

PROGRAMME
of the IOS'2025 Conference -
Integrated Optics - Sensors, Sensing Structures and Methods
Szczyrk, 24 – 28 February 2025

24.02.2025 Monday	
14.00	<i>Lunch</i>
15.00 – 15.10	OPENING CEREMONY of the Conferences 53rd WSW&QA 52nd WSEA&V 19th IOS'2025
15.10 – 16.00	JUBILEE SESSION of Professor ADAM KAWALEC
16.00 – 17.00	<i>Coffee Break</i>
17.00 – 18.00	MUSIC GLANCE
18.00 – 19.00	<i>Supper</i>
19.30	JUBILEES of: 20th Winter Workshop on Molecular Acoustics, Relaxation and Calorimetric Methods and 20th Winter Workshop on Acoustoelectronics

25.02.2025 Tuesday	
8.00	<i>Breakfast</i>
13.00	<i>Lunch</i>
14.30 – 16.30	Integrated Photonic Session
14.30 – 15.00	<i>Invited lecture</i> Photonic Integrated Circuits - beyond state-of-the-art <u>R. PIRAMIDOWICZ</u>
15.00 – 15.15	Overview of mid-infrared PICs fabrication technologies M. JUCHNIEWICZ , M. SŁOWIKOWSKI, M. JAROSIK, D. DRECKA, B. MICHALAK, M. LELIT, S. STOPIŃSKI, R. PIRAMIDOWICZ
15.15 – 15.30	Determination of nitrate, nitrite, phosphate, and ammonium ions content in water environment using optical spectroscopy methods A. JUSZA , A. BIENIEK-KACZOREK, P. BORTNOWSKI, Ł. KOZŁOWSKI, K. ANDERS, S. STOPIŃSKI, F. ŁABAJ, J. KALWAS, E. KIEDRZYŃSKA, R. PIRAMIDOWICZ
15.30 – 15.45	Photonic integrated interrogators for vital signs monitoring A. BIENIEK-KACZOREK , S. STOPIŃSKI, K. ANDERS, A. JUSZA, K. WOJTIUK, R. PIRAMIDOWICZ
15.45 – 16.00	ASPIC-based transmitters for free-space optical communication systems S. STOPIŃSKI , K. ANDERS, A. PAŚNIKOWSKA, A. JUSZA, M. ROJEWSKI, Ł. KUSTOSZ, J. KALWAS, R. CIECHAŃSKI, K. MACHAŁOWSKI, M. ABRAMOWICZ, P. MARCHEWKA, K. PIERŚCIŃSKI, D. PIERŚCIŃSKA, R. PIRAMIDOWICZ
16.00 – 16.15	HyperPIC Process Design Kit (PDK) for MIRPIC Integrated Photonics Platform J. OLSZEWSKI , A. POŁATYŃSKI, A. ŚLIPEK, M. LELIT, K. ANDERS, S. STOPIŃSKI, P. WIŚNIEWSKI, R. PIRAMIDOWICZ
16.30 – 17.00	<i>Coffee Break</i>
17.00 – 19.00	Technologies for Photonics Session
17.00 – 17.30	<i>Invited Lecture</i> Photonics Technologies Priority Research Area: enhancing research activities in photonics at the Warsaw University of Technology T. R. WOLIŃSKI , R. BUCZYŃSKI, A. DYBKO, M. KARPIERZ, A. KOŁODZIEJCZYK, M. KUJAWIŃSKA, P. LESIAK, M. MALINOWSKI, R. PIRAMIDOWICZ
17.30 – 18.00	<i>Invited Lecture</i> Bridging the Manufacturing Gap in Photonic Packaging K. GRADKOWSKI , P. O'BRIEN

18.00 – 18.20	<p><i>Invited Lecture</i></p> <p>The latest Fusion Splicing Technologies supporting specialty fibers splicing like Multicore, Hollowcore, Tapered or Ultra-Thin designs.</p> <p>A. TANABE, H. HOSOI, T. FUJII, <u>J. KORYCIŃSKI</u></p>
18.20 – 18.40	<p>Structural and Optical Properties of RF-Sputtered Er³⁺-Doped Amorphous Oxide Thin Films</p> <p><u>T. RAGIŃ</u>, K. SADOWSKA, A. BARANOWSKA, J. MARKIEWICZ, K. MARKOWSKI, M. KOCHANOWICZ, P. MILUSKI, K. PŁACHETA, P. JELEŃ, D. DOROSZ</p>
18.40 – 19.00	<p>Silicon nitride photonics platform development in CEZAMAT WUT</p> <p><u>M. SŁOWIKOWSKI</u>, M. JUCHNIEWICZ, B. STONIO, M. MYŚLIWIEC, D. DRECKA, M. LELIT, M. GOLAS, M. JAROSIK, M. FILIPIAK, K. PAVŁOV, P. WIŚNIEWSKI</p>
20.00	<i>Festive Supper</i>

26.02.2025 Wednesday	
8.00	<i>Breakfast</i>
13.00	<i>Lunch</i>
14.30 – 16.30	Photonic Emitters and Detectors Session
14.30 – 15.00	<i>Invited Lecture</i> Interband cascade detectors – utmost performance? P. MARTYNIUK
15.00 – 15.20	<i>Invited Lecture</i> Non-destructive Terahertz Evaluation of Selected Military Components N. PAŁKA , M. MACIEJEWSKI, K. KAMIŃSKI, M. PISZCZEK, P. ZAGRAJEK, E. CZERWIŃSKA
15.20 – 15.40	Reducing Parasitic Reflections in Terahertz Passive Components M. KAŁUŻA, A. NIERADKA, A. SIEMION
15.40 – 16.00	On-chip coupling of single photon emission from InAs/InP quantum dots at telecom range P. MROWIŃSKI , M. BURAKOWSKI, P. HOLEWA, A. SAKANAS, E. SEMENOVA, M. SYPEREK
16.00 – 16.15	Time domain spectroscopy of bismuth containing alloys for mid infrared emitters T. SMOŁKA , A. TOŁŁOCZKO, M. RYGAŁA, J. HILSKA, J. PUUSTINEN, E. KOIVUSALO, M. GUINA, C. WHITE, S. BANK, R. KUDRAWIEC, M. MOTYKA
16.15 – 16.30	Quantum Cascade Lasers as Infrared Sources for Integrated Photonic Systems D. PIERŚCIŃSKA , D. NIEWCZAS, A. KRZĄSTEK, M. NAGOWSKI, J. BRANAS, K. MICHALAK, K. PIENIAK, A. BRODA, A. KUŹMICZ, K. PIERŚCIŃSKI
16.30 – 17.00	<i>Coffee Break</i>
17.00 – 18.00	Optical Fibers Session
17.00 – 17.20	<i>Invited Lecture</i> Fiber-optic sensors for temperature profiling of active layer of permafrost – case study from Calypsobyen, Spitsbergen A. PAŹDZIOR , R. DOBROWOLSKI, A. BIEGANOWSKI, P. MERGO
17.20 – 17.40	Liquid Sensing Inside Anti-Resonance Optical Fibers K. RECHCIŃSKA , G. STĘPNIEWSKI, A. FILIPKOWSKI, D. PYSZ, R. BUCZYŃSKI
17.40 – 18.00	High temperature protective coatings for special optical fibers M. GIL-KOWALCZYK , P. MERGO

18.00 – 19.00	<i>Supper</i>
19:00 – 20:00	The Meeting with Vinyl
20.00	<i>Poster Session</i>

27.02.2025 Thursday	
8.00	<i>Breakfast</i>
13.00	<i>Lunch</i>
14:30 – 16:30	Sensors and Nanostructures Session
14.30 – 15.00	<i>Invited Lecture</i> Polycarbazole electropolymerized on Pt electrodes - new possibilities for hydrogen gas sensing at room temperature in various environmental conditions <u>M. PROCEK</u> , K. GŁOSZ, Y. LÓPEZ-APARICIO, C. JIMENEZ-JORQUERA, X. MUÑOZ-BERBEL, T. JAROSZ, A. STOLARCZYK
15.00 – 15.20	<i>Invited Lecture</i> The use of machine learning methods and neural networks in the design of nanostructured optical fibers <u>R. KASZTELANIC</u> ; M. NAPIÓRKOWSKI; S. KAŻMIERCZAK; R. BUCZYŃSKI
15.20 – 15.40	Opportunities of Neural Networks Application for Few-Mode Optical Fibers Design: Dense versus Convolutional Networks <u>B. PAŁUBA</u> , M. NAPIÓRKOWSKI, R. KASZTELANIC, R. BUCZYŃSKI
15.40 – 16.00	All-optical self-switching of C-band femtosecond laser pulses in highly nonlinear multicore fiber <u>M. WINKOWSKI</u> , M. LONGOBUCCO, D. PYSZ, I. KUJAWA, R. BUCZYŃSKI, I. BUGAR
16.00 – 16.20	Detection and identification of microplastics in aquatic ecosystems <u>S. DREWNIAK</u> , Ł. DREWNIAK, E. MACIAK, K. BARCZAK, P. KAŁUŻYŃSKI, A. OLSZEWSKA, E. ŁOBOS-MOYSA, I. ZIMOCZ
16.30 – 17.00	<i>Coffee Break</i>
17.00 – 18.00	Application of Optoelectronic and Photonic Systems
17.00 – 17.20	Deterministic fabrication of cavity-coupled-quantum dot single-photon source for quantum photonic applications P. HOLEWA, M. BURAKOWSKI, P. MROWIŃSKI, E. ZIĘBA-OSTÓJ, D. BIEGAŃSKA, E. SEMENOVA, <u>M. SYPEREK</u>
17.20 – 17.40	A novel approach to de-warping OCT images <u>P. OSSOWSKI</u> , D. RUMIŃSKI, I. GRULKOWSKI
17.40 – 18.00	Nd:YAG incorporation into the optical fiber: On the way to fiber lasers <u>M. ADAMOWSKA</u> , B. PAŁUBA, G. STĘPNIIEWSKI, A. FILIPKOWSKI, D. PYSZ, I. KUJAWA, A. MARKOVSKYI, R. KASZTELANIC, R. BUCZYŃSKI
18.00	<i>Supper</i>
19.00	The State of Polish Photonics - Roundtable Discussion

28.02.2025 Friday

8.00

Breakfast

POSTER SESSION

- Testing of a optical fibre current sensor using different current buses
K. BARCZAK, J. JURASZEK
- Beryllium-oxide-doped optical fiber structure for dosimetry applications
P. BIENIAS, B. PAŁUBA, M. ADAMOWSKA, D. PYSZ, A. FILIPKOWSKI, G. STĘPNIEWSKI,
R. BUCZYŃSKI, K. RUTKOWSKA, M. ŚMIETANA
- Opto-electrochemical Interactions at Periodically Patterned Heterogeneous Boron-Doped
Diamond Nanoarchitectures
P. JAKÓBCZYK, A. OLEJNIK, M. FICEK, B. STONIO, M. RAJI, M. ŚMIETANA, **R. BOGDANOWICZ**
- Photonic sensing system for monitoring nitrite and nitrate content in water
P. BORTNOWSKI, A. JUSZA, A. PAŚNIKOWSKA, E. KIEDRZYŃSKA, J. KALWAS,
R. PIRAMIDOWICZ
- Development of image fiber bundles based on biodegradable glass
R. BUCZYŃSKI, P. GOŁĘBIEWSKI, P. SOCHA, A. FILIPKOWSKI, D. PYSZ, R. KASZTELANIC,
J. M. FERREIRA
- Synthesis of Ln-UCNPs and their hybridization using a microwave-assisted technique
G. LESLY JIMENEZ, C. VAZQUEZ-LOPEZ, I. PADILLA-ROSALES, **D. DOROSZ**
- Thermo-optic modulator for silicon nitride integrated photonics platform
D. DRECKA, M. MYŚLIWIEC, M. FILIPIAK, M. GOLAS, B. STONIO, M. JUCHNIEWICZ,
M. SŁOWIKOWSKI
- Research on pollution of aquatic ecosystems with anthropogenic nitrogen compounds using
UVC spectrometry
Ł. DREWNIAK, S. DREWNIAK, E. MACIAK, K. BARCZAK, P. KAŁUŻYŃSKI, A. OLSZEWSKA,
E. ŁOBOS-MOYSA, I. ZIMOCZ
- Optimization of top-hat single-mode optical fiber using convolution neural networks and
generative inverse design
K. GŁOWIŃSKI, M. NAPIÓRKOWSKI, R. KASZTELANIC, R. BUCZYŃSKI
- Determinantom of the difference in propagation constants from wavelength based on
a spectral interferogram
K. GUT
- Optimization of the plasma etching process for waveguides fabricated on the Ge-on-Si
photonic platform using the Taguchi method
M. JAROSIK, M. JUCHNIEWICZ

- Fabrication of optical fiber preforms for mid-infrared laser applications – synthesis, extrusion and characterization of fluoride glasses
M. KALINOWSKA, P. SOCHA, M. ADAMOWSKA, I. DRZEWICZ, P. BIENIAS, B. PAŁUBA, A. LECHNA, G. STĘPNIEWSKI, A. FILIPKOWSKI, D. PYSZ, R. BUCZYŃSKI
- 3D-print nanoWaste: investigating nano- and microplastic generation in 3D printing processes as emerging environmental pollutants
P. KAŁUŻYŃSKI, D. KAŁUŻYŃSKA, W. SZYMSKA, A. WISZKONY, P. NOWAKOWSKI
- Towards to PPT NO₂ detection - hybrid organic/inorganic nanocomposites: balancing p- and n-type conductivities for enhanced sensor performance
P. KAŁUŻYŃSKI, M. PROCEK, A. STOLARCZYK, K. GŁOSZ, T. JAROSZ
- Challenges and opportunities for integrated photonics structures application for continuous monitoring of NO₃⁻, NO₂⁻, PO₄³⁻ and NH₄⁺ ions content in surface water
A. KAŻMIERCZAK, A. BIENIEK-KACZOREK, Ł. KOZŁOWSKI, P. BORTNOWSKI, A. JUSZA, R. PIRAMIDOWICZ
- Optical signal coupling scheme for multichannel photonic sensor system exploiting large area vertical grating coupler and microlenses array
A. KAŻMIERCZAK, C. TYSZKIEWICZ, M. ZIĘBA, M. SŁOWIKOWSKI, K. PAVŁOV, M. FILIPIAK, J. SUSZEK, F. WŁODARCZYK, P. KIELAN, J. KALWAS, R. PIRAMIDOWICZ, P. KARASIŃSKI
- Polymer fibers for sub-wavelength imaging in the sub-THz spectral range
P. KOMOROWSKI, P. ZAGRAJEK, M. KAŁUŻA, A. SIEMION
- Racetrack ring resonator-based refractive index sensor on SiN platform - design and measurements
Ł. KOZŁOWSKI, M. A. BUTT, M. SŁOWIKOWSKI, R. PIRAMIDOWICZ
- Integrated Subwavelength Photonic Elements for Sensing Applications on a SiN Platform
M. LELIT, D. DRECKA, Ł. KOZŁOWSKI, M. SŁOWIKOWSKI, B. STONIO, M. JUCHNIEWICZ, K. PAVŁOV, M. FILIPIAK, B. MICHALAK, M. JAROSIK, S. STOPIŃSKI, K. ANDERS, R. PIRAMIDOWICZ
- Design and development of a photonic, mid-infrared, ATR-based probe head for in-situ freshwater quality measurements
J. KALWAS, R. STOJEK, P. MARCHEWKA, M. ABRAMOWICZ, **F. ŁABAJ**, K. MACHAŁOWSKI, R. PIRAMIDOWICZ
- Non-destructive testing of irregular shaped objects using the reflective TDS Imaging method in the THz spectral range
M. MACIEJEWSKI, M. PISZCZEK, K. KAMIŃSKI, N. PAŁKA
- Optical fiber sensor for per- and polyfluoroalkyl substances (PFAS)
P. RADEK, K. BARCZAK, A. OLSZEWSKA

- Spectral metrology and identification of kidney stones
M. SŁADEK, M. PROCEK, P. KAŁUŻYŃSKI, E. MACIAK
- Biofunctionalized fiber optic sensors for viral RNA detection
P. SOKOŁOWSKI, P. WITYK, A. WŁADZIŃSKI, J. RACZAK-GUTNECHT, W. BRZEZIŃSKA,
M. SZCZERSKA
- The numerical analysis of integrated photonics structures with grating coupler for variable angle light beam deflection
P. STRUK
- Lateral leakage engineering in Ge-based material platforms in the mid-infrared spectral range
A. ŚLIPEK, J. OLSZEWSKI, K. ANDERS, S. STOPIŃSKI, R. PIRAMIDOWICZ
- Niobium doped titania films fabricated by sol-gel method - technology and characterization
M. ZIĘBA, Z. OPILSKI, **C. TYSZKIEWICZ**, P. KARASIŃSKI
- Imaging bundles in miniaturized endoscopic applications
F. WOJAS, D. PYSZ, R. BUCZYŃSKI, R. KASZTELANIC
- Niobium doped titania films fabricated by sol-gel method - technology and characterization
M. ZIĘBA, Z. OPILSKI, C. TYSZKIEWICZ, P. KARASIŃSKI

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