

PROGRAMME
of the IOS'2022 Conference -
Integrated Optics - Sensors, Sensing Structures and Methods
Szczyrk, 28 February – 04 March 2022

| 28.02.2022 Monday | |
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| 14.00 | <i>Lunch</i> |
| 16.00-16.10 | OPENING CEREMONY of the Conferences 50th Jubilee WSW&QA 49th WSEA&V 16th IOS'2022 |
| 16.10-16.45 | Jubilee Session |
| 16.10-16.30 | <i>Plenary lecture:</i> The Golden Jubilee of the 50th WINTER SCHOOL ON WAVE AND QUANTUM ACOUSTICS - historical reminiscences T. PUSTELNY, R. BUKOWSKI |
| 16.30-16.35 | <i>Address by the Chairman of the Honorary Committee:</i> A.ŚLIWIŃSKI, (online) |
| 16.35-16.45 | <i>Other speeches</i> |
| 16.45-17.30 | <i>Coffee Break</i> |
| 17.30-18.30 | “ALTRA VOLTA” - MUSIC GLANCE |
| 18.30 | <i>Supper</i> |
| 20.00 | 50 YEARS HAVE GONE BY - AN EVENING OF REMEMBRANCE |

| 01.03.2022 Tuesday | |
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| 8.00 | <i>Breakfast</i> |
| 13.00 | <i>Lunch</i> |
| 14.00 – 14.30 | <i>Plenary lecture:</i> Actphast4R and PhotonHub Europe the efficient mechanisms for deep technology support in photonics M. KUJAWIŃSKA |
| 14.30 – 18.20 | High Technologies for Photonics - IMiO, CEZAMAT and VIGO alliance Session |
| 14.30 – 15.00 | Integrated photonics – present capabilities and future challenges R. PIRAMIDOWICZ, S. STOPIŃSKI, K. ANDERS, A. JUSZA, M. SŁOWIKOWSKI, A. PAŚNIKOWSKA, M. LELIT, A. POŁATYŃSKI, A. KAŻMIERCZAK, M. A. BUTT |
| 15.00 – 15.20 | Spatial division multiplexing fiber optic systems – key components and performance parameters K. ANDERS, A. PAŚNIKOWSKA P. BORTNOWSKI S. STOPIŃSKI, M. SŁOWIKOWSKI, P. MAZUREK, J.P. TURKIEWICZ, P. MERGO, K. MARKIEWICZ, M. NAPIERAŁA, T. NASIŁOWSKI, R. PIRAMIDOWICZ |
| 15.20 – 15.40 | Silica-Titania Integrated Photonic Structures for Multiparameter Sensors Applications M. A. BUTT, A. KAŻMIERCZAK, A. JUSZA, C. TYSZKIEWICZ, P. KARASIŃSKI, R. PIRAMIDOWICZ |
| 15.40 – 16.00 | Integrated multi-channel transmitters for WDM-PON systems – design and development A. PAŚNIKOWSKA, S. STOPIŃSKI, A. KAŻMIERCZAK, R. PIRAMIDOWICZ |
| 16.00 – 16.15 | Miniature mid-IR spectrometer – concept, implementation and perspectives F. ŁABAJ, J. KALWAS, A. GÓRSKI, P. LESZCZ, R. PIRAMIDOWICZ |
| 16.15 – 16.30 | Single-frequency integrated ring lasers with hybrid intra-cavity wavelength filtering S. STOPIŃSKI, R. PIRAMIDOWICZ |
| 16.30 – 17.00 | <i>Coffee Break</i> |

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| 17.00 – 17.20 | <p>Non-invasive patient's breath monitoring during MRI diagnosis with the use of integrated photonic interrogator</p> <p>M. SŁOWIKOWSKI, A. KAŻMIERCZAK, M. BIENIEK, S. SZOSTAK, S. STOPIŃSKI, R. PIRAMIDOWICZ</p> |
| 17.20 – 17.40 | <p>Advances in development of SiN-based integrated photonic platform for visible spectral range</p> <p>M. LELIT, M. SŁOWIKOWSKI, M. GOLAS, M. FILIPIAK, M. JUCHNIEWICZ, B. STONIO, B. MICHALAK, K. PAVŁOV, M. MYŚLIWIEC, P. WIŚNIEWSKI, A. KAŻMIERCZAK, K. ANDERS, S. STOPIŃSKI, R. B. BECK, R. PIRAMIDOWICZ</p> |
| 17.40 – 18.00 | <p>Grey-tone mask aligner lithography optimization for micro-optics applications</p> <p>K. PAVŁOV, M. FILIPIAK, M. JUCHNIEWICZ, B. MICHALAK, M. MYŚLIWIEC, M. SŁOWIKOWSKI, B. STONIO, P. WIŚNIEWSKI, R. BECK</p> |
| 18.00 – 18.20 | <p>Thermal reflow study in fabrication of microlens array</p> <p>M. FILIPIAK, M. MYŚLIWIEC, M. SŁOWIKOWSKI</p> |
| 18.20 – 19.00 | <p>Optical Coherence Tomography Session</p> |
| 18.20 – 18.40 | <p>Mathematical Aspects of Backscattering Cross-Section Estimation of Nanoparticles by Optical Coherence Tomography</p> <p>J. PLUCIŃSKI, M. R. STRĄKOWSKI</p> |
| 18.40 – 19.00 | <p>The optical coherence tomography for thin-film profiling enhanced by spectroscopic analysis</p> <p>M. R. STRĄKOWSKI, J. PLUCIŃSKI, A. M. KAMIŃSKA, P. STRĄKOWSKA</p> |
| 20.00 | <p><i>Festive Supper (Banquet)</i> <i>in the initial part, the performance of the jazz band "CSW Trio"</i></p> |

| 02.03.2022 Wednesday | |
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| 8.00 | <i>Breakfast</i> |
| 13.00 | <i>Lunch</i> |
| 14.00 – 18.20 | National Laboratory for Photonics and Quantum Technologies NLPQT Session |
| 14.00 – 14.20 | NLPQT – concept and general information C. RADZEWICZ |
| 14.20 – 14.40 | Ultrastable frequency for metrology network in Poland M. BOBER, K. TURZA, A. BINCZEWSKI, W. BOGACKI, Ł. ŚLIWCZYŃSKI, P. KREHLIK, M. NAROŹNIK M. ZAWADA |
| 14.40 – 15.00 | Accurate metrology of simple molecules for studying fundamental physics P. WCISŁO |
| 15.00 – 15.20 | Dual-comb generation in a single laser cavity for sensing applications Ł. A. STERCZEWSKI, M. KOWALCZYK, J. SOTOR |
| 15.20 – 15.40 | Large-area plasmonic nanostructures for SERS applications M. SUSTER, A.SZYMAŃSKA, A. KRÓLIKOWSKA, P. WRÓBEL |
| 15.40 – 16.00 | Possibilities of using optical fibers sensors in climate change A. PAŹDZIOR |
| 16.00 – 16.15 | Photonic sensing of gases and volatiles needs, technologies and solutions for science and business K. BARCZAK, Z. OPILSKI, W. BURLIKOWSKI, Z. KOWALIK, A. OLSZEWSKA, E. MACIAK |
| 16.15 – 16.30 | Novel ultrafast dynamics of double-frequency breathing-like dissipative solitons K. KRUPA, T. M. KARDAS, Y. STEPANENKO |
| 16.30 – 17.00 | <i>Coffee Break</i> |

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| 17.00 -17.20 | Ultrafast fiber lasers for ophthalmic imaging applications J. BOGUSŁAWSKI, D. STACHOWIAK, Z. ŁASZCZYCH, A. HUDZIKOWSKI, A. GŁUSZEK, M. WOJTKOWSKI, G. SOBÓŃ |
| 17.20 – 17.40 | Correlation of human two photon vision and optical coherence tomography imaging for in vivo identification of retinal layer containing photopigments I. GORCZYŃSKA, M.M. BARTUZEL, P. STREMPLEWSKI, A. CONSEJO, M. SYLWESTRZAK |
| 17.40 – 18.00 | Towards two-photon bio-imaging with GRIN lenses and image guide P. SZCZYPKOWSKI |
| 18.00 – 18.20 | Towards on-chip multidimensional quantum key distribution M. KARPIŃSKI |
| 18.20 – 19.00 | Quantum Cryptography Session |
| 18.20 – 18.40 | Quantum Hacking in the Age of Quantum Cryptography– practical issues M.ŻYCZKOWSKI, P. MARKOWSKI |
| 18.40 – 19.00 | Automatic detection of defects in composite structures by the TDS method K. KAMIŃSKI, N. PAŁKA, P. SYNASZKO, E. CZERWIŃSKA, K. DRAGAN |
| 19.00 | <i>Supper</i> |
| 20.00 | Poster Session |
| 03.03.2022 Thursday | |
| 8.00 | <i>Breakfast</i> |
| 13.00 | <i>Lunch</i> |
| 13.30 – 13.50 | <i>Plenary lecture</i> The trials of digital data improvement continuously recording by rotational seismometer L. R. JAROSZEWICZ |
| 13.50 – 15.50 | Detection of quantum effects in glass – diamond photonic systems QUNNA Session |

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| 13.50 – 14.10 | Nanodiamonds for sensing of magnetic fields, and more... A.M. WOJCIECHOWSKI, M. MRÓZEK, M. JANI, T. KOŁODZIEJ, A. EBRAHIMI, S. SENGOTTUVEL, P. CZARNECKA, Z. ORZECZOWSKA, W. GAWLIK |
| 14.10 – 14.30 | Opto-magnetic fiber probes and magnetic field sensing based on negatively charged nitrogen-vacancy centers in nanodiamonds A. FILIPKOWSKI, M. MRÓZEK, G. STĘPNIEWSKI, T. KARPATE, M. GŁOWACKI, M. FICEK, W. GAWLIK, R. BUCZYŃSKI, A. WOJCIECHOWSKI, R. BOGDANOWICZ, M. KLIMCZAK |
| 14.30 – 14.50 | Implementation of nanodiamonds to enhance the sensing properties of fiber optic sensors M. JANIK, M. FICEK, M. SAWCZAK, M. ŚMIETANA, R. BOGDANOWICZ |
| 14.50 – 15.10 | Silicon nitride as a new mirror in fiber optic sensors S. PAWŁOWSKA |
| 15.10 – 15.30 | Boron-doped carbon nanowalls for sensing application M. FICEK, K.J. SANKARAN, P. NIEDZIAŁKOWSKI, M. PIERPAOLI, P. JAKÓBCZYK, R. BOGDANOWICZ |
| 15.30 – 15.50 | High-performance optical frequency comb sources A. M. HEIDT, P. HÄNZLI, B. SIERRO, D. SPANGENBERG, A. RAMPUR |
| 15.50 – 16.10 | <i>Plenary lecture</i> Optical beaming of electrical discharges W. KRÓLIKOWSKI |
| 16.10 – 19.00 | Photonic Structures |
| 16.10 – 16.30 | Machine learning for resolution increase of refractive index measurements M. SZCZERSKA, P. RUDNICKI, M. KOSOWSKA, A. DRABIK-KRUCZKOWSKA, M. KRUCZKOWSKI |
| 16.30 – 17.00 | <i>Coffee Break</i> |
| 17.00 – 17.20 | Electrically-driven LC PDMS microstructures for integrated optics applications K.A. RUTKOWSKA, P. SOBOTKA, SZ. BACZYŃSKI, M. GROM, A. DYBKO, K. MARCHLEWICZ, M. JUCHNIEWICZ |
| 17.20 – 17.40 | Optimizing up-conversion emission in the fluorindate glasses for biomedical applications |

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| | G. L. JIMÉNEZ, B. STARZYK, M. LESNIAK, M. KOCHANOWICZ, D. DOROSZ |
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| 17.40 – 18.00 | <p>Nanocomposite glasses and optical fibers for optical sensing applications K.CZAJKOWSKI, K. SADOWSKA, M. LEŚNIAK, D. DOROSZ, J. DOROSZ, M.KOCHANOWICZ, P. MILUSKI, J. ŻMOJDA</p> |
| 18.00 – 18.15 | <p>Investigation of the luminescent properties of nanophosphors co-doped with lanthanide ions for biological sensing K. SADOWSKA, P. AWRAMIUK, K. GRYKO, M. KALINOWSKA, J. ŻMOJDA</p> |
| 18.15 – 18.30 | <p>Polarization maintaining nanostructured single-mode optical fiber with artificial anisotropy A. ANUSZKIEWICZ, M. BOUET, D. MICHALIK, G. STEPNIIEWSKI, R. KASZTELANIC, A. FILIPKOWSKI, D. PYSZ, A. CASSEZ, M. KLIMCZAK, G. BOUWMANS, A. MUSSOT, R. BUCZYNSKI</p> |
| 18.30 – 18.45 | <p>Nanostructured few-mode fiber for mode-division-multiplexed systems R.KASZTELANIC, D. MICHALIK, A. ANUSZKIEWICZ, R. BUCZYNSKI</p> |
| 18.45 – 19.00 | <p>Light depolarization by dual-frequency nematic liquid crystals P. MARĆ, N. BENNIS, A. PAKUŁA, E. PAWLIKOWSKA, A.SPADŁO, K. GARBAT, R. WĘGŁOWSKI, L. R. JAROSZEWICZ</p> |
| 19.00 | <i>Supper</i> |
| 20.00 – 21.00 | Optoelectronic Engineering |
| 20.00 – 20.15 | <p>The SS-OCT imaging probe based on MOEMS/MEMS Mirau micro-interferometer and 2-axis electrothermal microscanner for endomicroscopic application P. STRUK, S. BARGIEL, B. MIRECKI, M. JÓŻWIK, Q. TANGUY, R. CHUTANI, N. PASSILLY, P. LUT, H. XIE, F. E. GRACIA-RAMIREZ, M. WOJTKOWSKI, C. GORECKI</p> |
| 20.15 – 20.30 | <p>Rib waveguide homogeneous sensitivity with regard to single mode propagation conditio C. TYSZKIEWICZ, A. KAŻMIERCZAK, M.A. BUTT, P. KARASIŃSKI</p> |
| 20.30 – 20.45 | <p>Measurements of the spectral interferogram for single-mode waveguide layers K. GUT</p> |

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| 20.45 – 21.00 | PPB-level NO₂ concentrations sensing by nanostructured ZnO – graft copolymer composites P. KAŁUŻYNSKI, M. PROCEK, A. STOLARCZYK, T. JAROSZ, E. MACIAK |
| 21.00 | Closing of the IOS'2022 Conference |
| 04.03.2022 Friday | |
| 8.00 | <i>Breakfast</i> |

POSTERS

1. Nonlinearity enhancement in thermally poled glasses with high alkali content
A. ANUSZKIEWICZ, A. FILIPKOWSKI, R. KASZTELANIC, D. PYSZ,
R. STĘPIEŃ, R. BUCZYNSKI
2. Compact Optical Gyroscope for Aerospace Applications
S.BILICKI, D. BRAUDA, A.LEDZIŃSKI,W. LEWOCZKO-ADAMCZYK,
S. LENZKY, S. MARX, J. NAWROCKI, P. NOGAŚ, R. URBANIAK,
H. SCHROEDER
3. Numerical analysis of the broadband interferometric sensor in the planar gradient-step index configuration
M. BŁAHUT
4. Highly birefringent large mode area fibers with artificially anisotropic silica glass core
R. BUCZYNSKI, D. MICHALIK, A. ANUSZKIEWICZ, A. FILIPKOWSKI,
G. STĘPNIEWSKI, D. PYSZ, K. HARAŚNY, I. KUJAWA, R. KASZTELANIC
5. Spectral properties of photonic crystal fibers infiltrated with ferroelectric liquid crystals doped with nanoparticles
D. BUDASZEWSKI, D.P. SINGH, T.R. WOLIŃSKI
6. Photopolymerization of AuNP-doped liquid crystals
M.S. CHYCHŁOWSKI, M. KAJKOWSKA, P. LESIAK, T.R. WOLIŃSKI
7. Statistical analysis of Raman spectra of reduced graphene oxide obtained using various graphite precursor and various oxidation method
Ł. DREWNIĄK, S. DREWNIĄK, M. SAJDAK, R. MUZYKA
8. The influence of the graphite precursor and the oxidation method on the number of graphene layers in reduced graphene oxide- statistical approach
S. DREWNIĄK, Ł. DREWNIĄK, M. SAJDAK, R. MUZYKA
9. Simulations of micromachined side-hole optical fiber for refractive index sensing based on optical losses
M. DUDEK, K. KÖLLÖ, P. MARĆ, L. R. JAROSZEWICZ
10. Laser stabilization using acousto-optic modulator for ion cooling purpose in ion trap based quantum computer – basic setup examination
SZ. FIDERKIEWICZ, M. ŻYCZKOWSKI
11. Variability of fluorescence of nitrogen-vacancy centers in nanodiamonds
M. J. GŁOWACKI, M. FICEK, M. SAWCZAK, R. BOGDANOWICZ

12. Numerical analysis of silicon nitride planar Bragg gratings
M. GOLAS, M. LELIT, M. SŁOWIKOWSKI, K. PAVŁOV, B. STONIO,
M. FILIPIAK, M. JUCHNIEWICZ, P. WIŚNIEWSKI, R.B. BECK
13. Fabrication of non-linear chirped fiber Bragg gratings
A. GOLESTANI
14. Luminescent temperature sensor based on glass and glass-ceramic optical fiber
P. GOLONKO, J. ŻMOJDA
15. High-efficiency transmission gratings obtained using azobenzene poly(etherimide) and holographic method
A. HERNIK, D. SZMIGIEL, J. KONIECZKOWSKA, E. SCHAB-BALCERZAK,
A. KOZANECKA-SZMIGIEL
16. Magnetically-sensitive nanodiamond thin-films on glass fibers
M. JANI, P. CZARNECKA, S. SENGOTTUVEL, M. MRÓZEK, P. DĄBCZYŃSKI,
A. FILIPKOWSKI, I. KUJAWA, D. PYSZ, W. GAWLIK, A. M. WOJCIECHOWSKI
17. PPB-level NO₂ concentrations sensing by nanostructured ZnO – graft copolymer composites
P. KALUZYNSKI, M. PROCEK, A. STOLARCZYK, T. JAROSZ
18. Broadband eye-safe emission in germanate double-core optical fiber
M. KOCHANOWICZ, K. SADOWSKA, J. ŻMOJDA, P. MILUSKI,
A. BARANOWSKA, T. RAGIN, M. KUWIK, W. A. PISARSKI, J. PISARSKA,
M. LEŚNIAK, J. DOROSZ, D. DOROSZ
19. A novel non-pathogenic method for testing virus filtration ability of protective masks using the fluorescence phenomenon
D. KOGUT, P. KAŁUŻYNSKI, M. SKONIECZNA, I. ŚLĘZAK-PROCHAZKA,
A. KAZEK-KĘSIK
20. Thermal properties of polymers containing QD CdSe produced in high and low boiling organic solvents
A. KICZOR, P. MERGO
21. Analysis of planar waveguides with a high index overlayer and nonlinear cladding
J. M. KUBICA
22. Growth of B/N co-doped CVD grown homoepitaxial diamond films: optical and electrical properties
S. KUNUKU, M. FICEK, A. WIELOSZYNSKA, M. TAMULEWICZ-
SZWAJKOWSKA, K. GAJEWSKI, M. SAWCZAK, A. LEWKOWICZ, J. RYL,
T. GOTSZALK, R. BOGDANOWICZ

23. A historical perspective of the fibre-optic seismographs and their field application: the past, present and exciting future
A.T. KURZYCH, L.R. JAROSZEWICZ, M. DUDEK, P. MARĆ, J.K. KOWALSKI
24. 3D-printed mechanical transmission element with a Fiber Bragg Grating sensor in a replaceable measuring head
P. LESIAK, K. POGORZELEC, A. BOCHENEK, P. SOBOTKA, K. BEDNARSKA, A. ANUSZKIEWICZ, T. OSUCH, M. SIENKIEWICZ, P. MAREK, T. WOLIŃSKI
25. Microsphere-based fiber-optic temperature sensor for galvanic electric cells
P. LISTEWNIK
26. Type – II superlattice interband quantum cascade detectors - future higher operating temperature sensors
P. MARTYNIUK
27. Thermo-optical properties of hybrid structure based on tapered optical fiber and mixture of alkanes with nanoparticles of ZnS:Mn
J. E. MOŚ, K. A. STASIEWICZ, L. R. JAROSZEWICZ
28. Monocrystalline free-standing blue phase crystals for photonic applications
E. OTÓN-MARTINEZ, W. PIECEK, P. MORAWIAK, M. MUSZYŃSKI, J. SZCZYTKO
29. Long-range swept-source optical coherence system for in-vivo assessment of intraocular scattering
S. PANEZAI, A. GUPTA, A. JIMENEZ-VILLAR, E. MAĆZYŃSKA-WALKOWIAK, G. GONDEK, D. RUMIŃSKI, I. GRULKOWSKI
30. Monitoring the polarization state in a phase-modulated QKD system to protect against eavesdropping.
E. PAWLIKOWSKA, M. ŻYCKOWSKI
31. Sensor probes for distributed measurement of temperature profile in soils
A. PAŹDZIOR, J. KOPEĆ, P. MERGO
32. Ultrafast all-polarization-maintaining Yb-doped fiber laser oscillator working at negative net cavity dispersion
M. PIELACH, A. JAMROZIK, J. SZCZEPANEK, K. KRUPA, Y. STEPANENKO
33. Evaluation of eye accommodation distance in a two-track optical system using a vision-based method
M. PISZCZEK, A. KUCHARCZYK, K. SUCHECKI, M. MACIEJEWSKI, M. POMIANEK, L. JODŁOWSKI, P. KRUKOWSKI

34. Implementation of basic refractive defects into the optoelectronic eye
M. PISZCZEK, A. KUCHARCZYK, K. SUCHECKI, M. MACIEJEWSKI,
M. POMIANEK, L. JODŁOWSKI, P. KRUKOWSKI
35. Field-of-view correction in a VR HMD display with varifocal optics
M. PISZCZEK, K. SUCHECKI, A. KUCHARCZYK, M. POMIANEK,
M. MACIEJEWSKI, L. JODŁOWSKI, P. KRUKOWSKI
36. Room temperature hydrogen sensor based on electropolymerized polycarbazole layers
on platinum electrodes
M. PROCEK, K. GŁOSZ, A. STOLARCZYK, T. JAROSZ
37. The simulation insight into properties of modified nanodiamonds surfaces
K. PYRCHLA
38. Wide-field vector magnetometry using nitrogen-vacancy centers in arbitrarily oriented
diamond crystals
S. SENGOTTUVEL, M. MRÓZEK, M. SAWCZAK, M. GŁOWACKI, M. FICEK,
W. GAWLIK, A. WOJCIECHOWSKI
39. Er-doped fluorindate glasses for sensing applications
B. STARZYK, G. L. JIMÉNEZ, M. LEŚNIAK, M. KOCHANOWICZ, M. KUWIK,
J. ŻMOJDA, P. MILUSKI, A. BARANOWSKA, J. DOROSZ, W. PISARSKI,
J. PISARSKA, D. DOROSZ
40. Measuring the refractive index of egg white and yolk according to temperature:
a preliminary study
P. SOKOŁOWSKI
41. SPR effect controlled by electric field in the optical fiber device with low refractive
index nematic liquid crystal
K. A. STASIEWICZ, J. KOREC, K. GARBAT, L. R. JAROSZEWICZ
42. Reduction of nonlinearities by nanodiamond incorporation into glass
G. STĘPNIIEWSKI, M. KLIMCZAK, T. KARPATE, M. FICEK, M. GŁOWACKI,
A. HEIDT, R. BOGDANOWICZ, R. BUCZYŃSKI
43. Integrated photonics structure for sensor applications
P. STRUK
44. ZnO thin films prepared by sol-gel method and dip-coating technique - optical
properties
K. WOJTASIK, M. ZIĘBA, C. TYSZKIEWICZ, P. KARASIŃSKI
45. Time-resolved spectroscopy of nitrogen implanted GaAs
G. WRZESIŃSKI, K. SWITKOWSKI

46. Optical properties of erbium-doped TiO₂ films
M.ZIĘBA, K. WOJTASIK, C.TYSZKIEWICZ, P.KARASIŃSKI
47. Quantum Hacking in the Age of Quantum Cryptography – practical issues
M.ŻYCZKOWSKI, P. MARKOWSKI
48. Optoelectronic system for detecting short-circuits in low voltage networks
K. BARCZAK, J. JURASZEK