and application examples <u>J. KORYCIŃSKI</u>
16.10 – 16.30	Invited lecture Testing of alumina-based ceramic ballisticprotection armor in the THz range <u>N. PAŁKA, K. KAMIŃSKI, M. MACIEJEWSKI, D. PACEK, W. ŚWIDERSKI</u>
16.30 – 17.00	<i>Coffee Break</i>
17.00 -18.40	Design of Photonic Structures Photonics Metrology
17.00 – 17.20	Invited lecture Design of a polymer structure doped with a photosensitive agent, potentially suitable for special optical fibers <u>M. GIL-KOWALCZYK, P. MERGO</u>

17.20 – 17.40	10 Gb/s integrated multichannel transmitters in InP generic technology for telecom and datacom applications <u>A. PAŚNIOWSKA, S. STOPIŃSKI, A. KAŹMIERCZAK, R. PIRAMIDOWICZ</u>
17.40 – 18.00	Invited lecture Determination of the spectral dependence of the mode birefringence of planar waveguides <u>K. GUT</u>
18.00 – 18.20	Research equipment dedicated to optoelectronics offered by Technolutions <u>N. JĘDRZEJCZAK</u>
18.20 – 18.40	Application-specific PDK library for MIRPIC platform <u>A. POŁATYŃSKI, M. LELIT, A. PAŚNIOWSKA, A. BIENIEK-KACZOREK, P. BORTNOWSKI, K. ANDERS, S. STOPIŃSKI, P. WIŚNIEWSKI, M. SŁOWIKOWSKI, M. JUCHNIEWICZ, R. PIRAMIDOWICZ</u>
19.00	<i>Supper</i>
20.00	<i>Poster Session</i>

29.02.2024 Thursday	
8.00	<i>Breakfast</i>
13.00	<i>Lunch</i>
14.30 – 16.30	Selected application of Optoelectronics
14.30 – 15.00	Invited lecture FOSREM - from Sky across Ground up to Undeground as Froward to FOM-MEM <u>L.R. JAROSZEWICZ, A. T. KURZYCH, M. DUDEK, K. STASIEWICZ, P. MARĆ</u>
15.00 – 15.20	Invited lecture From crude analysis to AI-enhancedfibre-optic reflectometer – the evolution of biological samples classification on the example of <i>Mycoplasma synoviae</i> pathogen <u>A. PAKUŁA</u>
15.20 – 15.40	Development of simple fiber-optic polarimetric sensor for monitoring critical bolted connections in space applications <u>A. PAŽDZIOR, M. JÓZWICKI, M. GRZESIAK, M. MAKARA, K. POTURAJ, M. SIDZ, M. SZWAJEWSKI, P. MERGO</u>
15.40 – 15.55	Technology of depressed clad flat dispersion fiber <u>M. GRZESIAK, P. MERGO, K. POTURAJ, M. MAKARA</u>
15.55 – 16.15	A new integrated FBG interrogator based on asymmetric Mach-Zehnder interferometers <u>A. BIENIEK-KACZOREK, S. STOPIŃSKI, K. ANDERS, A. JUSZA, K. WOJTIUK, R. PIRAMIDOWICZ</u>
16.15 – 16.30	Real-time vehicle condition and movement monitoring system -- possibilities and limitations <u>K. MURAWSKI</u>
16.30	<i>IOS'2024 Closing Ceremony</i>
16.30 – 17.00	<i>Coffee Break</i>
17.30	Panel Session Polish of Photonics and Optoelectronics
19.00	<i>Supper</i>

01.03.2024 Friday	
8.00	<i>Breakfast</i>

POSTER SESSION

- **Development of ZBLAN optical fibers using extrusion process**
M. ADAMOWSKA, P. SOCHA, I. DRZEWICZ, J. CIMEK, R. BUCZYŃSKI
- **Optical fiber magnetic field sensor with external conversion operating in cryogenic temperatures**
K. BARCZAK, P. LASEK, J. JURASZEK
- **AWG components of the mid-IR integrated photonics platform (MIRPIC) – design and simulations**
P. BORTNOWSKI, M. LELET, A. PAŚNIKOWSKA, A. POŁATYŃSKI, S. STOPIŃSKI, R. PIRAMIDOWICZ
- **Application of photopolymerization and phase transition of liquid crystal for spatial information encryption**
M. CHYCHŁOWSKI, M. KAJKOWSKA, D. BUDASZEWSKI, K. ORZECHOWSKI, S. ERTMAN, P. LESIAK
- **Hydrogen gas sensor based on reduced graphene oxide deposited on gold and platinum electrodes**
Ł. DREWNIAK, S. DREWNIAK, M. PROCEK, R. MUZYKA
- **Single photon communication based on phase coding of information**
SZ. FIDERKIEWICZ, M. ŻYCZKOWSKI, A. PAKUŁA
- **Development of Nanopatterned Glass Substrates for Label-Free Optical Biosensing Applications**
M. GOLAS, B. STONIO, M. RAJI, N. KWIETNIEWSKI, M. ŚMIETANA
- **The portable e-nose system for environmental and medical gas detection - proof of concept**
D. GROCHALA, A. PALECZEK, M. KOĆOŃ, A. RYDOSZ
- **Determination of the spectral dependence of the mode birefringence of planar waveguides**
K. GUT
- **Reduction of polarization sensitivity of Bragg grating SRI sensors by using P-TFBG cascaded structures**
D. HARASIM
- **Optical spectroscopic methods for the detection of nitrates, nitrites and phosphate contaminations in freshwater**
A. JUSZA, P. BORTNOWSKI, A. BIENIEK-KACZOREK, Ł. KOZŁOWSKI, K. ANDERS, S. STOPIŃSKI, J. KALWAS, R. PIRAMIDOWICZ
- **Harnessing Synergies for Effective Pollutant Remediation with Modified Carbonaceous Materials Through Combined Photooxidation and Electrolysis Approach**
I. KACZMARZYK, P. RUTECKI, M. SOBASZEK, J. RYL, R. BOGDANOWICZ
- **Selective photopolymerization for fabrication of liquid crystal-based diffractive optical elements**
M. KAJKOWSKA, M. S. CHYCHŁOWSKI, S. ERTMAN, P. LESIAK

- **FoSMoWater - photonic system for surface water quality monitoring**
J. KALWAS, R. STOJEK, F. ŁABAJ, R. PIRAMIDOWICZ
- **Light-activated conductive polymer - nanostructured ZnO blends for sub-ppm NO₂ sensing**
P. KAŁUŻYŃSKI, M. PROCEK, A. STOLARCZYK, T. JAROSZ, E. MACIAK
- **Silk fibroin thin films for optics and photonics applications**
P. KAŁUŻYŃSKI, M. PROCEK, Z. OPILSKI
- **Synthesis of CdSe quantum dots in various solvents for polymer fiber optic technology**
A. KICZOR, P. MERGO
- **UV-writting fiber Bragg gratings in special fibers: technology, sensor and laser applications**
P. KISAŁA, P. MILUSKI, K. SKORUPSKI, P. PANAS, D. HARASIM, J. KLIMEK
- **Shedding light on electrochemical processes: optoelectrochemical setup employing fiber-optic sensor and diamond structures**
M. KOSOWSKA, P. JAKÓBCZYK, M. RYCEWICZ, M. SZCZERSKA
- **Library of building blocks for MIRPIC technological platform**
M. LELIT, A. POŁATYŃSKI, A. PAŚNIKOWSKA, A. BIENIEK-KACZOREK,
P. BORTNOWSKI, K. ANDERS, S. STOPIŃSKI, P. WIŚNIEWSKI, M. SŁOWIKOWSKI,
M. JUCHNIEWICZ, R. PIRAMIDOWICZ
- **UV-Vis spectroscopy in autonomous measurement systems for assessing the quality of surface water ecosystems**
E. MACIAK, A. OLSZEWSKA, K. BARCZAK
- **NIR absorption spectroscopy based on broad band source for the gas sensing**
E. MACIAK, A. OLSZEWSKA, K. BARCZAK, Z. OPILSKI
- **Controllable optical fibre coupler with liquid crystal cladding**
A. MERCHEL, K. STASIEWICZ
- **Testing of Four Channel Stokes Polarimeter sensing properties for intrusion detection in QKD systems**
E. PAWLICKOWSKA, M. ŻYCZKOWSKI, A. PAKUŁA, P. MARĆ
- **Regioregular and regiorandom P3HT polymer blends – study of free radicals concentration and its influence on NO₂ gas sensing performance**
M. PROCEK, A. STOLARCZYK, K. GŁOSZ, P. KOZYRA, T. JAROSZ
- **Orthopedic Implants Surface Evaluation by the Optical Coherence Tomography**
P. STRĄKOWSKA, M.R. STRĄKOWSKI, B. ŚWIECZKO-ŻUREK
- **Mach-Zehnder Interferometer for Refractive Index Measurements During Electro-Chemical Process**
M.R. STRĄKOWSKI, M. SOBASZEK
- **Analysis and optimization of integrated photonics structures using the FDTD method**
P. STRUK
- **Optical coherence tomography imaging by MOEMS endomicroscopy probe and Lissajous scanning**

P. STRUK, S. BARGIEL, M. JÓZWIK, B. MIRECKI, M. WOJTKOWSKI, H. XIE,
C. GÓRECKI