INSTITUTE OF MICROELECTRONICS AND OPTOELECTRONICS

IMiO

ANNUAL REPORT

2024

Edited by Agnieszka Mossakowska-Wyszyńska

Institute Offices:

Research Affairs
Building of Radio Engineering – GR room 239
ul. Koszykowa 75, 00-662 Warsaw, Poland
phone: +48 22 234 7777

Teaching Affairs
Building of Electronics – GE room 159
ul. Nowowiejska 15/19, 00-665 Warsaw, Poland
phone: +48 22 234 3652, phone: +48 22 234 5349

Internet Information
http://www.imio.pw.edu.pl

From the Director

Dear Colleagues!

This Annual Report provides a comprehensive overview of the Institute of Microelectronics and Optoelectronics (IMiO) activities for the year 2024, with a particular focus on its research initiatives and educational potential. As an integral part of the Faculty of Electronics and Information Technology – the largest faculty at the Warsaw University of Technology – the Institute plays a pivotal role within the academic community. Among the six institutes that make up the Faculty, IMiO stands out for its specialized emphasis on cutting-edge technologies in the fields of microelectronics, electronics, and photonics, driving innovation and advancing research in these critical areas.

It is important to recognize that the Institute has deep historical roots. Although formally founded in 1970, it evolved from the Chair of Radio Engineering, established in 1929 by Professor Janusz Groszkowski. The Institute's connection to the Faculty of Electronics and Information Technology dates back to the legacy of Prof. Groszkowski, who remained with IMiO until the end of his career. Moreover, the central part of the Institute is situated in the Electrical Engineering Building, which housed the Faculty of Communication (now the Faculty of Electronics and Information Technology) starting in 1951. Today, the Electrical Engineering Building hosts a range of specialized laboratories, including those focused on semiconductor structures and device processing, hybrid technologies and assembly techniques, fibre optics and sensor devices, integrated photonics, laser optoelectronics, as well as comprehensive characterization of electronic and photonic materials. These high-tech laboratories were developed through recent investments under the Innovative Economy Operational Program, and have reached full operational capacity. They are actively used for cutting-edge research and to provide advanced research services, supporting scientific progress and industry collaborations.

The Institute is engaged in the research and teaching process related to the domain of technologies underpinning electronics and advanced information systems. Its core areas of expertise encompass, but are not limited to Very Large Scale Integration (VLSI) circuits, the design and development of Application-Specific Integrated Circuits (ASICs) and electronic embedded systems, as well as microsystems engineering. The scope extends to microelectronic and nanoelectronic semiconductor devices, leveraging materials such as silicon and wide-bandgap semiconductors. Additional focus areas include ultrathin film technologies, hybrid electronic systems (e.g., microwave and optoelectronic circuits), and photonic platforms, encompassing both the design and fabrication of Photonic Integrated Circuits (PICs). The Institute specializes in sensor technologies, lasers, active photonic materials, fibre optic systems, and integrated photonics. Nanophotonics, metamaterials, plasmonics, and topological photonics are integral to its research portfolio. Furthermore, photovoltaics and advanced image processing methodologies are essential to its activities.

I invite you all to explore the Institute’s teaching and research activities conducted in 2024, as summarized in this report. I also would like to express my gratitude to all my colleagues at the Institute for their dedicated efforts in the creative development of the Institute and for their collaborative spirit.

Professor Robert Mroczyński

CONTENTS:

1. GENERAL INFORMATION

1.1. Organisation of the Institute and Areas of its Activities

The Institute of Microelectronics and Optoelectronics is a part of the Faculty of Electronics and Information Technology - the largest among all units of Warsaw University of Technology. At present, the Institute consists of four divisions with primary competence covering the significant areas of modern electronics and photonics. These are:

- Microelectronics and Nanoelectronics Devices Division;
- VLSI Engineering and Design Automation Division;
- Microsystem and Electronic Material Technology Division;
- Optoelectronics Division.

During almost fifty years of research, the Institute has built and developed its competence in:

- modelling of physical effects in modern semiconductor devices;
- advanced technologies of silicon-based microelectronics and photonics,
- non-standard dielectric layer deposition techniques;
- characterization of electronic materials and devices;
- designing and development of application specific VLSI circuits;
- design and technology of thick-film hybrid circuits, fabrication of thick-film microsystems;
- modelling and design of sensors and optical-waveguide microsystems;
- laser physics and laser technique;
- optical spectroscopy of solids;
- fibre-optic photonics, including fibre-optic communication, sensing as well as design and development of fibre lasers and amplifiers;
- design and development of photonic integrated circuits (PICs);
- 2-D and 3-D image processing systems, including monitoring systems;
- photovoltaics;
- plasmonics;
- microwaves, microwave photonics, and microwave measurement techniques;
- new materials for high-temperature, high-power, and high-frequency electronics;
- new materials and structures for modern photonics.

The research activity is supported by a number of projects financed by the National Science Centre and National Centre for Research and Development, projects funded within EU Framework Programmes, as well as industry-funded.

The results are systematically published in a number of papers submitted to prestigious international scientific journals and presented at national and international conferences.

In parallel to scientific activity also the didactic offer of the Institute has been recently expanded with completely new specializations: “Electronics and Photonics” (for first-degree education) and “Integrated Electronics and Photonics Systems” (for second-degree education), which have been developed within the framework of the project "NERW PW Science-Education-Development-Cooperation" financed from Axis III Higher Education for the Economy and Development of the Operational Programme Science Education Development 2014-2020.

1.2. Board of Directors

Director of the Institute
Robert Mroczyński, Ph.D., D.Sc. Professor
GR, room 239,
phone: +48 222347777
e-mail: robert.mroczynski@pw.edu.pl

Deputy-Director for Research Affairs
Anna Tyszka-Zawadzka, Ph.D. Assistant Professor
GR, room 240,
phone: +48 222346067
e-mail: anna.zawadzka1@pw.edu.pl

Deputy-Director for Teaching Affairs
Marek Niewiński, Ph.D. Assistant Professor
GE, room 159,
phone: +48 222345349
e-mail: marek.niewinski@pw.edu.pl

1.3. Microelectronics and Nanoelectronics Devices Division

The research and teaching process carried out in the Microelectronic and Nanoelectronic Devices Division falls into four main areas: technology, diagnostics, and modelling of semiconductor structures and devices, as well as applications of microcontrollers or embedded systems.

Head of the Division

Lidia Łukasiak, Ph.D., D.Sc. Didactic Professor
GR, room 232Bb
phone: +48 222346065
e-mail: robert.mroczynski@pw.edu.pl

Senior academic staff

Romuald B. Beck, Ph.D., D.Sc.	Tenured Professor
Bogdan Majkusiak, Ph.D., D.Sc.	Tenured Professor
Robert Mroczyński, Ph.D., D.Sc.	Professor
Jarosław Judek, Ph.D., D.Sc.	Research Assistant Professor
Jakub Jasiński, Ph.D.	Assistant Professor
Islam Karimul, Ph.D.	Research Assistant Professor
Andrzej Mazurak, Ph.D.	Assistant Professor
Sultana Rezwana, Ph.D.	Research Assistant Professor
Sławomir Szostak, Ph.D.	Didactic Assistant Professor
Jakub Walczak, Ph.D.	Didactic Assistant Professor
Agnieszka Zaręba, Ph.D.	Didactic Assistant Professor

Junior academic staff

Kamil Ber, M.Sc.	Ph.D. Student
Karol Bolek, M.Sc.	Assistant
Adam Ignaciuk, M.Sc.	Ph.D. Student
Mateusz Nieborek, M. Sc.	Ph.D. Student, Assistant
Piotr Różański, M. Sc.	Ph.D. Student
Yevgen Syryanyy, M.Sc.	Ph.D. Student

Technical and administrative staff

Witold Ciemiewski,
Krzysztof Krogulski

To name a few examples of its research topics:

- Fabrication of novel semiconductor, dielectric and conductive materials, including amorphous and transparent semiconductors and oxides, as well as high-k dielectric layers employing magnetron sputtering, ALD, or plasma techniques;
- Electrical (bulk properties, interface properties, contact properties, DC and high-frequency range, pulse measurements, charge-pumping) and structural characterization (surface properties, cross-section, chemical composition, and topography) of fabricated materials and periodic structures;
- Optimization of electrical and optical properties of fabricated materials using Design-of-Experiments (DoE) method to obtain tailored properties (transparency, reflection, etc.) of obtained layers that can be used in novel nanophotonic structures which possess tailorable and dynamically controllable spectral and angular optical properties;
- Integration and studies of two-dimensional (2D) and nanocrystalline materials in novel nanoelectronic and photonic devices;

- Design, modeling, and fabrication of nanophotonic periodic and metamaterial structures in thin- and ultra-thin regime (primarily planar hyperbolic metamaterials) based on novel semiconductor, dielectric, and conductive materials;
- Design and assembly of dedicated measurement tools, power supplies, and embedded systems with the integrated optoelectronic and photonic devices; SMD assembly and reliability tests;
- Design autonomous nodes of wireless sensor networks such as smart mesh, smart dust, and IoT, using energy-harvesting technology;
- Hardware solutions of the problems with wireless short-range and long-range communication based on technologies and standards (NFC, HDX, FDX, EPC, Bluetooth, SubGHz, WiFi, GSM, ZigBee, and others in the 802.15.4 standard);
- Design, assembly, and programming customized, precise laboratory measurement devices;
- Wear-out and degradation processes in MOS/MIS structures and devices (breakdown of dielectrics layers, hot carriers effects, radiation damage effects);
- Advanced design and modeling of semiconductor and photonic structures using in-house software development capabilities based on well-established models of electromagnetic field interaction with matter;
- Transport mechanisms and quantum effects in MOS/MIS structures (transistors, memories, resonance, and tunnel diodes) with ultra-thin dielectric materials.

1.4. Microsystem and Electronic Material Technology Division

The research activity of the Division focuses on optoelectronics (e.g., optical and electrochemical sensing and biosensing systems), and hybrid technologies and the development of wide bandgap semiconductor technology in the design, modelling and manufacturing of microelectronic devices operating at high temperatures, including power semiconductor devices. Fundamental and applied research are carried out. Research groups are organised for defined tasks.

Head of the Division

Mariusz Sochacki, Ph.D., D.Sc. Research Professor
GR, room 423c
phone: +48 222347932
e-mail: mariusz.sochacki@pw.edu.pl

Senior academic staff

Jerzy Krupka, Ph.D., D.Sc.	Research Tenured Professor
Jan Szmidt, Ph.D., D.Sc.	Research Tenured Professor
Mateusz Śmietana, Ph.D., D.Sc.	Research Tenured Professor
Michał Borecki, Ph.D., D.Sc.	Professor
Ryszard Kisiel, Ph.D., D.Sc.	Professor
Marcin Koba, Ph.D, D.Sc.	Assistant Professor
Piotr Firek, Ph.D.	Assistant Professor
Monika Janik, Ph.D.	Assistant Professor
Jerzy Kalenik, Ph.D.	Assistant Professor
Nay Win Khun, Ph.D.	Research Assistant Professor
Krystian Król, Ph.D.	Assistant Professor
Petr Sezemský, Ph.D.	Research Assistant Professor
Aleksander Werbowy, Ph.D.	Didactic Assistant Professor

Junior academic staff

Daniel Al-Burgan, M.Sc.	Ph.D. Student
Konrad Bruliński, M.Sc.	Assistant
Tomasz Gabler, M.Sc.	Ph.D. Student, Research Assistant
Mateusz Gęca, M.Sc.	Ph.D. Student
Taofeek Hammed, M.Sc.	Ph.D. Student
Maciej Kamiński, Ph.D.	Research Assistant
Norbert Kwietniewski, M.Sc.	Research Assistant
Zan Li, M.Sc.	Ph.D. Student
Agnieszka Martychowiec, M.Sc.	Ph.D. Student, Research Assistant
Emil Pituła, M.Sc.	Ph.D. Student, Research Assistant
Mehdi Raji, M.Sc.	Ph.D. Student
Oskar Sadowski, M.Sc.	Ph.D. Student
Jakub Sikora, M.Sc.	Ph.D. Student
Jarosław Tarenko, M.Sc.	Ph.D. Student
Shuchao Wang, M.Sc.	Ph.D. Student

Science, technical and administrative staff

Bartłomiej Stonio, M.Sc.

The main research areas are as follows:

- design, modelling, fabrication and characterization visible-blind UV photodetectors and radiation detectors based on wide bandgap semiconductors and heterostructures;
- designing, modelling and fabrication of microelectronic and optoelectronic devices using transparent dielectric and conductive oxides;
- research and development of 2-D materials and their implementation in silicon technology;
- research and development of metal/carbon-based nanocomposites and their implementation in open gate field-effect transistors for biosensing, gas sensing or chemical sensing;
- the design, modelling, fabrication and characterization of power devices based on silicon carbide (SiC) technology including high voltage PiN diodes;
- fabrication and characterization of high-k dielectric layers;
- the development of electrical characterization methods for the determination of energy distribution of traps in MOS and junction devices;
- fabrication and investigation of the following optoelectronic devices: integrated passive and active light wave guiding structures (modulators, bistable switches etc.) and optical fibre sensors;
- chemical and physical vapour deposited thin film technology and its application in optical fibre and waveguide sensing structures; sensor device designs and applications of Internet of Things (IoT);
- investigation of the electronic structure, stability and optical properties of amorphous silicon and its devices (thin film transistors, solar cells, etc.);
- design, fabrication and characterization of multi-junction photovoltaic cells with high energy efficiency;
- design and monitoring of photovoltaic systems, strategy for development of photovoltaics;
- new Surface Mount Technologies (SMT) on rigid, semi-rigid and fully flexible printed circuit boards (PCBs);
- application of thin and thick film technology in hybrid devices and thick film sensors fabrication;
- electronic packaging technology including power devices;
- development of state-of-the-art power supplies and advanced power electronics for renewable energy conversion and storage, e-mobility, electric drives and vehicles, smart buildings, smart grids, smart city and military applications based on silicon carbide and gallium nitride power devices.

1.5. Optoelectronics Division

The main activity of the Optoelectronics Division is focused on research and education in all major areas of modern optoelectronics. These cover, in particular, laser physics and laser technique, laser spectroscopy, fiber-optic communication and sensing, microwave photonics, 2-D and 3-D image processing, photovoltaics, as well as integrated photonics (and specifically photonic integrated circuits, PICs). In all these fields the Optoelectronic Division offers top-level research expertise of the staff complemented with state-of-the-art research laboratories.

Head of the Division

Ryszard Piramidowicz, Ph.D., D.Sc Professor
GR, room 126
phone/fax: +48222341466
e-mail:ryszard.piramidowicz@pw.edu.pl

Senior academic staff

Michał Malinowski, Ph.D., D.Sc.	Tenured Professor
Paweł Szczepański, Ph.D., D.Sc.	Tenured Professor
Marcin Kaczkan, Ph.D. D.Sc.	Professor
Muhammad Ali Butt, Ph.D.	Research Assistant Professor
Bartosz Fetliński, Ph.D.	Research Assistant Professor
Piotr Garbat, Ph.D.	Didactic Assistant Professor
Jacek Gościniak, Ph.D.	Research Assistant Professor
Bartosz Janaszek, Ph.D.	Research Assistant Professor
Anna Jusza, Ph.D.	Assistant Professor
Andrzej Kaźmierczak, Ph.D.	Research Assistant Professor
Krzysztof Madziar, Ph.D.	Didactic Assistant Professor
Agnieszka Mossakowska-Wyszyńska, Ph.D.	Assistant Professor
Stanisław Stopiński, Ph.D.	Assistant Professor
Marek Sutkowski, Ph.D.	Didactic Assistant Professor
Agnieszka Szymańska, Ph.D.	Didactic Assistant Professor
Anna Tyszka-Zawadzka, Ph.D.	Assistant Professor
Piotr Warda, Ph.D.	Didactic Assistant Professor
Piotr Witoński, Ph.D.	Assistant Professor

Junior academic staff

Krzysztof Anders, M.Sc.	Assistant
Aleksandra Bieniek-Kaczorek, M.Sc.	Ph.D. Student, Research Assistant
Oskar Bogucki, M.Sc.	Ph.D. Student
Paweł Bortnowski, M.Sc.	Research Assistant
Krzysztof Czuba, M.Sc.	Ph.D. Student
Aleksandra Dzieniszewska, M.Sc.	Ph.D. Student
Maciej Fokt, M.Sc.	Ph.D. Student
Marcin Kieliszczyk, M.Sc.	Research Assistant
Łukasz Kozłowski, M.Sc.	Ph.D. Student, Research Assistant
Marcin Lelit, M.Sc.	Ph.D. Student, Science and Technical Specialist
Filip Łabaj, M.Sc.	Ph.D. Student
Aleksandra Paśnikowska, M.Sc.	Research Assistant
Andrzej Połatyński, M.Sc.	Ph.D. Student

The academic staff of the Division provides lectures in photonics fundamentals, laser physics and laser technique, laser spectroscopy, integrated optoelectronics, digital image processing, fiber-optic and microwave photonics, and photovoltaics not only to the students of the Faculty of Electronics and Information Technology but also supporting Faculty of Physics and Faculty of Mechatronics. The lectures are in Polish and/or English and are accompanied by top-level laboratory classes.

The main research topics of the Optoelectronic Division cover:

- design and development of photonic integrated circuits (PICs) for telecom, datacom and sensing;
- design and development of solid-state lasers and amplifiers (especially fiber lasers and amplifiers);
- new materials for optoelectronics, which includes spectroscopic investigations of novel rare-earth doped crystals and glasses emitting in UV-VIS-NIR-MIR spectral range, nanocomposites, plasmonic structures, metamaterials, etc.;
- theoretical investigations of laser action in planar, fiber, and hollow waveguide lasers; analysis of light generation in DFB (distributed feedback) structures, metamaterials, plasmonic and photonic crystals structures; investigation of the statistical properties of the light generated in various laser structures;
- 2-D and 3-D multispectral image analysis and processing;
- terahertz imaging;
- microwave technique and microwave photonics - measurement techniques, modeling and computer-aided design (CAD) of microwave devices and circuits, optical-microwave frequency conversion processes, optoelectronic and microwave devices for data transmission networks;
- photovoltaic systems and applications.

1.6. VLSI Engineering and Design Automation Division

The research carried out in the division falls into several main areas: development of IC design methodologies and tools, design of digital and analogue integrated circuits for nonstandard demanding applications, investigations of new devices and circuits for future generations of microelectronic systems.

Head of the Division

Witold Pleskacz, Ph.D., D.Sc. Professor
GE, room 370
phone: +48 222345364
e-mail: witold.pleskacz@pw.edu.pl

Senior academic staff

Andrzej Pfitzner, Ph.D., D.Sc.	Didactic Professor
Tomasz Borejko, Ph.D.	Assistant Professor
Igor Butryn, Ph.D.	Research Assistant Professor
Zbigniew Jaworski, Ph.D.	Assistant Professor
Dominik Kasprowicz, Ph.D.	Assistant Professor
Arkadiusz Łuczyk, Ph.D.	Assistant Professor
Piotr Mierzwiński, Ph.D.	Assistant Professor
Marek Niewiński, Ph.D.	Didactic Assistant Professor
Krzysztof Siwiec, Ph.D.	Assistant Professor
Andrzej Wielgus, Ph.D.	Assistant Professor
Adam Wojtasik, Ph.D.	Didactic Assistant Professor

Junior academic staff

Adam Borkowski, M.Sc.	Ph.D. Student
Bartosz Dec, M.Sc.	Assistant
Marika Grochowska, M.Sc.	Ph.D. Student
Paweł Pieńczuk, M.Sc.	Ph.D. Student
Andrzej Wojciechowski M.Sc.	Ph.D. Student

Science, technical and administrative staff

Stanisław Jeszka, M.Sc.
Marcin Ludwiniak, M.Sc.
Kamil Stępniewski, M.Sc.

Current research projects in the Division include:

- methodologies of integrated circuit design for manufacturability: application of statistical process and device simulation in IC design, investigations of spatial on-chip correlation of random process disturbances, analysis of layout sensitivity to spot defects;
- development of CAD tools for integrated circuit design and verification, with special emphasis on analogue full custom ASICs design;
- design of digital, analogue and mixed signal VLSI circuits for special applications such as microprocessors, Global Navigation Satellite Systems, innovative AD converters, data processing in physical experiments and medical equipment, RF front ends for wireless data transmission etc.;
- modelling and control of leakage currents in nanometre digital circuits;
- investigations and development of new VESTIC microelectronics technology.

1.7. Statistical Data

SPECIFICATION	2023	2024	DIFFERENCE
Academic staff	**86**	**96**	**+10**
Tenured professors	8	7	-1
Professors	8	9	+1
Assistant professors	35	41	+6
Assistants	8	9	+1
Ph.D. students	27	30	+3
Science, Technical and Administrative staff	**18**	**16**	**-2**
Teaching activities	**79**	**91**	**+12**
Basic courses	38	44	+6
Advanced courses	22	28	+6
Special courses	19	19	0
Degrees awarded	**33**	**43**	**+10**
Ph.D. degrees	3	2	-1
M.Sc. degrees	3	8	+5
B.Sc. degrees	27	33	+6
Research projects	**27**	**27**	**0**
Granted by the University	17	20	+3
Granted by State Institutions	10	7	-3
Publications	**163**	**117**	**-46**
Sci.-tech. papers in journals	64	65	+1
Sci.-tech. papers in conference proceedings	98	49	-49
Sci.-tech. books	1	3	+2
Patents	**9**	**15**	**+6**
Reports	**45**	**36**	**-9**
Conferences	**29**	**17**	**-12**
Awards	**12**	**17**	**+5**

2. STAFF

2.1. Senior Academic Staff

Name	Contact Details
Romuald B. Beck, M.Sc. (‘76), Ph.D. (‘82), D.Sc. (‘96), Microelectronics, Electronics, Tenured Professor, full time, Head of Microelectronics and Nanoelectronics Devices Division (’04-‘21), Leader of the Technology, Diagnostics and Modelling Group (’85-), Vice President of the Microelectronics Section of the Electronics and Telecommunication Committee of the Polish Academy of Sciences (’93-’08), Member od Programme Committee of: Diagnostics & Yield Conference (’88-), Member of the Faculty Council (’96-), Co-chairman (’03-), Chairman (‘06); Member of Programme Committee of ELTE (‘84, ‘04, ’07, ‘13), Member (’05-‘13) and Vice-Chair of Technical Programme Committee ESSDERC'2019, Senior Member of IEEE (’97-’06), Head of CEZAMAT Project Office (’08-‘12), Vice-President for Scientific Affairs of CEZAMAT PW Ltd (’12-), Vice-Director for Scientific Affairs of CEZAMAT ('16-), WUT Rector’s Collective Award for Scientific Achievements (’06, ’08,’12, ‘19), President’s of the Republic of Poland Gold Medal for Long-Term Service (’23).	room # 336 GR phone: +48 222346065 +48 222347534 e-mail: romuald.beck@pw.edu.pl
Michał Borecki, M.Sc. (‘91), Ph.D. (‘96), D.Sc. (‘11), Electronics, Optoelectronics, Sensor Devices, Professor, full time, Microsystem and Electronic Material Technology Division, Member of Scientific Committee of Sensordevices Conference (’12-), Member of Optoelectronics Section of the Electronics and Telecommunication Committee of the Polish Academy of Sciences (’99-), Member of Association of Polish Electrical Engineers SEP (’99-), Member of Photonics Society of Poland (’08-), Member of the Faculty Council (’11-).	room # 537 GR phone: +48 222347749 e-mail: michal.borecki@pw.edu.pl
Tomasz Borejko M.Sc. (’03) with distinction, Ph.D. (’13) with distinction, Microelectronics and VLSI Design, Assistant Professor, half time, VLSI Engineering and Design Automation Division, Member of the "DDECS" Programme Committee (IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems) (’12-).	room # 365 GE phone: +48 222345364 e-mail: tomasz.borejko@pw.edu.pl
Igor Butryn M.Sc. (‘15), Microelectronics, Electronics, Ph.D. (‘23), Automation, Electronics, Electrical Engineering and Space Technologies, Research Assistant Professor, quarter time, VLSI Engineering and Design Automation Division.	room # 371 GE phone: +48 222347207 e-mail: igor.butryn@pw.edu.pl
Muhammad Ali Butt, M.Sc. (‘10), Ph.D. (‘15) at Universitat Rovira and Virgili, Spain, Research Assistant Professor, full time, Optoelectronics Division, Visiting scholar at Optoelectronics Research Centre (ORC) University of Southampton U.K. (‘13), Research Assistant Professor at Nicolaus Copernicus University Poland (‘18-‘19), Senior Scientist at Samara National Research University Russia (‘15-‘20), WUT Rector’s Collective Award for Scientific Achievements (’22), Visiting scholar at Universitat Politecnica de Valencia, Spain ('24), IDUB project for publishing top-tier review paper ('24), Guest Editor of several scientific journals ('22-'25).	room # 124 GR phone: +48 222347777 e-mail: ali.butt@pw.edu.pl
Bartosz Fetliński, M.Sc. (‘09), Ph.D. (‘19), Research Assistant Professor, full time, Optoelectronics Division, WUT Rector’s Collective Award for Scientific Achievements (’17).	room # 122 GR phone: +48 222347772 e-mail: bartosz.fetlinski@pw.edu.pl
Piotr Firek, M.Sc. (‘04), Ph.D. (‘10), Microelectronics, Electron Technology, Thin Films, Sensors, Assistant Professor, full time, Microsystem and Electronic Material Technology Division, WUT Rector’s Collective Award for Scientific Achievements (‘08,’09,’11), WUT Rector’s Individual Award for Scientific Achievements in (’11), Conference Diagnostics & Yield Award with distinction (’09), VII Science Conference ELTE Award with distinction of (’10), Member of IMAPS Poland Chapter (’11-) and PTTS - Polish Society of Sensor Technology ('12-), Associate Dean for Academic Affairs of the Faculty of Electronics and Information Technology WUT (’20-), WUT Rector’s Collective Award for Didactic Achievements in the 2019/2020 Academic Year (1st stage) (‘21), WUT Rector’s Collective Award for Organizing Achievements (‘22).	room # 109 GE, # 423c GR phone: +48 222347935 +48 222347932 email: piotr.firek@pw.edu.pl prodziekan.nauczanie@elka.pw.edu.pl

Piotr Garbat, M.Sc.(‘00), Ph.D. (‘05), Image and Video Processing, Techniques, Computer Vision, 3D Data Processing in Multimedia Applications, Didactic Assistant Professor, full time, Optoelectronics Division, Member of SPIE (‘01-), Member of Polish Liquid Crystal Society (‘09-), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’19).	room # 150 GE phone: +48 222347780 e-mail: piotr.garbat@pw.edu.pl
Jacek Gościniak, M.Sc. (’02), Ph.D. from University of Southern Denmark (’12), Specialist in the field of modeling, design and characterization of plasmonic and nanophotonic components for optical communication systems and data storage, neuromorphic photonics, sensors, Research Assistant Professor, full time, Optoelectronics Division, Application Lab Engineer at Spectra-Physics, Newport Corp., USA (’04-‘05), Research Fellow at Macquarie University, Australia (’08), Research Assistant at University of Southern Denmark, Denmark (‘12), Postdoctoral Researcher at Singapore University of Technology and Design, Singapore (’12-‘13), Marie-Curie Research Fellow (EU funded) at Tyndall National Institute, Ireland (’14-‘16), Research Associate at New York University Abu Dhabi, UAE (’17-‘19), Senior Researcher at Ensemble3 Sp z o. o. (’22-‘24).	room # 124 GR phone: +48 222347777 email: jacek.gosciniak@pw.edu.pl
Bartosz Janaszek, M.Sc. (‘16), Ph.D. (’22) with honors, Specialization and research interests: plasmonics, photonics, metamaterials, applications of neural networks, numerical simulation, Research Assistant Professor, full time, Optoelectronics Division, First prize in the XXV National Adam Smoliński Competition (‘16), Outstanding Poster Award at Conference ELTE (‘19), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’19 and ‘22), Best Oral Presentation on ELTE Conference 2023, WUT'S Rector Individual 3rd degree award for scientific achievements (’24), vice-chair of Optoelectronics Technical Group of OPTICA (’24-), WUT Rector’s Collective Award for Organizational Achievements (1st stage) (’24).	room # 120 GR phone: +48 222345982 email: bartosz.janaszek@pw.edu.pl
Monika Janik, B.Eng. (‘14), M.Sc. (‘15) in Biotechnology from the Wroclaw University of Science and Technology, Poland. Ph.D. (‘19) with distinctions in Science and Information Technology (specialization: photonics) from Photonics Research Center, University du Quebec en Outaouais, Canada as a part of the Industrial Research Chair project. Optoelectronics: optical fiber sensors and biosensors, optical resonance devices, micro-interferometers, fs laser micromachining. Biomedical sensing technologies designing, sensors’ surface modifications. Assistant Professor, half time, Microsystem and Electronic Material Technology Division. Award with a research project funded by National Science Center, Poland, under the “MINIATURA” program (’19), Laureate of the START 2021 Program of the FNP Foundation for Polish Science, WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’21, ‘23), Winner of the "Best of the best WUT" competition (’23), WUT'S Rector Individual 1st degree award for scientific achievements (’23).	room # 423b GR phone: +48 222347779 e-mail: monika.janik@pw.edu.pl
Jakub Jasiński, M.Sc. (‘06), (‘15) with distinction, Microelectronics, Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division, WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’15), WUT Rector’s Individual Award for Scientific Achievements (3rd stage) (‘16), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (‘19), WUT Rector’s Collective Award for Organizing Achievements (‘22), WUT'S Rector Collective 2nd degree award for scientific achievements (’23).	room # 272 GE phone: +48 222347907 email: jakub.jasinski@pw.edu.pl
Zbigniew Jaworski, M.Sc. (‘90), Ph.D. (‘97), Microelectronics, Assistant Professor, full time, VLSI Engineering and Design Automation Division, Minister’s of Education and Science Team Prize (’06), Medal of National Education Commission (’19), Member of the Faculty Council (’20-).	room # 354 GE phone: +48 222347207 e-mail: zbigniew.jaworski@pw.edu.pl
Jarosław Judek, M.Sc. (‘06), Ph.D. (‘11), D.Sc. (‘20), Microelectronics and Nanoelectronics, Research Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division.	room # 232c GR phone: +48 222346065 e-mail: jaroslaw.judek@pw.edu.pl

Anna Jusza, M.Sc. (‘08), Ph.D. ('18) with distinction, Assistant Professor, full time, Optoelectronics Division; Expert in novel active materials for photonic applications, optical spectroscopy of solid-state laser materials, laser technique, fiber-optic communication, and integrated photonics as well, with specific emphasis put on optical spectroscopy; Member of the board of LightHouse Sp. z o. o., a spin-off company of WUT (’22-), Member of Scientific Committee of International Conference on Photonics Research (’18-), Member of Photonics Society of Poland (’15-), Scholarship in VENTURES Program by Foundation for Polish Science (‘13), Scholarship of Center for Advanced Studies WUT (’12-’14), WUT Rector’s Individual Award for Scientific Achievements (’19), WUT Rector’s Collective Award for Scientific Achievements (’12, ’19, ‘22), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (‘17), Second prize (first runner-up) at the Photonics Innovation Village 2018 exhibition at SPIE Photonics Europe 2018.	room # 128 GR phone: +48 222341466 email: anna.jusza@pw.edu.pl
Marcin Kaczkan, M.Sc. (‘98), Ph.D. (‘04) with distinction, D.Sc. (‘20), Optoelectronic, Laser technology, Spectroscopy of solid state laser materials, Professor, full time, Optoelectronics Division, WUT Rector’s Collective Award for Scientific Achievements (’08,’10,’12), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), Member of Photonics Society of Poland (’20-).	room # 127 GR phone: +48 222345047 e-mail: marcin.kaczkan@pw.edu.pl
Jerzy Kalenik, M.Sc. (‘79), Ph.D. (‘89), Electron Technology, Assistant Professor, full time, Microsystem and Electronic Material Technology Division, Member of IMAPS Poland Chapter (’84-), Executive Board of IMAPS Poland Chapter (2017-2021), WUT Rector’s Collective Award for Organizing Achievements (‘08), WUT Rector’s Individual Award for Didactic Achievements (3rd stage) (‘16), President’s of the Republic of Poland Gold Medal for Long-Term Service (’23).	room #423a GR phone: +48 222347779 e-mail: jerzy.kalenik@pw.edu.pl
Islam Karimul, M.Sc. (‘16), Ph.D. (’23) at Homi Bhabha National Institute, India, Research interests: High-k materials, Thin film, RRAM, Fe-RAM, Neuromorphic computing, Research Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division, Visiting scientist at Institute of Physics, Bhubaneswar, India (‘23), Junior Scientist at Moscow Institute of Physics and Technology, Russia (‘24), Best Paper Presentation Award on CTMSE Conference (‘21).	room #337 GR phone: +48 222347773 e-mail: karimul.islam@pw.edu.pl
Dominik Kasprowicz, M.Sc. (‘01), Ph.D. with distinction (‘06), Microelectronics: semiconductor device modeling, Assistant Professor, full time, VLSI Engineering and Automation Division, WUT Rector’s Individual Award for his dissertation thesis (‘07), Member of IEEE Society (’12-14), Organizing Committee Chair of DDECS 2014 (IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems) (’13-14), Program Committee Member of DDECS (’14-), WUT Rector’s Collective Award for Organizing Achievements (2nd stage)(’15), “Golden Chalk” – Student Council of the Faculty Teaching Award (’18), Medal of National Education Commission (’22).	room # 353 GE phone: +48 222347207 e-mail: dominik.kasprowicz@pw.edu.pl
Andrzej Kaźmierczak, M.Sc. (‘02), Ph.D. (‘07), Optoelectronics, Research Assistant Professor, full time, Optoelectronics Division, WUT Rector’s Collective Award for Scientific Achievements (’19, ‘22).	room # 124 GR phone: +48 222347777 e-mail: andrzej.kazmierczak@pw.edu.pl
Nay-Win Khun, M.Sc. (06‘), Ph.D. (10‘), Tribology and Corrosion, Research Assistant Professor, full time, Microsystem and Electronic Material Technology Division.	room # 337 GR phone: +48 222347777 e-mail: nay_win.khun@pw.edu.pl

Ryszard Kisiel, M.Sc. (‘74), Ph.D. (‘83), D.Sc. (‘10), Electron Technology, microelectronics: packaging of high temperature devices, assembly techniques, lead-free technology, Professor, 2/5 of the time, Microsystem and Electronic Material Technology Division, Member of IMAPS Poland Chapter (’87-), Member of Scientific Committee of IMAPS-Poland Chapter (’00-21), Member of IEEE CPMT Society (’00-20), President of IEEE CPMT Polish Chapter (’10-20), Member of the Electron Technology and Electronic Materials Section of The Polish Academy of Sciences (’07-), Member of the Faculty Council (’10-19), WUT Rector’s Collective Award for Organizing Achievements (‘08), WUT Rector’s Individual Award for Scientific Achievements (1st stage) (’11), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’11)., WUT Rector's Collective Award for Organizing Achievements (3rd stage) ('17).	room # 425 GR phone: +48 222347852 e-mail: ryszard.kisiel@pw.edu.pl
Marcin Koba, M.Sc. (‘06), Ph.D. (‘11) with distinction, D.Sc. (‘17), Optoelectronics: laser physics, solid state physics, optical fiber sensors, fiber gratings; Thin Film: Physical and Chemical Vapor Deposition, Plasma Enhanced Deposition and Processing, full time, Assistant Professor, Microsystem and Electronic Material Technology Division, WUT, Postdoctoral Fellow at Université du Québec en Outaouais, Canada (‘13-’15), Scholarship for outstanding young scientist from the Ministry of Science and Higher Education (’16-’19), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (‘17), WUT Rector’s Collective Award for Science Achievements (1st stage) (’17, ’19, ’21, ‘23).	room # 422 GR phone: +48 222347908 e-mail: marcin.koba@pw.edu.pl
Krystian Król, M.Sc. (‘09), Ph.D. (‘16), Microelectronics, Electron Technology, Assistant Professor, full time, Microsystem and Electronic Material Technology Division.	room # 423a GR phone: +48 222347785 email: krystian.krol@pw.edu.pl
Jerzy Krupka, M.Sc. (‘73), Ph.D. (‘77), D.Sc. (‘89), Microwave Theory and Technique, Research Tenured Professor, quarter time, Microsystem and Electronic Material Technology Division, Member of the Faculty Council (‘89-), Member of Microwave Section of the Electronics and Telecommunication Committee of the Polish Academy of Sciences (‘96-), Member of Editorial Board of IEEE Trans. Microwave Theory Tech. (‘94-), Best Paper Award in Journal Measurements, Science and Technology (‘99), Head of Characterization of Electronic Materials Group (‘00-’05), Member of IOP Institute of Physics UK (‘01-), Golden Cross awarded by the President of Poland (‘06), Prime Minister Award for Outstanding Technical Achievements (‘07), Bronze Medal and Diploma from Association Of Polish Inventors And Rationalizers on International Invention & Innovation Show IWIS-2008, WUT Rector’s Collective Award for Educational Achievements (1st stage) (’10), Fellow of IEEE (‘12), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’00,’19, ’21, ‘24), WUT Rector’s Individual Award (1st stage) (’22), Ministry of Education and Science Prizes for Significant achievements in the field of implementation activities (’23).	room # 364 GE phone: +48 222347693 e-mail: jerzy.krupka@pw.edu.pl
Arkadiusz Łuczyk, M.Sc. (‘04), Ph.D. (‘15), Microelectronics and VLSI Design, Assistant Professor, full time, VLSI Engineering and Design Automation Division.	room # 365 GE phone: +48 222347207 e-mail: arkadiusz.luczyk@pw.edu.pl
Lidia Łukasiak, M.Sc. (‘88), Ph.D. (‘94), D.Sc. (‘02), Microelectronics, Didactic Professor, full time, Microelectronics and Nanoelectronics Devices Division, Deputy-Director for Teaching Affairs of the Insititute of Microelectronics and Optoelectronics (’04-16), WUT Rector’s Award for Scientific Achievements (‘96), Prime Minister’s Award for Distinguished Ph.D. Thesis (‘95), Scientific Secretary of the Microelectronics Section of the Electronics and Telecommunication Committee of the Polish Academy of Sciences (’96-’03), Co-Chairman Conference “Diagnostics and Yield” (’00-), Member of Programme Comm. IEEE ICCDS (‘02), Member of the Faculty Council (‘02–), Programme Chairman of “Diagnostics and Yield” (‘03, ’06, ‘09), Deputy-Director for Teaching Affairs of the Institute of Microelectronics and Optoelectronics (’04-), Member of Technical Programme Committee ESSDERC (’05-‘12), co-Editor of “Electron Technology” (’92-’95), WUT Rector’s Collective Award for Scientific Achievements (’06, ’08, ’09), Member of the Connect Advisory Forum for ICT Research and Innovation (CAF) European Commission (’12-‘14), WUT Rector’s Collective Award for Organizing Achievements (‘14), President’s of the Republic of Poland Silver Medal for Long-Term Service (‘16).	room # 368 GE phone: +48 222347147 e-mail: lidia.lukasiak@pw.edu.pl

Krzysztof Madziar, M.Sc. (’06), Ph.D. (‘15), Microwaves, Lightwaves, Microwave Photonics: generation of microwaves involving photonic techniques, microwave-light interactions, Didactic Assistant Professor, full-time, Optoelectronics Division, Member of the Faculty Council (’16-), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (‘17), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), Associate Dean for Student Affairs of the Faculty of Electronics and Information Technology WUT (’20-24).	room # 50 GE phone: +48 222345783 email: krzysztof.madziar@pw.edu.pl
Bogdan Majkusiak, M.Sc. (‘79), Ph.D. (‘85), D.Sc. (‘91), Prof. (‘03), Microelectronics & Nanoelectronics, Tenured Professor, full time, Microelectronics and Nanoelectronics Devices Division, Associate Dean for Academic Affairs (’96-’99) and Senior Associate Dean (’99-’02) of the Faculty of Electronics and Information Technology WUT, author and head of the MSc study programmes ‘Microelectronics’ (‘94-‘99) and ‘Microelectronics, Photonics, and Nanotechnologies’ (‘10-), Member of Steering Committee of the International Conference on Insulating Films on Semiconductors INFOS (‘14-) and Chairman of INFOS 2013 Conference, expert of National Science Centre, expert of Polish Accreditation Committee, WUT Rector’s Collective Award for Scientific Achievements (1st stage) (‘19).	room # 233 GR phone: +48 222347773 +48 222346065 e-mail: bogdan.majkusiak@pw.edu.pl
Michał Malinowski, M.Sc. (‘79), Ph.D. (‘85), D.Sc. (‘90), Electronics, Optoelectronics, Tenured Professor, full time, Optoelectronics Division, Member of Faculty Council (’90-), Member of Curriculum Committee I (’94-), Member of Optoelectronics Section of the Electronics and Telecommunication Committee of the Polish Academy of Sciences (’94-), Member of Association of Polish Electrical Engineers SEP (’96-), Head of Optoelectronics Division (’99-'16), WUT Rector’s Collective Award for Scientific Achievements (’08,’10,’12), Member of Polish Society for Crystal Growth (’02-), Head of the Ph.D. Studies at WEiTI (’12-'16), Member of National Science Centre Council (’12-‘16), Director of the Institute of Microelectronics and Optoelectronics (’16-‘20), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), Dean of the Faculty of Electronics and Information Technology WUT (’20-’24), Corresponding Member of the Polish Academy of Sciences (’21-), WUT Rector’s Individual Award (2nd stage) (’21), Member of Scientific Council of the Institute of Fundamental Technological Research (IPPT) Polish Academy of Sciences (’22-), WUT Rector’s Individual Award for Organizing Achievements (2st stage) (’21, ’22, ’23, ‘24), Medal of National Education Commission (‘24), WUT Senate Finance & Property Committee Chair (’24-).	rooms: # 115 GE, # 123 GR phone: +48 222347783 e-mail: michal.malinowski@pw.edu.pl
Andrzej Mazurak, M.Sc. (‘06), Ph.D. (‘11) with distinction, Microelectronics, Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division, WUT Rector’s Individual Award for Scientific Achievements (3rd stage) (’12). WUT Rector’s Collective Award for Organizing Achievements (’14, ’22, ‘24), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (‘19), WUT Rector’s Collective Award for Scientific Achievements (2nd stage) (‘23), 13th ELTE Conference: Outstanding Conference Presentation Award (’19), WUT Rector’s Collective Award for Organizational Achievements (3rd stage) (’24), WUT Rector’s Collective Award for Organizational Achievements (1st stage) (’24).	room # 232b GR phone: +48 222345478 e-mail: andrzej.mazurak@pw.edu.pl
Piotr Mierzwiński, M.Sc. (’10), M.L. (‘11), Ph.D. (‘23), Microelectronics and VLSI Design, Radiocommunication and Multimedia Technology, Law, Intellectual Property Law, Assistant Professor, half time, VLSI Engineering and Design Automation Division, Member of Polish Chamber of Patent Attorneys (’16-), Patent Attorney (’21-).	room # 363 GE phone: +48 222345364 e-mail: piotr.mierzwinski@pw.edu.pl

Agnieszka Mossakowska-Wyszyńska, M.Sc. (‘91), Ph.D. (‘96) with distinction, Optoelectronics, Quantum Electronics, Assistant Professor, full time, Optoelectronics Division, Grant from Foundation of Polish Science (‘95), Member of Association of Polish Electrical Engineers SEP (‘96-), Editor of Annual Report of Institute of Microelectronics and Optoelectronics (‘96-), Prime Minister Award for dissertation thesis (‘97), Member of the Faculty Council (‘05-‘12), Member of the Dean’s Commission for Faculty Organization (‘08-‘12), Member of Photonics Society of Poland (‘08-), Head of Teaching Group in Optoelectronics Division (‘10-), Editor of WUT Base of Knowledge (‘15-), Member of Organizing Committee of ELTE (’04, ‘13), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (‘19), Secretary of the Polish Committee of Optoelectronics of SEP (PKOpto) (’22-).	room # 119 GR phone: +48 222347246 e-mail: agnieszka.wyszynska@pw.edu.pl
Robert Mroczyński, M.Sc. (‘03), Ph.D. (‘08), D.Sc. (‘17), Microelectronics (Nanodevices, Nanotechnologies, Materials Engineering, Thin-Film Technologies, Integrated Photonics), Professor, full time, Head of the Microelectronic and Nanoelectronic Devices Division (’21-24), Director of Institute of Microelectronics an Optoelectronics (’24-), President of the Republic of Poland Bronze Cross of Merit (’20), Member of the SINANO Institute Governing Board (’23-), Member of WUT’s Committee for Scientific Issues of the Discipline Automatics, Electronics, Electrical Engineering, and Space Techniques (’20-), Member of the WUT’s Committee of the IDUB Mobility PW programme (’20-), Member of WUT’s Council of the Discipline Automatics, Electronics, Electrical Engineering, and Space Techniques (’19-), Member of the Faculty Committee for Scientific Issues (‘16-‘20), Member of the Faculty Council (’17-), WUT Rector’s Individual Award for Scientific Achievements (’21, ’18), WUT Rector’s Collective Award for Scientific Achievements (’17, ’22, ‘23), WUT Rector’s Individual Award for Didactics Achievements (’15), WUT Rector’s Collective Award for Organization Achievements (‘13), Participant of Leaders in University Management Programme at Technical University of Munich (’23), Participant of Masters of Didactics Programme at Ghent University (’20-’21), Participant of Science Infrastructure Management Support (SIMS) program supported by National Centre for Research and Development – NCBR (’14-‘15), Dekaban Foundation Scholarship of the University of Michigan (USA) (’11-’12), Scholarship of Advanced Studies Centre of WUT (’08-’09 and ’11-‘12), Member of Advisory Board of Dekaban Foundation at WUT (’12-), Vice-Chairman of International Conference on Insulating Films on Semiconductors – INFOS ‘13, Expert of the NCBR (’13-), Expert of NAWA (’18-), WUT Rector’s Collective Award for Organizational Achievements (3rd stage) (’24), WUT Rector’s Collective Award for Organizational Achievements (1st stage) (’24).	room # 232a GR phone: +48 222346065 e-mail: robert.mroczynski@pw.edu.pl
Marek Niewiński, M.Sc. (‘91), Ph.D. (‘06), Vacuum Science and Technology, full time Didactic Assistant Professor, VLSI Engineering and Design Automation Division, Deputy-Director for Teaching Affairs of the Institute of Microelectronics and Optoelectronics (’24-). WUT Rector’s Collective Award for Science Achievements (’91).	room # 362 GE phone: +48 222347207 e-mail: marek.niewinski@pw.edu.pl

Andrzej Pfitzner, M.Sc. (‘74), Ph.D. (‘78), D.Sc. (‘99), Microelectronics: physics of semiconductors, device modeling, integrated circuits design for manufacturability; Didactic Professor, full time, VLSI Engineering and Design Automation Division; Member (’94-) and Programme Chairman (’20-) of the „MIXDES” International Science Committee (Mixed Design of Integrated Circuits and Systems), member of the Science Committee of the Conference “Electron Technology” (’99-’08, ’13-), Member of the Microelectronics Section of the Committee for Electronics and Telecommunication of the Polish Academy of Sciences (’99-), member of the NSZZ “Solidarność” University Commission (’10-) and Domestic Section for Science (’14-), Member of the Civic Educational Association STO (’90-); Member of the Faculty Council (’81-’85 & ’90-‘24), Deputy-Director for Teaching Affairs of the Institute of Microelectronics and Optoelectronics (’91-’99), Director of the Institute of Microelectronics and Optoelectronics (’99-’04), Member of the Dean’s Financials Commission (’93-’99), WUT Rector’s Individual Award for Scientific Achievements (1st stage) (‘00), Member of the Senate Financials Commission (‘02–’05 & ’20-), Chairman of the Faculty Council Educations Commission (‘05–’08), Faculty Plenipotentiary for Quality of Education and member of the University Council for Education Quality (’07-), Disciplinary Officer of the Warsaw University of Technology for Academic Staff (’12-‘14), Head of VLSI Engineering and Design Automation Division (’12-‘21), Gold Cross of Merit (’19), Member of the Program Council of the WUT Distance Learning Centre ('21-‘24), Best Paper Award on 31st International Conference MIXDES 2024.	room # 361 GE phone: +48 222347207 e-mail: andrzej.pfitzner@pw.edu.pl
Ryszard Piramidowicz, M.Sc. (‘94), Ph.D. (‘00) with distinction, D.Sc. (‘13), MBA (’20), Professor, full time; Head of Optoelectronics Division (’21-); Expert in optical spectroscopy, solid-state laser engineering, photovoltaics, fiber-optic communication and integrated photonics; Deputy-Director for Research of the Institute of Microelectronics and Optoelectronics (‘08–‘20), Head of the Doctoral School of Exact Sciences and New Technologies (No. 3) of WUT (‘19-’22). President of the board of LightHouse Sp. z o. o., a spin-off company of WUT (’22-). Expert in the field of photonic integrated circuits in VIGO Photonics (’21-). Member of Association of Polish Electrical Engineers SEP (’96-), president of Polish Committee of Optoelectronics of SEP (’21-), member of Photonics Society of Poland (’12-), IEEE (’05-), OPTICA (formerly OSA) (’06-) and SPIE (’13-), WUT’s representative in The European Technology Platform Photonics21 (‘18-). WUT Rector’s Individual Award for Scientific Achievements (‘00, ‘13), WUT Rector’s Collective Award for Scientific Achievements (‘00, ‘08, ‘10, ’12, ’19, ‘22), WUT Rector’s Collective Award for Didactic Achievements (‘17), WUT Rector’s Collective Award for Organizing Achievements (’17, ’20, ’22), Silver Cross of Merit (‘16), Medal of Prof. Mieczysław Pozaryski 2024.	room # 128 GR phone: +48 222341466 e-mail: ryszard.piramidowicz@pw.edu.pl

Witold Pleskacz, M.Sc. (’83), Ph.D. (’95) with distinction, D.Sc. (‘11), Microelectronics (VLSI ASIC design, CAD, DFM), Professor, full time, VLSI Engineering and Design Automation Division, Member of the Faculty Council (’99-’02 & ’11-), Institute representative for cooperation with high schools (’08-), Medal of National Education Commission (‘13), President’s of the Republic of Poland Silver Cross of Merit (’20), WUT Rector’s Individual Awards for Scientific Achievements (’89, ’96, ’12), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (’19), Ministry of National Education Award for Teaching Achievements (’93), “Golden Chalk” – Student Council of the Faculty Teaching Awards (’00, ’08, ’12), “Golden Chalk” – Student Council of the WUT Teaching Award (’12), Ministry of Science and Higher Education Award for Education Achievements (’06), Ministry of National Defence Award for Scientific Achievements (’17), WUT Rector’s Awards for Educational Achievements (Collective ’10, ’17, Individual ’13), Member of IEEE (’13-), Member of the “CADSM” International Programme Committee (International Conference – the Experience of Designing and Application of CAD Systems in Microelectronics) (’01-), Member of the “YOT” Programme Committee (IEEE International Workshop on Yield Optimization & Test) (’01), Member of the “DFT” Programme Committee (IEEE International Symposium on Defect and Fault Tolerance in VLSI Systems) (’02-’15), Member of the “DDECS” Programme Committee (IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems) (’04-), Member of the “MEMSTECH” International Programme Committee (International Conference on Perspective Technologies and Methods in MEMS Design) (’05-), Member of the “DSD-SS” Programme Committee (Euromicro Conference on Digital System Design-Special Sessions) (’05), Member of the “ECS” Programme Committee (Electronic Circuits and Systems Conference) (’05-’07), Member of the “ADEPT” International Programme Committee (International Conference on Advances in Electronic and Photonic Technologies) (’13-’17), Polish National Committee URSI – International Union of Radio Science (’11-), Member of the “MIXDES” International Programme Committee (International Conference: “Mixed Design of Integrated Circuits and Systems”) (’14-), Member of IEEE DDECS Steering Committee (’14-), Member of the 2018 Baltic URSI Symposium Programme Committee (Technical Program Committee Chair), Member of the 2019 “ESSCIRC” Programme Committee (Technical Program Committee Co-Chair of the European Solid-State Circuits Conference), Head of VLSI Engineering and Design Automation Division (’21-), Best Paper Award on 29th International Conference MIXDES 2022.	room # 370 GE phone: +48 222345364 +48 222347207 +48 222347819 e-mail: witold.pleskacz@pw.edu.pl
Petr Sezemský, M.Sc. (16’), Ph.D. (22‘), Nanomaterials, Research Assistant Professor, full time, Microsystem and Electronic Material Technology Division.	room # 423b GE phone: +48 222347777 email: petr.sezemsky@pw.edu.pl
Krzysztof Siwiec, M.Sc. (’09), Ph.D. (‘16), Microelectronics, Electronics, Assistant Professor, full time, VLSI Engineering and Design Automation Division, Best Paper Award on 29th International Conference MIXDES 2022.	room # 365 GE phone: +48 222345364 email: krzysztof.siwiec@pw.edu.pl
Mariusz Sochacki, M.Sc.(‘02), Ph.D. (‘07), D.Sc. (‘17), Wide bandgap semiconductors technology, Silicon carbide and gallium nitride power devices, Research Professor, full time, Microsystem and Electronic Material Technology Division, Secretary of the Nitride Electronics Section at the Polish Chamber of Commerce for Electronics and Telecommunications (’16-),, Member of the Institute of Electron Technology Council (’17-’19), Member of the Committee for Scientific Degrees and Titles at Institute of Electron Technology Council (’17-’19), Head of Microsystem and Electronic Material Technology Division (’20-), Member of the Faculty Council (‘20), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’11,’15), WUT Rector’s Collective Award for Scientific Achievements (3rd stage) (’18), WUT Rector’s Individual Award for Scientific Achievements (1st stage) (‘21), President’s of the Republic of Poland Bronze Cross of Merit (’21), Member of Łukasiewicz Research Network – Tele and Radio Research Institute Council (’23-).	room #423c GR phone: +48 222347932 email: mariusz.sochacki@pw.edu.pl

Stanisław Stopiński, M.Sc. (’08), Ph.D. from Eindhoven University of Technology after following joint PhD studies at EUT and WUT (’14), Assistant Professor, full time, Optoelectronics Division; Specialist in the field of modeling, design and characterization of ASPICs for optical communication systems, sensor networks and systems, optical gyroscopes and bio-medical applications; Member of the board of LightHouse Sp. z o. o., a spin-off company of WUT (’22-), Expert in the field of photonic integration technologies in VIGO Photonics (’21-), technical manager of EEDH - Eastern Europe Design Hub, a center for design and characterization of photonic integrated circuits (‘11-), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (‘17), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’19, ‘22), First runner-up at the Photonics Innovation Village 2018 exhibition at SPIE Photonics Europe 2018.	room # 128 GR phone: +48 222341466 email: stanisław.stopinski@pw.edu.pl
Rezwana Sultana, M.Sc. (’16), Ph.D (’23), Transition metal oxides, Surface physics, Thin film technologies, Semiconductor devices, Optoelectronics, Research Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division, Best Poster Presentation Award on IOCP Conference 2024.	room #337 GR phone: +48 222347773 e.mail: rezwana.sultana@pw.edu.pl
Marek Sutkowski, M.Sc.(‘97), Ph.D. (‘03), Photographic Techniques, Imaging and Video Systems, Application of LC Cells in Imaging Techniques, Holography in Multimedia Applications, Didactic Assistant Professor, full time, Optoelectronics Division, 3rd stage prize on V Sympozjum Naukowe TPO2006, Member of Polish Liquid Crystal Society (’10-), the Photo Club of the Republic of Poland card no 534 (’24-), Leader of Scientific Club of Imaging “RGB” (’16-), 9th place on 48th Annual Nikon Small World Photo Microscopy Competition 2022, Honorable Mention in Monochrome Awards - International Black & White Photography Contest 2022, Honorable Mention in Monovisions Awards 2023, Honorable Mention in Chromatic Awards 2022, 2024, Honorable Mention in ND Awards 2023, 2024, Talent Prize Award, 12th Abstract, Teravarna 2024, Honorable Mention in: 8th Color, 10th Portrait, 10th Animal, 13th Abstract, 9th Flower, Teravarna, 2024.	room #147 GE phone: +48 222347780 e.mail: marek.sutkowski@pw.edu.pl
Paweł Szczepański, M.Sc. (81), Ph.D. (‘88), D.Sc. (‘94), Optoelectronics, Tenured Professor, full time, Optoelectronics Division, Member of Faculty Council (‘94-), Member of Association of Polish Electrical Engineers SEP (‘96-), Member of Optoelectronics Section of the Electronics and Telecommunication Committee of the Polish Academy of Sciences (‘96-), Member of Optical Society of America (‘96-), Member of IEEE (‘96-), Editor of Journal of Telecommunications and Information Technology (‘98-), Member of Photonics Society of Poland (‘08-), Deputy-Director for Research Affairs of the Institute of Microelectronics and Optoelectronics (‘04-’08), Director of the Institute of Microelectronics and Optoelectronics (‘08-‘16), Representative of Warsaw University of Technology in Networks of Excellence of Micro-Optics NEMO (‘04), Member of European Optical Society (’06-), Head of Optoelectronics Division (‘16-‘20), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (’17, ‘24), Outstanding Poster Award at Conference ELTE (’19), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’19, ‘22), WUT Rector’s Individual Award for Scientific Achievements (1st stage) (’24).	rooms: # 121 GR phone: +48 222345870 e-mail: pawel.szczepanski@pw.edu.pl

Jan Szmidt, M.Sc. (‘76), Ph.D. (‘84), D.Sc. (‘95), Microelectronics, Electron Technology, Research Tenured Professor, full time, Microsystem and Electronic Material Technology Division, Member and Scientific Secretary of the Electronics and Telecommunication Committee of the Polish Academy of Sciences (’96-), Member of the Microelectronics Section (’93-) and Chairman of the Electron Technology and Electronic Materials Section (’03-) of the Electronics and Telecommunication Committee, Member of the Micro- and Nanotechnology Section of the Polish Academy of Sciences (‘05–), Member of Faculty Council (’95-), WUT Rector’s Award for Scientific and Didactic Achievements, Scientific Award of the IV Department of the Polish Academy of Science (‘97), Member of IEEE (’97-), V-ce Deen of the Faculty (’02-’05), Golden Cross awarded by the President of Poland (‘07), Medal of National Education Commission (‘07), Dean of Faculty of Electronics and Information Technology (’08-‘12), WUT Rector’s Collective Award for Organizing Achievements (‘08), Gold Medal and Diploma with Distinction from Association of Polish Inventors and Rationalizers on International Invention & Innovation Show IWIS-2008 (‘08), Genius Medal from Association of Hungarian Inventors on International Invention & Innovation Show IWIS-2008 (‘08), The Certificate for Mr J.Szmidt in recognition of participation in the „Al. Bassel Fair For Invention and Innovation” organized by the: Ministry of Economy and Trade in cooperation with League of Arab States & Association of Syrian Inventors (’09), the IFIA Scientific Medal of the International Federation of Inventors Associations for Excellent Invention Deemed to Represent Significant Scientific Value on the 14 Al Bassel Fair – Damascus 2009 (’09), Diploma for “Optical Fiber Sensors Nano – coated with Diamond – like Carbon” Budapest, Hungary (’09), Special Award “For the special involvement and significant support to the development of the Science & Technology Days Poland-East Forum idea” 3rd Forum Science & Technology Days POLAND – EAST. Białowieża (’10), BADGE: Merited for Lodz University of Technology, (’10), Special Award ITMED 2010 “For the special involvement and significant support to the development of the ITMED Forum idea” 4 International Forum Inovative Technologies for Medicine ITMED, Białystok (’10), WUT Rector’s Collective Award for Scientific Achievements „Development of a new multiparameter method for grading the liquid and the design and technology for micro-liquid sensors for applications in-situ” (’10), Gold Medal granted by Polish Success Academy for outstanding scientific and teaching achievements, Special Award “For the special involvement and significant support to the development of the Science & Technology Days Poland – East Forum idea” 5th International Forum Science & Technology Days POLAND – EAST, Białowieża, (’11), WUT Rector’s Collective Award for scientific achievements during the years of 2009-2010 for the activities in the field of design, modeling, fabrication and characterization of semiconductor devices based on silicon carbide (’11), WUT Rector’s Individual Award for Organizing Achievements (’11,’12), Member of the Scientific Council of the Institute of High Pressure Physics PAN (’11-‘14), First Award in prof. Mieczysław Pożaryski Competition, Association of Polish Electrical Engineers SEP, for best article “The design and modeling of vertical transistors in silicon carbide DIMOSEFT” (‘12), Member of Programme Council of Copernicus Science Centre (’18-24), Rector of WUT (’12-20), President of The Conference of Rectors of Academic Schools in Poland (CRASP) (’16-20) Honorary President of CRASP (‘20-24), Director of Institute of Microelectronics an Optoelectronics (’20-24), Diamond Engineer 2019 selected in the XXVI Golden Engineer 2019 Readers' Plebiscite of „Przegląd Techniczny,” Officer's Cross of the Order of Polonia Restituta (’20), Member of the Academy of Engineering in Poland (’21-), WUT Rector’s Individual Award for Lifetime Achievements (1st stage) (’21), WUT Rector’s Collective Award for scientific achivements during the years of 2020-2021 (1st stage) (‘22), „Meritorious for the Faculty of Transport of the Warsaw University of Technology”, 30th Anniversary of the Faculty of Transport of the WUT, 10.2022, Regular Member of Warsaw Scientific Society (‘20-), Member of the Presidium of the Main Council of Science and Higher Education (‘22-‘25), WUT Rector’s Collective Award for Organizational Achievements (1st stage) (’24).	rooms: # 338 GR phone: +48 222347777 e-mail: jan.szmidt@pw.edu.pl
Sławomir Szostak, M.Sc. (‘95), Ph.D. (‘01), Microelectronics, Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division, Deputy-Director for Teaching Affairs of the Insititute of Microelectronics and Optoelectronics (’16-), WUT Rector’s Award for Scientific Achievements (‘02), Secretary of the 6th Symposium Diagnostics & Yield (‘03), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’09), WUT Rector’s Collective Award for Educational Achievements (1st stage) (’10), WUT Rector’s Collective Award for Organizing Achievements (2nd stage) (‘20)., WUT Rector’s Collective Award for Organizing Achievements (‘22).	room # 275 GE phone: +48 222347535 e-mail: slawomir.szostak@pw.edu.pl

Agnieszka Szymańska, M.Sc. (‘97), Ph.D. (‘02), Microwave Electronics, Optoelectronics, Didactic Assistant Professor, full time, Optoelectronics Division, Member of SPIE (‘97-), Member of Photonics Society of Poland (‘08-), Medal of National Education Commission (‘16), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), President’s of the Republic of Poland Silver Medal for Long-Term Service (’23).	room # 53a GE phone: +48 222347994 e-mail: agnieszka.szymanska@pw.edu.pl
Mateusz Śmietana, M.Sc. (‘02), Ph.D. (‘07) with distinction, D.Sc. (’14); Optoelectronics: optical fiber sensors and biosensors, fiber gratings, optical resonance devices; Thin Film: Physical and Chemical Vapor Deposition, Plasma Enhanced Deposition and Processing, Optical and Electrical Properties; Research Tenured Professor, full time, Microsystem and Electronic Material Technology Division, WUT; Postdoctoral Fellow at Virginia Polytechnic Institute and State University, USA (‘07) and Université du Québec en Outaouais, Canada (‘09-’11), Visiting Professor at Southern University of Science and Technology, China (’18-‘19); Bronze Cross of Merit from President of the Republic of Poland (‘18); Member of the TOP 500 Innovators Alumni (’12-) and Foundation for Polish Science Stipendist (16’-) Association; Scholarships from the Ministere de l’Education, du Loisir et du Sports du Quebec, Canada (’09-‘10), for young Ph.D. from Center for Advanced Studies Warsaw University of Technology (’09-’11), from Foundation for Polish Science (’11-’13), and for outstanding young scientist from Ministry of Science and Higher Education (’11-’14); Diploma of Minister of Science and Higher Education for project “Optical fiber pressure sensor” (’12), Diploma of International Warsaw Invention Show IWIS 2012 – Silver Medal for the Invention “Optical Fiber Sensor using Bacteriophages for Bacteria Detection” (’12), XI PROINVENT Gold Medal and Moldowa Ministry of Education Diploma for “Optical fiber sensor with bateriophage overlay for selectve a bacteria detection” (’13), WUT Rector’s Award for Scientific Achievements (Individual ’08, ’11, ’14, ’15; Collective ’15, ’17, '19, '21, '23).	room # 424 GR phone: +48 222346364 e-mail: mateusz.smietana@pw.edu.pl
Anna Tyszka-Zawadzka, M.Sc. (‘91), Ph.D. (‘96) with distinction, Optoelectronics, Quantum Electronics, Assistant Professor, full time, Optoelectronics Division, Grant from Foundation of Polish Science (‘95), Member of Association of Polish Electrical Engineers SEP (‘96-), Prime Minister Award for dissertation thesis (‘97), Member of Organizing Committee of ELTE (’13, ‘23), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), Member of Photonics Society of Poland ('17-), Outstanding Poster Award at Conference ELTE 2019, WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’19, ‘22), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (‘24), Deputy-Director for Research of the Institute of Microelectronics and Optoelectronics (’20-), WUT Rector’s Collective Award for Organizational Achievements (1st stage) (’24).	room # 120 GR phone: +48 222345982 e-mail: anna.zawadzka1@pw.edu.pl
Jakub Walczak, M.Sc. (‘96), Ph.D. (‘02), Microelectronics, Didactic Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division, WUT Rector’s Collective Award for Scientific Achievements (’09), WUT Rector’s Collective Award for Organizing Achievements (‘22).	room # 234 GR phone: +48 222347534; e-mail: jakub.walczak@pw.edu.pl
Piotr Warda, M.Sc. (‘89), Ph.D. (‘98) with distinction, Optoelectronics, Didactic Assistant Professor, full time, Optoelectronics Division**,** Member of Association of Polish Electrical Engineers SEP (‘99-), Prime Minister Award for remarkable technical and science national achievement (‘00), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17).	room # 122 GR phone: +48 222347772 e-mail: piotr.warda@pw.edu.pl
Aleksander Werbowy, M.Sc. (‘94), Ph.D. (‘99) with distinction, Microelectronics, Wide bandgap materials technology, Nanotechnologies, Didactic Assistant Professor, full time, Microsystem and Electronic Material Technology Division, WUT Rector’s Individual Award for Scientific Achievements (2nd stage) (‘00), Secretary of the Elelectron Technology and Electronic Materials Section of the Polish Academy of Sciences (‘03-’07) and (‘07-‘10), WUT Rector’s Collective Award for Scientific Achievements (’06, ’15, ’18), President’s of the Republic of Poland Silver Medal for Long-Term Service (’22).	room # 422 GR phone: +48 222347908 e-mail: aleksander.werbowy@pw.edu.pl

Andrzej Wielgus, M.Sc. (‘92), Ph.D. (‘03), Microelectronics, Assistant Professor, full time, VLSI Engineering and Design Automation Division, WUT Rector’s Award for Scientific Achievements (‘04), WUT Rector’s Collective Award for Scientific Achievements (‘17).	room # 354 GE phone: +48 222347207 e-mail: andrzej.wielgus@pw.edu.pl
Piotr Witoński, M.Sc. (‘94), Ph.D. (‘00), Microwave Electronics, Optoelectronics, Assistant Professor, full time, Optoelectronics Division, Member of Association of Polish Electrical Engineers SEP (‘96-), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (‘19).	room # 50 GE phone: +48 222345783 email: piotr.witonski@pw.edu.pl
Adam Wojtasik, M.Sc.(‘83), Ph.D.(‘95) with distinction, CAD, Didactic Assistant Professor, full time, VLSI Engineering and Design Automation Division, WUT Rector’s Award for Scientific Achievements (‘89), Ministry of National Education Award for Teaching Achievements in Microelectronics (‘93), WUT Rector’s Award for Scientific Achievements (‘96), Medal of National Education Commission (’22).	room # 353 GE phone: +48 222347207 e-mail: adam.wojtasik@pw.edu.pl
Agnieszka Zaręba, M.Sc. (‘93), Ph.D. (‘05), Microelectronics, Didactic Assistant Professor, full time, Microelectronics and Nanoelectronics Devices Division, WUT Rector’s Award for Didactic Achievements (‘04), WUT Rector’s Collective Award for Scientific Achievements (‘08). WUT Rector’s Collective Award for Organizing Achievements (‘14), “Golden Chalk” – Student Council of the Faculty Teaching Awards (’16), WUT Rector’s Collective Award for Organizing Achievements (‘22).	room # 278 GE phone: +48 222347535, e-mail: agnieszka.zareba@pw.edu.pl

2.2. Junior Research Staff

Name	Contact Details
Daniel Al-Burgan, M.Sc. (’23), Software Enginering, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microsystem and Electronic Material Technology Division, supervisor: Michał Borecki.	email: daniel.al-burgan.dokt@pw.edu.pl
Krzysztof Anders, M.Sc. (‘08), Assistant, full time, Optoelectronics Division; expert in UV-VIS-NIR-MIR spectroscopy of optically active materials, measurements of glass and polymer fiber-optics elements and systems, modeling and development of fiber lasers and amplifiers, InP-based photonics integrated circuits, Member of the board of LightHouse Sp. z o. o., a spin-off company of WUT (’22-), Expert in the field of photonic integration technologies in VIGO Photonics (’21-), Member of Photonics Society of Poland (’15-), Participant of Science Infrastructure Management Support (SIMS) program supported by National Centre for Research and Development – NCBR (’14), WUT Rector’s Collective Award for Didactic Achievements (2nd stage) (‘17), WUT Rector’s Collective Award for Organizing Achievements (1st stage) (‘17). WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’12, ’19, ‘22), First runner-up at the Photonics Innovation Village 2018 exhibition at SPIE Photonics Europe 2018, 1st prize in the Prof. Z. Puzewicz Competition for Young Scientists on STL Conference 2024, Medal of Prof. Mieczysław Pozaryski 2024.	room # 128 GR phone: +48 222341466 email: krzysztof.anders@pw.edu.pl
Kamil Ber, M.Sc. (‘14), Microelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microelectronics and Nanoelectronics Devices Division, supervisor: Romuald Beck	email: kamil.ber.dokt@pw.edu.pl

Aleksandra Bieniek-Kaczorek, M.Sc. (‘20), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Research Assistant, Optoelectronics Division, supervisor: Ryszard Piramidowicz, Best Poser Award on ELTE Conference 2023, Audience award for the Best Poser on STL Conference 2024.	room # 125b GR email: aleksandra.bieniek@pw.edu.pl aleksandra.bieniek.dokt @pw.edu.pl
Oskar Bogucki, M.Sc. (‘22), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, supervisor: Marcin Kaczkan.	email: oskar.bogucki.dokt@pw.edu.pl
Karol Bolek, M.Sc. (‘17), Microelectronics, Electronics, Assistant, full time, Microelectronics and Nanoelectronics Devices Division, WUT Rector’s Collective Award for Scientific achievements (3rd stage): for a series of 5 publications in 2022/23 devoted to the metrology of physical quantities (’24).	room # 234 GR phone: +48 222347534 email: karol.bolek@pw.edu.pl
Adam Borkowski, M.Sc. (‘19), Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, VLSI Engineering and Design Automation Division, supervisor: Witold Pleskacz, Best Paper Award on 29th International Conference MIXDES 2022.	email: adam.borkowski5.dokt@pw.edu.pl
Paweł Bortnowski, M.Sc. (’18), Research Assistant, full time, Optoelectronics Division, Best Poser Award on International Workshop on Advanced Spectroscopy and Optical Materials IWASOM 2022.	room # 125b GR email: pawel.bortnowski@pw.edu.pl
Konrad Bruliński, M.Sc. (‘08), Microelectronics, Electron Technology, Assistant, full time, Microsystem and Electronic Material Technology Division.	email: konrad.brulinski@pw.edu.pl
Krzysztof Czuba, M.Sc., Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Optoelectronics Division, supervisor: Michał Malinowski	email: krzysztof.czuba.dokt@pw.edu.pl
Bartosz Dec, M.Sc. (‘19), Microelectronics, Electronics, Assistant, full time, VLSI Engineering and Design Automation Division, Best Paper Award on 31st International Conference MIXDES 2024.	room # 363 GE phone: +48 222345364 email: bartosz.dec@pw.edu.pl
Aleksandra Dzieniszewska, M.Sc. (‘21), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Optoelectronics Division, supervisor: Ryszard Piramidowicz	email: aleksandra.dzieniszewska.dokt@pw.edu.pl
Maciej Fokt, M.Sc. (‘22), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Optoelectronics Division, supervisor: Michał Malinowski	email: maciej.fokt.dokt@pw.edu.pl
Tomasz Gabler, M.Sc. (‘21), Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Constructor, Microsystem and Electronic Material Technology Division, supervisor: Mateusz Śmietana, WUT'S Rector Collective 1st degree award for scientific achievements (‘23).	email: tomasz.gabler.dokt@pw.edu.pl tomasz.gabler@pw.edu.pl
Mateusz Gęca, M.Sc. (‘14), Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microsystem and Electronic Material Technology Division, supervisor: Michał Borecki.	email: mateusz.geca.dokt@pw.edu.pl

Marika Grochowska, M.Sc. (‘14), Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, VLSI Engineering and Design Automation Division, supervisor: Witold Pleskacz.	email: marika.grochowska.dokt@pw.edu.pl
Taofeek Hammed, M.Sc. (‘16), Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microsystem and Electronic Material Technology Division, supervisor: Marcin Koba.	email: taofeek.hammed.dokt@pw.edu.pl
Adam Ignaciuk, M.Sc. (23‘), Microelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microelectronics and Nanoelectronics Devices Division, supervisor: Jarosław Judek.	email: adam.ignaciuk.dokt@pw.edu.pl
Maciej Kamiński, M.Sc. (‘15), Ph.D. (‘24), Research Assistant, Wide bandgap semiconductors technology, Silicon carbide and gallium nitride power devices, Microelectronics, Assistant, half time, Microsystem and Electronic Material Technology Division, WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’22), Best Student Award on 14 International Conference Nitride Semiconductors, Fukuoka, Japan ('23).	email: maciej.kaminski@pw.edu.pl
Marcin Kieliszczyk, M.Sc. (‘17), Optoelectronics: plasmonics, photonics, metamaterials, Research Assistant, full time, Optoelectronics Division, supervisor: Paweł Szczepański, Second prize in the XXV National Adam Smoliński Competition (‘17), Outstanding Poster Award at Conference ELTE (‘19), WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’19, ‘22), WUT Rector’s Collective Award for Organizational Achievements (1st stage) (’24).	room # 120 GR phone: +48 222345982 email: marcin.kieliszczyk@pw.edu.pl marcin.kieliszczyk.dokt@pw.edu.pl
Łukasz Kozłowski, M.Sc. (‘22), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Research Assistant, full time, Optoelectronics Division. supervisor: Ryszard Piramidowicz and Piotr Lesiak	room # 125b GR email: lukasz.kozlowski@pw.edu.pl lukasz.kozlowski.dokt@pw.edu.pl
Norbert Kwietniewski, M.Sc. (’07), Microelectronics, Electron Technology, Research Assistant, full time, Microsystem and Electronic Material Technology Division, WUT Rector’s Collective Award for Scientific Achievements (1st stage) (‘22), WUT Rector’s Collective Award for Organizational Achievements (1st stage) (’24).	room # 423a GR phone: +48 222347785 email: norbert.kwietniewski@pw.edu.pl
Marcin Lelit, M.Sc. (‘21), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Science and Technical Specialist, Optoelectronics Division, supervisor: Ryszard Piramidowicz.	room # 125b GR email: marcin.lelit@pw.edu.pl marcin.lelit.dokt@pw.edu.pl
Zan Li, M.Sc., Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microsystem and Electronic Material Technology Division, supervisor: Michał Borecki.	email: zan.li.dokt@pw.edu.pl
Filip Łabaj, M.Sc. (‘21), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Optoelectronics Division, supervisor: Ryszard Piramidowicz.	email: filip.labaj.dokt@pw.edu.pl
Agnieszka Martychowiec, M.Sc. (’18), Microelectronics, Electron Technology, Ph.D. Student, Constructor, Microsystem and Electronic Material Technology Division, supervisor: Mariusz Sochacki, WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’22).	email: agnieszka.martychowiec@pw.edu.pl agnieszka.martychowiec.dokt@pw.edu.pl

Mateusz Nieborek, M.Sc. (‘21), Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Assistant, half time, Microelectronics and Nanoelectronics Devices Division, supervisor: Jarosław Judek.	email: mateusz.nieborek@pw.edu.pl mateusz.nieborek.dokt@pw.edu.pl
Aleksandra Paśnikowska (Golba), M.Sc. (‘15), Electronic, Optoelectronic, Assistant, full time, Optoelectronics Division; WUT Rector’s Collective Award for Scientific Achievements (1st stage) (’19, ‘22), First runner-up at the Photonics Innovation Village 2018 exhibition at SPIE Photonics Europe 2018.	room # 125b GR phone: +48 222341464 email: aleksandra.pasnikowska@pw.edu.pl
Paweł Pieńczuk, M.Sc. (’21), Electronics, Integrated Circuits, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, VLSI Engineering and Design Automation Division, supervisor: Witold Pleskacz.	email: pawel.pienczuk.dokt@pw.edu.pl
Emil Pituła, M.Sc. (‘21), Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Constructor, Microsystem and Electronic Material Technology Division, supervisor: Mateusz Śmietana, WUT'S Rector Collective 1st degree award for scientific achievements (‘23).	email: emil.pitula@pw.edu.pl emil.pitula.dokt@pw.edu.pl
Andrzej Połatyński, M.Sc. (‘15), Electronics, Optoelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Optoelectronics Division, supervisor: Ryszard Piramidowicz.	email: andrzej.polatynski.dokt@pw.edu.pl
Mehdi Raji, M.Sc., Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Constructor, Microsystem and Electronic Material Technology Division, supervisor: Mateusz Śmietana.	email: mehdi.raji.dokt@pw.edu.pl
Piotr Różański, M.Sc. (’04), Microelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microelectronics and Nanoelectronics Devices Division, supervisor: Robert Mroczyński.	email: piotr.rozanski.dokt@pw.edu.pl
Oskar Sadowski, M.Sc, Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microsystem and Electronic Material Technology Division, supervisor: Mariusz Sochacki.	email: oskar.sadowski.dokt@pw.edu.pl
Jakub Sikora, M.Sc., Microelectronics, Technology, Ph.D. Student - Ph.D. School WUT, Chemical Sciences, Microsystem and Electronic Material Technology Division, supervisor: Mateusz Śmietana and Marcin Olszewski	email: jakub.sikora3.dokt@pw.edu.pl
Yevgen Syryanyy, M.Sc. (’02), Microelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microelectronics and Nanoelectronics Devices Division, supervisor: Robert Mroczyński.	email: yevgen.syryanyy.dokt@pw.edu.pl
Jarosław Tarenko, M.Sc. (’20), Microelectronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microsystem and Electronic Material Technology Division, supervisor: Mariusz Sochacki and Kamil Kosiel	email: jaroslaw.tarenko.dokt@pw.edu.pl
Shuchao Wang, M.Sc., Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, Microsystem and Electronic Material Technology Division, supervisor: Michał Borecki.	email: shuchao.wang.dokt@pw.edu.pl

Andrzej Wojciechowski, M.Sc. ('19), Microelectronics, Electronics, Ph.D. Student - Ph.D. School WUT, Automation, Electronics, Electrical Engineering and Space Technologies, field of engineering and technical sciences, VLSI Engineering and Design Automation Division, supervisor: Witold Pleskacz, Best Student's Paper Award on 29th International Conference MIXDES 2022.	email: andrzej.wojciechowski2.dokt@pw.edu.pl

2.3. Science, Technical and Administrative Staff

Name	Degree	Position	Phone number	Room #	Email
Anna Bednarek	B.A.	Secretary for teaching	+48 222345349	159 GE	anna.bednarek@pw.edu.pl
Witold Ciemiewski		Engineering and technical specialist	+48 222347534	335 GR	witold.ciemiewski@pw.edu.pl
Kazimierz Dalbiak		Engineering and technical specialist	+48 222347534	335 GR	kazimierz.dalbiak@pw.edu.pl
Ewa Drygalska	M.A.	Administrative specialist	+48 222346059	237 GR	ewa.drygalska@pw.edu.pl
Stanisław Jeszka	M.Sc.	Senior specialist	+48 222347207	357 GE	stanisław.jeszka@pw.edu.pl
Beata Karwan	M.A.	Financial specialist	+48 222347778	237 GR	beata.karwan@pw.edu.pl
Krzysztof Krogulski		Senior electronics engineer	+48 222347535	275 GE	krzysztof.krogulski@pw.edu.pl
Marek Kuś	Ph.D., D.Sc.	Senior specialist	+48 222347777	239 GR	marek.kus@pw.edu.pl
Marcin Lelit	M.Sc.	Science and technical specialist	+48 222347777	125b GR	marcin.lelit@pw.edu.pl
Małgorzata Lesiak-Dryk	M.A.	Senior administrative specialist	+48 222347771	237 GR	malgorzata.lesiak@pw.edu.pl
Katarzyna Lubczyńska	M.A.	Senior administrative specialist	+48 222347777	239 GR	katarzyna.lubczynska@pw.edu.pl
Marcin Ludwiniak	M.Sc.	Science and technical specialist	+48 222347207	371 GE	marcin.ludwiniak@pw.edu.pl
Urszula Piotrkowicz		Financial and accounting specialist	+48 222347243	242 GR	urszula.piotrkowicz@pw.edu.pl
Kamil Stępniewski	B.Sc.	Constructor	+48 222347207	371 GE	kamil.stepniewski@pw.edu.pl
Bartłomiej Stonio	M.Sc.	Science and technical specialist	+48 222347932	423 GR	bartlomiej.stonio@pw.edu.pl
Sylwia Trubisz		Administrative specialist	+48 222346018	238 GR	sylwia.trubisz@pw.edu.pl

3. TEACHING ACTIVITIES

3.1. Basic Courses

Number	Course
[Edu1]	**AOSYW**, **Embedded Systems Software Architecture**(Architektura oprogramowania w systemach wbudowanych), Krystian Król
[Edu2]	**APIOS**, **Programming for mobile Apple iOS and MacOS X** (Programowanie dla systemów: mobilnego iOS oraz MacOS X), Adam Wojtasik
[Edu3]	**ELET**, **Electronic Elements** (Elementy elektroniczne), Lidia Łukasiak, Agnieszka Zaręba
[Edu4]	**ELFO**, **Photonics elements** (Elementy Fotoniczne), Ryszard Piramidowicz
[Edu5]	**ESO**, **Optoelectronic Devices and Systems** (Elementy i systemy optoelektroniczne), Marcin Kaczkan
[Edu6]	**FOS**, **Fiber Optics** (Fotonika światłowodowa), Ryszard Piramidowicz
[Edu7]	**FPEF**, **Semiconductor Physics in Electronics and Photonics** (Fizyka półprzewodników w elektronice i fotonice), Piotr Firek, Agnieszka Zaręba
[Edu8]	**FPPI**, **Physical Fundamentals of Information Processing** (Fizyczne podstawy przetwarzania informacji), Jan Szmidt, Agnieszka Zaręba
[Edu9]	**LFPEF**, **Semiconductors Physics in Electronics and Photonics - Laboratory** (Laboratorium fizyki półprzewodników w elektronice i fotonice), Agnieszka Zaręba
[Edu10]	**LKP**, **Fundamentals of Lasers** (Lasery - kurs podstawowy), Paweł Szczepański
[Edu11]	**LPPP**, **Introduction to Semiconductor Devices – Laboratory** (Laboratorium podstaw przyrządów półprzewodnikowych), Jakub Jasiński, Konrad Kiełbasiński, Agnieszka Zaręba
[Edu12]	**MAKO**, **Materials and constructions (**Materiały i konstrukcje) Ryszard Kisiel, Marcin Myśliwiec, Aleksander Werbowy
[Edu13]	**MIP**, **MicroPython – Sensor and Actuator Integration Platform** (MicroPython – platforma integracji czujników i aktuatorów), Michał Borecki
[Edu14]	**MZMO**, **Application of Matlab in Calculation Methods** (Matlab w zastosowanych metodach obliczeniowych), Krystian Król
[Edu15]	**OZT**, **Integrated Optoelectronics** (Optoelektronika zintegrowana), Michał Malinowski, Agnieszka Mossakowska-Wyszyńska, Ryszard Piramidowicz
[Edu16]	**PADS**, **Computer-Aided Design of Printed-Board Circuits** (Projektowanie obwodów drukowanych), Konrad Bruliński
[Edu17]	**PAPRO**, **Programming Paradigms** (Paradygmaty programowania), Dominik Kasprowicz
[Edu18]	**PBL4**, **Smart IoT Devices** (Inteligentne urządzenia internetu rzeczy), Piotr Firek
[Edu19]	**PELEL**, **Fundamentals of Electronic Devices and Circuits** (Podstawy elementów i układów elektronicznych), Sławomir Szostak, Lidia Łukasiak
[Edu20]	**PMIK**, **Programming microcontrollers in C language** (Programowanie mikrokontrolerów w języku C), Sławomir Szostak
[Edu21]	**PMK**, **Introduction to Microelectronics** (Podstawy mikroelektroniki), Andrzej Pfitzner
[Edu22]	**POCY**, **Fundamentals of Digital Circuits** (Podstawy techniki cyfrowej), Andrzej Wielgus, Elżbieta Piwowarska
[Edu23]	**POMAK**, **Fundamentals of materials and constructions** (Podstawy materiałów i konstrukcji), Piotr Firek, Jerzy Kalenik
[Edu24]	**POMIK**, **Introduction to Microcontrollers** (Podstawy mikrokontrolerów), Jakub Jasiński
[Edu25]	**PPP**, **Introduction to Semiconductor Devices** (Podstawy przyrządów półprzewodnikowych), Lidia Łukasiak, Agnieszka Zaręba, Sławomir Szostak

[Edu26]	**PROO**, **Object-Oriented Programming** (Programowanie obiektowe), Dominik Kasprowicz
[Edu27]	**PROS**, **Structured Programming** (Programowanie strukturalne), Michał Borecki
[Edu28]	**PRURE**, **Programming reconfigurable systems** (Programowanie układów rekonfigurowalnych), Bartosz Dec
[Edu29]	**PSEL**, **Design of electronic systems** (Projektowanie systemów elektronicznych), Krzysztof Czuba, Maciej Grzegrzółka, Agnieszka Mossakowska-Wyszyńska, Ryszard Piramidowicz, Witold Pleskacz, Krzysztof Siwiec
[Edu30]	**PWJC**, **Fundamentals of modern C++** (Podstawy współczesnego języka C++), Marek Niewiński
[Edu31]	**PZE**, **Team project** (Projekt zespołowy), Piotr Firek
[Edu32]	**PZSP1**, **Team project 1** (Projekt zespołowy 1), Piotr Garbat, Marek Sutkowski
[Edu33]	**SCK**, **Digital and computer systems** (Systemy cyfrowe i komputerowe), Arkadiusz Łuczyk
[Edu34]	**SOP**, **Operating systems** (Systemy operacyjne), Andrzej Wielgus
[Edu35]	**SYIR**, **Internet of Things systems** (Systemy internetu rzeczy), Jakub Jasiński, Arkadiusz Łuczyk
[Edu36]	**TELFO**, **Electronic and Photonic Technologies** (Technologie elektroniczne i fotoniczne), Romuald Beck, Piotr Firek
[Edu37]	**TEOP**, **Ligthwave Telecommunication** (Telekomunikacja optofalowa), Agnieszka Szymańska
[Edu38]	**USUX**, **Introduction to the UNIX System** (Użytkowanie systemu UNIX), Andrzej Wielgus
[Edu39]	**WAET**, **Introduction to Automation, Electronics and Telecommunications** (Wstęp do automatyki, elektroniki i telekomunikacji), Piotr Marusak, Agnieszka Zaręba
[Edu40]	**WDOF**, **Introduction to Photonics** (Wstęp do fotoniki), Michał Malinowski, Ryszard Piramidowicz, Anna Jusza, Stanisław Stopiński, Krzysztof Anders
[Edu41]	**WINF**, **Introduction to Computer Science** (Wstęp do Informatyki), Marek Niewiński
[Edu42]	**WNUM**, **Introduction to Numerical Methods** (Wstęp do metod numerycznych), Krystian Król
[Edu43]	**WPROJ**, **Preliminary project** (Projekt wstępny), Andrzej Mazurak
[Edu44]	**WSELE**, **Introduction to Embedded Electronics Systems** (Wstęp do systemów elektroniki wbudowanej), Jakub Jasiński, Lidia Łukasiak

3.2. Advanced Courses

Number	Course
[Edu45]	**ASO**, **Semantic Image Analysis** (Analiza semantyczna obrazu), Piotr Garbat
[Edu46]	**ASPE**, **Algorithms for Simulation and Design of Electronic Systems** (Algorytmy symulacji i projektowania systemów elektronicznych), Dominik Kasprowicz
[Edu47]	**BSC**, **Secure Digital VLSI Systems** (Bezpieczne systemy cyfrowe), Zbigniew Jaworski
[Edu48]	**CHA**, **Characterization of materials for microelectronics** (Charakteryzacja materiałów dla mikroelektroniki), Piotr Firek, Aleksander Werbowy
[Edu49]	**FUS**, **Photonic integrated circuits** (Fotoniczne układy scalone), Ryszard Piramidowicz, Anna Jusza, Krzsztof Anders, Stanisław Stopiński
[Edu50]	**IPEF**, **Integration of Electronic and Photonic Devices** (Integracja przyrządów elektroniki i fotoniki), Robert Mroczyński
[Edu51]	**IRNIP**, **Internet of Things: Science and Practice** (Internet rzeczy: nauka i praktyka), Tomasz Skotnicki
[Edu52]	**KROMF**, **Development Trends in Microelectronics and Photonics** (Kierunki rozwoju mikroelektroniki i fotoniki), Jan Szmidt, Paweł Szczepański, Tomasz Skotnicki
[Edu53]	**MEF**, **Mathematical Methods in Electronics and Photonics** (Metody matematyczne w elektronice i fotonice), Andrzej Pfitzner, Agnieszka Mossakowska

[Edu54]	**MMC**, **Monte Carlo Methods** (Metody Monte Carlo), Marek Niewiński
[Edu55]	**NAN**, **Nanotechnologies** (Nanotechnologie), Jan Szmidt, Aleksander Werbowy
[Edu56]	**OBRO**, **Computational Imaging** (Obrazowanie obliczeniowe), Piotr Garbat
[Edu57]	**PAUS**, **Integrated Analog Circuit Design** (Projektowanie analogowych układów scalonych), Krzysztof Siwiec, Tomasz Borejko
[Edu58]	**PSSV**, **VLSI System Design** (Projektowanie systemów scalonych w technice VLSI), Zbigniew Jaworski
[Edu59]	**PV**, **Photovoltaics** (Fotowoltaika), Marcin Kaczkan, Marcin Koba, Agnieszka Mossakowska-Wyszyńska
[Edu60]	**SEN**, **Sensors** (Czujniki), Mateusz Śmietana, Marcin Koba, Monika Janik
[Edu61]	**SSCV**, **Digital VLSI Systems** (Scalone systemy cyfrowe VLSI), Zbigniew Jaworski
[Edu62]	**SVR**, **VR and AR Systems** (Systemy wirtualnej i wzbogaconej rzeczywistości), Piotr Garbat
[Edu63]	**SWIZ**, **3D Vision Systems** (Systemy wizji 3D), Piotr Garbat
[Edu64]	**SYWIZ**, **Vision Systems** (Systemy wizyjne), Piotr Garbat
[Edu65]	**TSP, Spectroscopie Methods** (Techniki spektroskopowe), Michał Malinowski
[Edu66]	**UMFO**, **Machine Learning in Image Photonics** (Uczenie maszynowe w fotonice obrazowej), Piotr Garbat
[Edu67]	**UIRB**, **Internet of Things Devices** (Urządzenia internetu rzeczy i ich bezpieczeństwo), Sławomir Szostak
[Edu68]	**WLS**, **Amplifiers and fiber lasers** (Wzmacniacze i lasery światłowodowe), Krzysztof Anders, Agnieszka Mossakowska-Wyszyńska, Ryszard Piramidowicz
[Edu69]	**ZEUS**, **Zero-power electronics for self-powered IOT systems** (Elektronika o zerowym poborze energii dla układów samozasilających IOT), Lidia Łukasiak, Tomasz Skotnicki
[Edu70]	**ZPB, Joint Research Project** (Zespołowy projekt badawczy), Robert Mroczyński
[Edu71]	**ZPDM**, **Advanced Multimedia Signal Processing** (Zaawansowane przetwarzanie danych multimedialnych), Piotr Garbat
[Edu72]	**ZUKO**, **Radio Frequency Integrated Circuits** (Zintegrowane układy do komunikacji bezprzewodowej), Tomasz Borejko

3.3. Courses in English

Number	Course
[Edu73]	**EELE1, Electronics 1,** Bogdan Majkusiak, Jakub Walczak, Andrzej Mazurak
[Edu74]	**EPFU, Programming Fundamentals,** Krzysztof Madziar

3.4. Courses for other Faculties

Number	Course
[Edu75]	**1LNA**, **Laboratory of Nanotechnology, Faculty of Physics** (Laboratorium nanotechnologii, Wydział Fizyki), Mateusz Nieborek
[Edu76]	**FPTUZ**, **Physical Basis of Information Transmission and Storage, WUT Distance Learning Center** (Fizyczne podstawy transmisji i przechowywania informacji, Ośrodek Kształcenia Na Odległość PW), Agnieszka Szymańska
[Edu77]	**LFO**, **Laboratory of Photonics, Faculty of Physics** (Laboratorium fotoniki, Wydział Fizyki), Ryszard Piramidowicz
[Edu78]	**PFZ**, **Principles of Physics, WUT Distance Learning Center** (Podstawy Fizyki, Ośrodek Kształcenia na Odległość PW), Agnieszka Szymańska

[Edu79]	**POBZ**, **Object-Oriented Programming, WUT Distance Learning Center** (Programowanie obiektowe, Ośrodek Kształcenia Na Odległość PW), Piotr Witoński
[Edu80]	**PZEZ**, **Team project, WUT Distance Learning Center** (Projekt zespołowy, Ośrodek Kształcenia Na Odległość PW), Marek Niewiński
[Edu81]	**TINZ**, **Internet Techniques, WUT Distance Learning Center** (Techniki internetu, Ośrodek Kształcenia Na Odległość PW), Piotr Witoński
[Edu82]	**TLAS**, **Laser Technology, Faculty of Mechatronics** (Technika laserowa, Wydział Mechatroniki), Ryszard Piramidowicz
[Edu83]	**TLA**, **Laser Technology, Faculty of Physics** (Technika laserów, Wydział Fizyki), Ryszard Piramidowicz
[Edu84]	**TOZ**, **Lightwave Telecommunications, WUT Distance Learning Center** (Telekomunikacja optofalowa, Ośrodek Kształcenia Na Odległość PW), Krzysztof Madziar
[Edu85]	**TTSZ**, **Signal Transmission Technology. WUT Distance Learning Center** (Technika transmisji sygnałów, Ośrodek Kształcenia Na Odległość PW), Krzysztof Madziar
[Edu86]	**ZJKUZ**, **WUT Distance Learning Center** (Zjazd kierunkowy, Ośrodek Kształcenia Na Odległość PW), Agnieszka Szymańska
[Edu87]	**ZJ1Z**, **Laboratory 1 - Introduction to Information Technologies, WUT Distance Learning Center** (Zjazd 1 - Podstawy technologii informacyjnej, Ośrodek Kształcenia Na Odległość PW), Krzysztof Madziar
[Edu88]	**ZJ4Z**, **Laboratory 4 - Advanced Specialization Laboratory, WUT Distance Learning Center** (Zjazd 4 – Zaawansowane laboratorium kierunkowe, Ośrodek Kształcenia Na Odległość PW), Agnieszka Szymańska

3.5. Courses in English for other Faculties

Number	Course
[Edu89]	**LTE**, **Laser Techniques, Faculty of Mechatronics**, Ryszard Piramidowicz
[Edu90]	**LT**, **Laser Technique, Faculty of Physics**, Ryszard Piramidowicz
[Edu91]	**PIC**, **Photonic Integrated Circuits, Faculty of Physics**, Ryszard Piramidowicz

4. RESEARCH PROJECTS

Project definitions and descriptions - prepared by Project Leaders.

4.1. Projects Granted by the University

Number	Project
[Pro1]	**Advanced diagnostics and optimization system for the production of thin-film photovoltaic structures** (Zaawansowany system diagnostyki i optymalizacji produkcji cienkowarstwowych struktur fotowoltaicznych), project leader: Ryszard Piramidowicz, April 2024 – December 2025
[Pro2]	**Analysis of luminescence and lasing properties in UV and visible range of ZBLAN glasses doped with thulium ions** (Analiza właściwości emisyjnych i generacyjnych w zakresie UV i widzialnym szkieł ZBLAN domieszkowanych jonami tulu), project leader: Paweł Bortnowski, February 2024 – December 2025 For many years, there has been a significant interest in the development of compact, low-cost sources of coherent radiation operating in the short wavelength spectral range – UV and blue - violet. The dynamic progress is driven by numerous applications of these sources in medicine, spectroscopy, sensor systems, photolithography, information storage systems, optical communication, 3D printing, and more. Semiconductor laser diodes, based on wide-bandgap materials, dominate the market, while solid-state lasers with frequency doubling systems and a few gas lasers are available to a lesser extent. Despite the many advantages of semiconductor lasers, such as compact size and low cost, their applications are limited by not optimal parameters of the emitted beam. An attractive alternative to semiconductor lasers can be systems based on fiber lasers doped with rare earth ions. They potentially allow for the short-wavelength emission and lasing from high-lying energy levels of active ions, offering also excellent beam parameters, high output powers, efficient heat dissipation, and compact dimensions, even for very long resonators. Among available rare-earth ions offering transitions in the short-wavelength range, thulium is one of the most interesting. It is characterized by a simple and well-spaced energy level structure. Such separation of energy levels reduces the probability of non-radiative multi-phonon relaxation processes, thus which supports longer fluorescence lifetimes of metastable levels. In the short-wavelength range, thulium ions allow obtaining emission in UV (down to 280 nm) and blue-violet spectral range. The main objective of this project is to investigate luminescent and lasing properties in the short-wavelength region – visible and UV – of low-phonon ZBLAN glasses doubly doped with thulium and ytterbium ions, differing in concentrations of activator and sensibilizer. The planned research will enable the design of the system of optimized lasing properties and the presentation of a demonstrative version of the laser. The results obtained in the project will extend the fundamental knowledge about the properties of thulium ions in ZBLAN glass matrices and the influence of matrix parameters and doping levels on luminescent and laser properties. Achieving laser action in the UV or blue-violet range would constitute a significant scientific achievement without equivalent in the work of any Polish research teams. In the event of success in achieving laser action in the UV range, the accomplishment would have an international dimension.
[Pro3]	**Carbon nitride thin films as a novel platform for combined optical and electrochemical biosensing** (Cienkie warstwy azotku węgla jako nowa platforma do jednoczesnych optycznych i elektrochemicznych badań biosensorycznych), project leader: Mateusz Śmietana, September 2023 – December 2024 The main objective of this project is to fabricate an optimized carbon nitride (CN) film on the surface of an optical fibre or planar waveguide. CN has to show two different complementary functionalities. First, because of its optical properties, when deposited on optical waveguides, it enables the generation of lossy-mode resonance (LMR) – the phenomenon enabling label-free optical biosensing. The second function is its simultaneous use as an electrode for electrochemical analysis. This unique combination of two different analytical methods in a single device provides high sensitivity and cross-verification of the readouts for improved reliability of the measurements.
[Pro4]	**Coulomb blockade effects in the metal-semiconductor-metal (MIM) and metal-insulator-semiconductor (MIS) structures** (Efekty blokady kulombowskiej w strukturach półprzewodnikowych typu metal-izolator-metal (MIM) i metal-izolator-półprzewodnik (MIS) / AEETK), project leader: Bogdan Majkusiak, April 2024 – December 2025 The goal of the project is the present the issue of modeling of the current-voltage characteristics of a system of two very small objects separated by tunnel insulator layers and to consider the simulated characteristics depending on the tunnel junction parameters. It is expected to show that the Coulomb blockade effects can be observed in measured real devices.

[Pro5] **Developing a real-time monitoring method for material properties during interaction with the biological environment using fiber optic microcavities** (Opracowanie metody monitorowania w czasie rzeczywistym właściwości materiałów podczas interakcji ze srodowiskiem biologicznym za pomocą mikrownęk światłowodowych), project leader: Monika Janik, February 2024 – December 2025

In the context of the increasing utilization of advanced materials, particularly in medical implants and wearable devices, understanding their biocompatibility and interaction with biological tissues becomes crucial. Therefore, the project focuses on developing an innovative research method that enables non-invasive, label-free verification of material interactions with the biological environment in real time. The project envisions the use of a microcavity in-line Mach-Zehnder interferometer (μIMZI) as a platform for real-time monitoring of materials. The microcavity obtained through femtosecond laser ablation of the side surface of the optical fiber, has small dimensions (approximately 62/65 μm) and allows the measurement of changes in the optical properties of materials directly deposited on its surface. Within the project, three types of materials—thin films, nanomaterials, and hydrogels/polymers—will be investigated for their long-term durability and biocompatibility. The materials will be deposited at the bottom of the microcavity (thin films, nanomaterials) or placed within its volume (hydrogels/polymers). Their long-term durability will be evaluated based on real-time optical spectra evolution under specified conditions (climate chamber). In the next stage, sensors modified with these materials will undergo biocompatibility studies with selected model cell lines (2D and 3D cultures) to verify the usefulness of the sensor platform. The project also involves numerical analyses and the characterization of materials and their optical properties to adjust their thickness/crosslinking without disrupting the microcavity's functionality. The obtained results will be correlated with traditional methods of materials and cell culture characterization. The project will involve interdisciplinary, inter-university, and international collaboration, facilitating the implementation of planned activities, thorough analysis of the results, successful achievement of set goals, and the potential expansion of cooperation and engagement in international funding in the future.

[Pro6] **Development of advanced integrated photonic components for applications in sensory systems** (Rozwój zaawansowanych zintegrowanych elementów fotonicznych do zastosowań w układach sensorycznych), project leader: Marcin Lelit, February 2024 – December 2025

Over the past decade, the research focus on Photonics Integrated Circuits (PICs) has shifted from telecommunications, as the primary application area, to sensing. Increasing the selectivity and detection threshold of photonic circuits comprising ring resonators or Mach-Zehnder interferometers is possible through the use of complex optical waveguides with complex cross sections, in particular slot waveguides and subwavelength elements, which are essentially complex planar Bragg gratings.

Using PICs in sensing systems makes it possible to expand their application area by leaps and bounds. The transparency of SiNs in the visible band is particularly interesting in biomedical applications due to their low photodamage to living cells, low water absorption, and high availability of fluorescent tracers. In addition, the fabrication method of SiN chips is compatible with the standard CMOS process.

The main goal of the project is to design, optimize, fabricate, and investigate the properties of qualitatively new integrated photonic elements, specifically slotted waveguides and sub-wavelength elements on a silicon nitride material platform, intended for use in selective photonic sensor systems with enhanced sensitivity.

The project is part of the research effort to develop a silicon nitride (SiN)--based integrated photonics technology platform for sensing applications being developed by IMIO and Cezamat. The scope of R&D work in the project includes carrying out two cycles of design-manufacture-characterization of the structures proposed for testing under the project, as well as systems containing passive elements developed based on slot waveguides and subwavelength structures.

The project results from the joint work of the Institute of Microelectronics and Optoelectronics (IMIO WEiTI PW) and Cezamat PW. The work completed so far has included a full development cycle of light guiding elements, optical signal power dividers, AWG (de)multiplexers, and optical interfaces, and the ongoing work includes the development of biosensors based on circuits using simple fiber cross sections and their integration with microfluidic circuits. The first stage of work is summarized in the article ("Passive photonic integrated circuits elements fabricated on a silicon nitride platform" (MDPI Materials 2022 - 140 pts.). Results to date have been presented at national and international conferences (including the European Conference on Integrated Optics, Integrated Optics - Sensors, Sensing Structures and Methods, CLEO Europe, and National Electronics Conference). More publications and conference reports are in the pipeline. Further development of the SiN sensor platform creates an opportunity to achieve a synergistic effect through the utilization of the applicant's expertise in collaboration with the BioNanoTechnology Department at Cezamat.

[Pro7] **Development of dual-domain sensors for the identification of analytes in complex matrices** (Rozwój sensorów dwudomenowych do identyfikacji analitów w złożonych matrycach), project leader: Monika Janik, June 2024 – December 2025

Given the increasing demand for identifying increasingly complex health issues, this project aims to develop and optimize multi-domain fiber optic sensors that will enable the detection of a broad range of analytes with high sensitivity and specificity. Utilizing sensors that merge different measurement techniques will broaden the measurement scope, enhance the amount of information about the analyte under examination, enable cross-verification of results, and reduce the risk of misdiagnoses. The augmented information is particularly vital in label-free detection, which relies on changes induced by the specific binding of biological materials to the sensor's surface receptor. This allows for detecting analytes without additional markers, such as fluorophores or nanomaterials, which could affect biocompatibility or increase the cost of analyses. The project focuses on developing sensors using optical and electrochemical domains, offering unique

measurement capabilities. These include identifying the biological layer's thickness through changes in light's refractive index and analyzing biological material properties through changes in electrical charge transfer. The project's objectives include fabricating and characterizing multi-domain fiber optic sensors, chemically functionalizing sensor surfaces, determining optimal conditions for receptor-analyte binding, and detecting selected analytes under optimized conditions. Planned activities also involve research in complex biological matrices, such as serum. These efforts will be undertaken by the newly established Biofunctionalization and Advanced Sensing Solutions group, aiming to provide quantitative and qualitative information about the analytes in question and lower detection limits for research purposes in complex matrices. This project paves the way for understanding interaction mechanisms at the molecular level and exploring potential applications of fiber optic sensors in clinical diagnostics and scientific research, responding to the dynamically changing demands of the market.

[Pro8] **Feasibility study of logic circuits using thermally stabilized complementary bipolar transistors** (Studium wykonalności układów logicznych z wykorzystaniem stabilizowanych termicznie komplementarnych tranzystorów bipolarnych), project leader: Piotr Mierzwiński, May 2023 – December 2024

The project titled "Feasibility Study of Logic Circuits Using Thermally Stabilized Complementary Bipolar Transistors" aims to explore the potential of complementary bipolar transistors for digital circuit implementation. While technologies like TTL, TTL-S, and ECL were once preferred for digital circuits, they have been largely replaced by CMOS technology. However, the concept of utilizing complementary bipolar transistors has been known since the 1970s.

Complementary bipolar transistors leverage small and symmetric lateral NPN and PNP bipolar transistors. These transistors are suitable for Very-Large-Scale Integration (VLSI) circuits, especially those requiring high speed or low current. Although digital circuits using complementary bipolar transistors won't replace the most advanced CMOS designs, they can serve as additional components in BiCMOS-type circuits alongside field-effect devices.

The project aims to conduct a feasibility study on logical circuits using complementary bipolar transistors. These transistors, including innovative geometries such as VESTIC, offer the potential for thermally stabilized logic blocks. Such blocks could be used to build fully functional digital circuits that operate effectively across a wide temperature range, striking a balance between power consumption and performance.

The feasibility study will guide future experimental work, including scenarios for verifying the proposed circuit designs across a broad temperature range. By addressing these challenges, researchers hope to pave the way for stable and efficient complementary bipolar transistor-based logic systems.

[Pro9] **Grant for publishing a review article titled: "Advances in Optical fiber sensors for in Vivo Applications - a Review of Sensors Tested on Living Organisms" in a prestigious international journal** (Grant na opublikowanie artukułu przeglądowego pt: " Advancements in Optical fiber sensors for in Vivo Applications - a Review of Sensors Tested on Living Organisms" w prestiżowym międzynarodowym czasopiśmie), project leader: Mateusz Śmietana, January 2023 – January 2024

The aim of the project is to prepare a review article on the topic "Advances in Optical fiber sensors for in Vivo Applications - a Review of Sensors Tested on Living Organisms" and publish it in a renowned scientific journal.

[Pro10] **Interaction of Electromagnetic Radiation with Biological Structures of Varying Complexity – New Real-Time Analysis Opportunities Using Microcavity Fiber Optic Systems** (Oddziaływanie promieniowania elektromagnetycznego ze strukturami biologicznymi o różnej złożoności — nowe możliwości analiz w czasie rzeczywistym z wykorzystaniem mikrownękowych układów światłowodowych), project leader: Mateusz Śmietana, April 2024 – December 2025

The impact of electromagnetic radiation on biological structures depends on both the parameters of the radiation and the nature and complexity of the biological structure subjected to it. It is known that appropriately chosen radiation parameters for biological structures can induce non-destructive and therapeutic effects, known as phototherapy (longer waves, typically visible and infrared ranges), or conversely, lead to permanent damage to these structures (shorter waves, typically UV, X-ray ranges, as well as high-energy ions and elementary particles). It should be noted that permanent damage resulting from short-wave radiation interaction is the subject of intensive research, also due to therapeutic effects (radiotherapy). In the first case, i.e., interaction with longer waves, the mechanisms of interaction are not fully understood despite their medical application. Slightly more information is available regarding interaction with shorter waves. Their effects may include disruptions to DNA structure, including mutations, and the generation of free radicals. Often conflicting results from cohort studies necessitate supplementary laboratory research, where potential impacts of radiation parameters on specific types of biological structures are investigated at the cellular, bacterial, or isolated DNA chain levels to establish therapeutic parameter ranges. However, no methods are currently available to study biological structures during and after radiation exposure, i.e., in real-time and without affecting the measurement system, in the long term. Overcoming these limitations could provide comprehensive knowledge of interaction mechanisms and improve therapeutic methods.

As part of this project, fiber optic sensors will be developed, particularly microcavity-based in-line Mach-Zehnder interferometers (μIMZIs), made using precisely controlled femtosecond laser ablation in standard silica single-mode fibers and used to analyze real-time radiation interaction, including different types and exposure methods, on biological structures placed in microcavity. Such systems allow remote analysis of changes occurring on the surface and in microcavity's volume (on the order of pL). The project team, along with collaborators, has confirmed that biosensing using

such systems is possible, including detecting bacteria or viruses, and monitoring DNA amplification and cell cultures. The team has demonstrated that selected optical fibers can withstand even high doses of ionizing radiation. Therefore, as part of the project, in collaboration with teams in Poland and abroad, dedicated sensory structures and measurement improvements (including mictoincubator) will be developed to subject selected biological structures of varying complexity to electromagnetic radiation interaction. The microstructure will provide suitable conditions for immobilizing DNA or growing and adhering to selected cell lines, followed by real-time identification of their interactions in the fiber optic microstructure with the selected radiation. The new measurement capabilities obtained will provide comprehensive information on the impact of selected types of radiation and their application on DNA structure or the course of cell life cycles. This interdisciplinary project is pioneering, and the results obtained may be groundbreaking in developing new therapeutic methods.

[Pro11] **Miniature interrogators in the integrated photonics technologies** (Miniaturowe interrogatory w technologii fotoniki scalonej), project leader: Aleksandra Bieniek- Kaczorek, March 2024 – December 2025

The main scientific goal of the project is to develop a miniature interrogator for fiber Bragg grating (FBG) based on a photonic integrated circuit. Considering the potential applications and the growing popularity of such solutions in recent years, as well as the results of previous research, the theme of this project fits well into the strategic fields of interaction: "scientific foundations: nature and the apparatus of its description", "sustainable industry, materials, and manufacturing processes", and "healthy, sustainable living environment".

The proposed demonstrator of the interrogator in the project is a device designed to read changes in wavelength in sensors with fiber Bragg gratings. These gratings are sensitive to temperature and deformation, so any change in environmental conditions will cause a corresponding change in their reflective characteristics, which is duly recorded and analyzed. There are several basic interrogation schemes, but the ultimate solution in the project is a system utilizing the transmission dependence on the input wavelengths of asymmetric Mach-Zehnder interferometers (AMZI).

The research plan includes the design of a specialized photonic integrated circuit (ASPIC) using indium phosphide technology, allowing for the monolithic integration of active and passive elements. The next steps involve the optical and electrical characterization of the ASPIC system. Subsequent elements of the research plan include the development of control electronics, the assembly of the demonstrator system, and the development of algorithms for reading the Bragg wavelength based on the sensor signal. The characterization of the ASPIC system will take place in well-equipped laboratories at the Institute of Microelectronics and Optoelectronics at the Warsaw University of Technology, as well as in more advanced and automated measurement setups at Eindhoven University of Technology (TU/e).

The research team at the Optoelectronics Department of the Institute of Microelectronics and Optoelectronics at the Warsaw University of Technology has experience in designing and characterizing interrogators of Bragg grating, and preliminary results have been presented at national and international conferences (including the XX Conference "Optical Fibers and Their Applications," TAL, and the European Conference on Integrated Optics, Integrated Optics - Sensors, Sensing Structures and Methods, CLEO Europe). Additionally, the possibility of consulting project results with the Optics and Photonics Department of the Faculty of Physics at the Warsaw University of Technology will allow for the verification of sensor parameters.

The developed solution, beyond its scientific value, holds significant potential for implementation, for example, in medical applications within digital health monitoring systems, serving as non-invasive sensors for vital signs.

[Pro12] **Photonic integrated circuits for applications in free-space optical communication systems** (Ultracienkie warstwy ferroelektryczne wytwarzane metodami PVD dla zastosowań w nowoczesnych nieulotnych pamięciach półprzewodnikowych (NVSM)), project leader: Ryszard Piramidowicz, November 2023 – October 2025

The main goal of the project is to develop and investigate qualitatively new solutions for wireless optical communication, based on photonic integrated circuits (PICs), manufactured in various technologies and operating in different spectral ranges - the classical near-infrared range (NIR) typical for fiber optic telecommunications and in the significantly more attractive mid-infrared range (MIR) for free-space communication.

[Pro13] **Real-time monitoring of impact of gamma radiation on properties of thin films** (Monitorowanie w czasie rzeczywistym wpływu promieniowania gamma na właściwości cienkich warstw), project leader: Mateusz Śmietana, May 2023 – December 2024

The aim of the project is to make a series of test structures of long-period fiber gratings and selected thin-film coatings on their surfaces, and to verify the possibility of using such systems to study in real time the impact of radiation exposure, including gamma radiation, on the properties of the thin films.

[Pro14] **System for the characterization of ferroelectric (FE) properties of thin films and FE nanoelectronic and photonic devices** (System do pomiarów i analizy właściwości ferroelektrycznych cienkich warstw oraz ferroelektrycznych przyrządów nanoelektronicznych i fotonicznych), project leader: Robert Mroczyński, October 2023 – September 2025

The subject of the application is the purchase of a unique apparatus for measurements and analysis of thin films' ferroelectric (FE) properties. The equipment enables the implementation of subtle characterization of various materials, particularly dielectric and composite materials, with thicknesses even on a nanometer scale, which is unique for this equipment class.

[Pro15] **The Empathetic Virtual Assistant - eIVA** (Realizacja rozwoju prototypu projektu biznesowego biorącego udział w programie Preinkubacji, program „Grant na prototyp"), project leader: Piotr Garbat, October 2024 – January 2025

The project aims to build a preliminary prototype of the Empathetic Virtual Assistant (eIVA) system. The target eIVA system is an empathetic, intelligent virtual assistant integrated with a user communication interface based on voice, image, and video, allowing for more natural and interactive forms of communication.

[Pro16] **Thin film materials for ionizing radiation detection with optical fiber sensors** (Materiały cienkowarstwowe do detekcji promieniowania jonizującego z zastosowaniem czujników światłowodowych), project leader: Marcin Koba, March 2024 – December 2026

A dosimeter for ionizing radiation based on optical fiber sensor technology offers a unique ability to directly measure the radiation dose and verify the calculated dose distribution received, e.g., by cancer patients or for high-quality treatment of materials. The radiation-sensitive materials, typically available as powders, must be transferred to the fiber surface or volume to make the sensing effective. The transferring process is typically highly unrepeatable, which impacts the device properties and makes scaling up the manufacturing difficult. Therefore, advancements in the optical fiber sensor technology for ionizing radiation are expected when developing thin film deposition technology of radiation-sensitive materials. As an example of the high impact of thin film application, transfer from hybrid technologies to advanced high purity thin film deposition can be noted that has made integrated circuits fabrication possible and current development in almost all fields of science and industry. In this project, thin film materials for optical ionizing radiation sensing will be developed and optimized for their application in optical fiber sensing devices. The materials will be obtained using advanced magnetron sputtering techniques. In particular, carbon-doped aluminum oxide (Al2O3:C) and terbium-doped gadolinium oxysulphide (Gd2O2S:Tb) will be considered as materials offering optically stimulated luminescence (OSL) or scintillating effect, respectively. Due to the requirement for tuning properties of the materials, including complex refractive index, dopant concentration, and crystallinity, various sputtering parameters will be applied. Plasma will be generated using different generators and sputtering schemes, including high-power impulse magnetron sputtering (HiPIMS) deposition, offering unique properties of the materials, including crystalline structure. The deposition process parameters will be optimized to achieve their highest sensitivities to ionizing radiation as their process-structure-property relationships will be systematically investigated. Further, the films will be deposited on various optical fiber sensing architectures, where the properties of the films can be investigated with great precision, and what is most important, remotely. The ionizing radiation optical fiber sensors with optimized thin films will be developed and delivered with fruitful research outcomes and publications at the end of the two-year project. The possible applications depend on doses and tuned thin film properties, covering various medical to industrial applications.

[Pro17] **Thin-film photoluminescent structures using large-particle organic and non-organic matrices** (Cienkowarstwowe struktury fotoluminescencyjne wykorzystujące wielkocząsteczkowe matryce organiczne i nieorganiczne), project leader: Bartosz Fetliński, April 2023 – December 2024

The main goal of the "Thin-film photoluminescent structures using large-particle organic and non-organic matrices." is to investigate feasibility of modifying the photoluminescence properties of rare earth ions by their integration into three selected matrices, organic and nonorganic. The f-f transitions in the lanthanides are of forbidden character, which makes them particularly sensitive for surroundings of the ion in the matrix and symmetry of the integration site. In this project we aim to investigate this effect for a set of chosen rare earth ions incorporated into three types of organic and nonorganic matrices: silicate phosphates glasses, fluoropolymers such as Nafion® as well as polymer thin films. The production of these matrices also in the form of thin layers with a thickness of several tens of nanometers introduces an additional method of modifying the coordination environment of lanthanide ions, but also poses some engineering challenges. They mainly concern the optimization of methods for obtaining such layers in a controlled, repeatable manner, which also enables obtaining the desired structural properties of the layers, especially their continuity and homogeneity. Due to the significant importance of proper structural characterization within the project, which combines the competences of teams from Faculty of Electronics and Information Technology (FEIT) and the Faculty of Chemistry, we also anticipate cooperation with foreign partners (Paul Scherrer Institute - Switzerland, Vilnius University - Lithuania), who have advanced methods of structural characterization not available at WUT. Although the final selection of lanthanide+matrix systems will take place after more in-depth literature studies, we anticipate the use of europium ions, and probably also terbium and cerium. The photoluminescence properties of rare earth ions in the considered systems may also depend on external factors affecting the matrix, such as, for example, humidity, which makes it suitable for sensor applications or monitoring the condition of thin-film membranes, e.g. in fuel cells. Other possible areas of application of the developed structures are printed waveguides, fuel cells, thin-film sensors, amplifiers in integrated photonics. However, this project is of a basic research nature, and the developed structures samples obtained at the Faculty of Chemistry will be characterized by optical

spectroscopy methods by a team from the Institute of Microelectronics and Optoelectronics of FEIT. An attempt will be made to physically interpret the obtained results, including in particular the possible processes of energy transfer between the dopants and the matrix and the influence of the change of symmetry on the probabilities of the 4f-4f and 5d-4f transitions. As a result of the project, we anticipate the publication of 3 articles (including 2 from the upper decile) and the submission of a project proposal that will allow the continuation of research based on the knowledge obtained.

[Pro18] **Towards metal oxide-based memristors as artificial synapses for neuromorphic computing** (W kierunku struktur memrystorowych bazujących na tlenkach metali jako sztucznym synapsom do obliczeń neuromorficznych), project leader: Robert Mroczyński, March 2024 – December 2026

The continuous development of semiconductor technology over the past seventy years has led to the achievement of several civilization-changing milestones. However, after the initial few decades, often referred to as the happy scaling era, challenges began to arise for designers and technologists due to the reduction in structures' dimensions and changes in device architecture. Nowadays, semiconductor device technology is approaching the limits of its capabilities, and further improvement of device parameters by reducing their planar sizes will soon become impossible due to fundamental limitations such as Heisenberg's uncertainty principle and carrier tunneling. Drawing inspiration from the function of the human brain, including its dimensionality, energy efficiency, and fundamental functionalities, neuromorphic computing systems have emerged as promising concepts to tackle these challenges. Such systems leverage circuit elements to replicate neurobiological processes. Among the crucial components of a neuromorphic computer, electronic synapses have received significant attention in research. This work will elaborate more on oxide-based memristors as possible candidates for emulating artificial synapses and constructing artificial neural networks. The specific aims of this project will be investigating metal oxide-based devices, fabricating suitable memory device matrices, and resolving reliability issues such as device variability, endurance, retention, and scaling through materials engineering, fabrication process optimization, circuit design, testing, and subtle characterization. The expected results of this project will contribute to the advancement of neuromorphic computing by exploring and developing memristor technology for artificial synapses. This research area is well-covered by the POB Material Science and Engineering and fits into the worldwide activities that encourage research in materials engineering for semiconductor technologies after the EU ChipsAct initiative.

[Pro19] **Ultrasensitive genosensory optical fiber microsystem** (Ultraczuły genosensoryczny mikrosystem światłowodowy), project leader: Monika Janik, April 2023 – December 2025

The goal of this project is direct, fast, real-time, and label-free isothermal DNA amplification monitoring using microcavity fabricated in an optical fiber. The solution offers a significant advantage over many other sensing concepts – it makes possible optical analysis in just picolitre sample volumes with one of the highest reported sensitivities (over a few thousands of nm/RIU).

[Pro20] **Ultrathin ferroelectric PVD films for novel Non-Volatile Semiconductor Memory (NVSM) structures** (Ultracienkie warstwy ferroelektryczne wytwarzane metodami PVD dla zastosowań w nowoczesnych nieulotnych pamięciach półprzewodnikowych (NVSM)), project leader: Robert Mroczyński, September 2023 – September 2025

Modern advancements in integrated circuit technology have surpassed fundamental physical limits. The continuous progress in semiconductor device technology has led to the development of advanced processing and materials techniques. However, the increasing complexity and operating frequency of integrated circuits have resulted in an undesirable rise in power dissipation. . In recent years, new concepts for logic and memory devices have emerged to mitigate power dissipation by leveraging different physical phenomena. Among these concepts, ferroelectric (FE)-based devices have gained attention due to their ease of integration into modern Field Effect Transistors (FET) and their potential for achieving high density, low power consumption, high-speed operation, and increased endurance. In this project, we propose comprehensive investigations into the ferroelectric effect in hafnium oxide (HfO2)-based layers fabricated using magnetron sputtering.

4.2. Projects Granted by the National Centre for Research and Development

Number	Project
[Pro21]	**Development of a modular quantum computer infrastructure for special and military IT applications** (Opracowanie modularnej infrastruktury komputera kwantowego do specjalnych i wojskowych), TECHMATSTRATEG III, Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, project leader: Jan Szmidt, December 2020 – December 2024 The aim of the project is a prototype of a modular quantum computer infrastructure (MIKOK) for IX RTL for special and military purposes as well as general IT applications. The modularity of the infrastructure ensures a high degree of its versatility, availability, and security for a variety of implicit and explicit applications implemented by many independent

	users. The infrastructure created as part of the project's implementation consists of four basic modules: Quantum Computer Unit, Secure Multi-Access Platform, Quantum Computer Compiler, and Quantum Computer Simulator. The use of infrastructure enables multi-access testing and running quantum algorithms in both implicit and explicit modes. The adopted modular solution provides the opportunity to expand the infrastructure (e.g., multiplying modules) and their development (e.g., increasing the number of qubits).
[Pro22]	**Development of an innovative photonic system for monitoring water resources** (Opracowanie innowacyjnego fotonicznego systemu monitoringu zasobów wodnych), HYDROSTRATEG, Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, VIGO Photonics S.A., project leader: Ryszard Piramidowicz, October 2023 – September 2026 New photonic and non-invasive measurement methods will be developed and verified, followed by the construction of autonomous probes for remote monitoring of selected water quality parameters, such as monitoring nitrate, nitrite, and phosphorus compounds content. Optionally, research will also be conducted on the detection of ammonia and microplastics. Currently used methods employ extensive, expensive, and require highly qualified personnel to operate high-end laboratory equipment, often excessive compared to the requirements. Detection of signals from selected substances using matched systems will allow for miniaturization, automation, and cost reduction while increasing the level of security in monitored areas. Functional groups of various substances have a number of characteristic absorption lines (so-called fingerprints) in the mid-infrared range of 3-11 µm, enabling their identification. VIGO Photonics S.A. - a global leader in mid-infrared detector production, has the potential to develop appropriate detection systems. Research will be conducted on the possibility of using various measurement techniques (including Attenuated Total Reflectance, Raman spectroscopy) along with methods enabling their implementation in the form of miniature probes. The measurement system will consist of a light source, a transducer structure, and a detection module. The light source will be QCL laser, ICL laser or incoherent source. The transducer structure (ultimately in the form of photonic structures) and the detection module (single or multi-element) as well as the development of infrastructure enabling measurements of selected parameters will be the subject of work carried out at VIGO Photonics. The completed probes will be supplemented with control, power, and telecommunication systems. Collaboration with scientific institutions will allow for the development of necessary measurement systems (IMO WUT), their verification, and practical use (ERCE PAN).
[Pro23]	**Photonics Integrated Circuits technologies for MIDIR** (Technologie układów fotoniki scalonej na zakres średniej podczerwieni - MIRPIC), TECHMATSTRATEG III, Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, project leader: Ryszard Piramidowicz, co-workers: Krzysztof Anders, Anna Jusza, Aleksandra Paśnikowska, Stanislaw Stopiński, April 2020 – March 2024 The result of the project will be a “product innovation” in the form of Application Specific Photonic Integrated Circuits (ASPIC) designed to work in the midinfrared range, MIR (3-5.5 µm). In particular, different building blocks necessary to define ASPICs will be designed, manufactured and tested, which will allow to design, manufacture and test the parameters of the ASPIC demonstrator. The demonstrator will reflect the typical characteristics of integrated photonics, i.e. multi-channel, integration on a common substrate, electronic and optical interfaces, and packaging. The demonstrator will be a multi-channel receiver transmitter operating for least three wavelengths and designed for the detection of chemical compounds (e.g., CO2, NOx, SOx) or for free-space optical communication. The result of the project will be "know-how" in the field of design and production of a basic set of functional blocks and their hybrid integration, which will allow to define the first in Poland technology platform of ASPIC circuits for the MIR range. Then as a result of the planned implementation will allow for the design and production of integrated photonics systems with different parameters corresponding to the changing needs of customers, in line with the concept of industry 4.0. Industry 4.0 assumes organization of production that allows reacting to changes in market demand for a product with specific parameters - "mass personalization". Strong competition and growing customer expectations mean that not only the systematic increase in production efficiency is needed but also the way to personalize it, i.e. produce short series of products designed according to the needs of a specific customer. Their price should not be higher than the price of mass-produced goods. Such flexibility is to be the result of the fourth industrial revolution and the product developed in the project is to meet these challenges.

4.3. Projects Granted by the National Science Centre

Number	Project
[Pro24]	**Heterogenous diamond biosensing nanoarchitectures: opto-electro-chemical interactions with antibody complexes** (Heterogeniczne diamentowe nanoarchitektury biosensoryczne: opto-elektrochemiczne interakcje z układami przeciwciał), OPUS, Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, project leader: Mateusz Śmietana, October 2022 – October 2025

High demand for pathogen (viruses) detection has been giving a significant boost to recent research trends focusing on the development of fast, highly sensitive, label-free, miniature devices based on various principles. The efforts range from nanomaterials and heterostructures to novel device architectures. The aim of the efforts is to improve the sensor performance not only via enhanced analyte diffusion and surface area, but more importantly to deliver and explore physico-chemical phenomena in biosensing structures that would change our view on the present biosensing concepts. Prior examples here are for instance non-enzymatic glucose biosensors, aptamers as artificial antibodies, molecularly imprinted bioreceptors, or various use of surface plasmons.

The interdisciplinary team established for this project aims that simultaneous optical (OPT) and electrochemical (EC) interrogation of heterogenous diamond 3-dimensional nanoarchitectures (periodic nanowalls, nanocages or nanoneedles) could provide a fundamentally new sensing approach, when taking advantage of unique features of diamond.

EC materials are often not optically transparent and when they are, they suffer from a low potential EC range, low biocompatibility or unstable surface modification. However, electrically conductive and transparent boron-doped diamond nanoarchitectures will allow us to benefit from unique optical and EC performance to meet such challenging demands. Moreover, advanced nanofabrication of diamond will enable to form 3-dimensional structures with a heterogenous distribution of both OPT and EC properties, allowing to enhance specific interactions with locally grafted antibodies. For instance, we assume that the EC polarization sweep will introduce the increase of the bioanalyte concentration close to the surface via migration transports and that sensing will also be locally optically amplified. Next, electromagnetic field distribution and electron transfer will be tailored by periodic nanoarchitectures enhancing and specifying interactions taking place at the diamond-molecule interface.

According to the literature, diamond-based nanostructured biosensors were never simultaneously interrogated in OPT and EC domains. The main scientific objective is thus to reveal fundamental mutual OPT-EC interactions at the diamond-based nanoarchitectures biofunctionalized with antibody complexes that can be beneficial for applications in label-free biosensing systems.

We will explore two complementary architectures: (A) application of nanopatterned silicon wafers such as photonic crystals (1D or 2D) coated with diamond film, and (B) synthesis of self-assembled 3D-diamond structures with periodic nanoarchitectures such nanowalls, nanocages or nanoneedles, where intrinsic and boron-doped structures will be combined with superior EC/OPT and biofunctional diamond properties. To achieve that we will use advanced deposition and surface processing techniques, such as electron beam lithography, reactive ion etching, and modified chemical vapour deposition (CVD) processes to obtain diamond films and their nanostructures. The nanoarchitecture device design and experimental data will be supported by multi-scale ab-initio and molecular dynamics simulations.

To make the sensing system specific to certain biological targets, the nanoarchitectures will be biofunctionalized with antibodies towards virus proteins as non-infectious proxies (i.e., specifically influenza, SARS, HSV antigen proxies), directly or via gold nanoparticles. The heterogeneous approach with nano-engineered diamond will induce targeted grafting of antibodies complexes, allowing for high specificity of biosensing system along with enhanced sensitivity delivered by simultaneous electronic (EC charge transfer) and OPT (photonic and plasmonic) interactions.

To successfully address the above aims, challenges, and required expertise in the interdisciplinary D4CZaPLa project, the new international and complementary team is formed where groups at Gdańsk University of Technology (GUT), Warsaw University of Technology (WUT), and Institute of Physics, Czech Academy of Sciences (FZU) join forces, expertise and facilities. FZU specializes in multi-scale computational simulations, synthesis and nanodiagnostics of diamond nanoarchitectures, while GUT are experts in doping, biofunctionalization and electrochemical analyses and WUT designs and studies thin film optical biosensors.

[Pro25]

Monitoring the impact of ionizing radiation on cell cultured in a microcavity Mach-Zehnder interferometer (Monitorowanie wpływu promieniowania jonizującego na komórki hodowane w mikrownękowym światłowodowym interferometrze Macha-Zehndera), Preludium 22, Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, project leader: Tomasz Gabler, January 2024 – January 2026

The main goal of this project is to develop a microcavity optical fiber Mach-Zehnder interferometer system for cells monitoring, whose optical response will not depend on ionizing radiation. Experiments will be carried out using radiation from different sources and with a wide range of doses. For the obtained platform, cell monitoring experiments and analysis of the effect of ionizing radiation on the behavior of these cultures will be carried out. Ionizing radiation includes gamma rays, X-rays and high-energy particles, is capable of interacting with biological molecules and generating various biological effects. This radiation is of great importance in applications such as medical imaging, sterilization, mutagenesis research, DNA damage research and cancer treatment. The unique properties of ionizing radiation make it an invaluable tool for understanding cellular processes, diagnosing diseases and developing innovative therapies. The research and the information obtained from it will allow e.g. to adjust the dose and type of radiation in the treatment of cancer patients.

[Pro26]	**Translucent titanium dioxide nanostructures deposited on substrates with complex geometry for photoconversion and sensorics** (Nanostruktury półprzezroczystego ditlenku tytanu osadzane na podłożach o złożonej geometrii do fotokonwersji i sensoryki), CEUS-UNISONO, Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, project leader: Mateusz Śmietana, co-workers: Monika Janik, Emil Pituła, Mariusz Sochacki, April 2021 – March 2024 The project aims on fundamental material research on semi-transparent nanostructured surfaces with complex 3D geometry for enhancement of light harvesting and label-free sensing. Titania nanotube arrays with tunable absorption light spectra due to tailoring of the band-gap and nanotube dimension will be in particular studied. Well-defined nanotube arrays will be formed on surfaces with complex geometry to achieve unique light-matter interacting systems. In particular, a double-faced nanotube-array-based system with sequential light absorption and an optical-fibre-based sensor coated with nanotube arrays for label-free sensing of various gases and liquid analytes will be fabricated and investigated.

4.4. Projects Granted by the Ministry of Education and Science

Number	Project
[Pro27]	**Optical multi sensor fusion for ionizing radiation diagnostics (WP1)** (Fuzja wielu czujników optycznych na potrzeby diagnostyki promieniowania jonizującego (pakiet WP 1)), Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, project leader: Mateusz Śmietana, October 2023 – January 2024 The aim of the "OPTIcal Multi-SEnsor fusion for ionizing radiation Diagnostics" project was to design, develop, calibrate and test in real conditions an innovative, integrated solution based on optical sensors connecting several technological platforms. The project responds to research needs in the field of real-time radiation monitoring and uses state-of-the-art, non-standard optical sensing elements to create a universal platform allowing for applications in HEP facilities and the space industry, as well as the transfer of the developed technology to partners around the world.

5. DISSEMINATION OF KNOWLEDGE

5.1 Students Scientific Associations

5.1.1 Students Scientific Association of Microelectronic and Nanoelectronics (KNMiN) (Koło Naukowe Mikroelektroniki i Nanoelektroniki KNMiN)

Association Tutor: Mateusz Śmietana, Ph.D., D.Sc.

In the interests of the Students Scientific Group of Microelectronics and Nanoelectronics are issues mainly related to the technology, design instruments, characterization and application of new materials in the field of optoelectronics and microelectronics. Examples of topics dealt with by the members of the Student Scientific Association: preparation and characterization of semiconductor structures, the organization of trips to conferences, workshops and symposia (where group members can get acquainted with the latest achievements in the field of micro-, nano- and optoelectronics, meetings of eminent personalities from the world of modern science and to present the results of their own research).

5.1.2 Students Scientific Association of Optoelectronics (KNO) (Koło Naukowe Optoelektroniki KNO)

Association Tutor: Ryszard Piramidowicz, Ph.D, D.Sc.

Student Association of Optoelectronics formally started in May 2006, however, the custom of nonobligatory student seminar meetings – foundation of our Association – has been successfully continued since 2002. Presently, the Association consists of several students and Ph.D. students of Institute of Microelectronics and Optoelectronics, however graduate professionals complement our ranks, as well.

Main scientific interest covers:

- fiber lasers and amplifiers,
- photonic integrated circuits,
- special optical fibers and fiber components,
- new optically active materials for light sources (polymers, com posites, glasses and nanocrystals doped with rare-earth ions).

The goals of Student Association of Optoelectronics:

- popularizing optoelectronics and photonics technology disciplines,
- conducting research and development works in the field of optoelectronics,
- supporting all forms of activity leading to the development of professional skills of KNO members.

5.1.3 Students Scientific Association of Microsystems (ONYKS) (Koło Naukowe Mikrosystemów ONYKS)

Association Tutor: Jakub Jasiński, Ph. D.

The members of the Students Scientific Association are involved in the implementation of various projects (analog, microcontrollers, FPGAs) and have necessary tools to accomplish circuit boards. The scientific interest also includes popularization of electronics among the youth and students.

5.1.4 Student Scientific Association of Integrated Systems (Koło Naukowe Systemów Scalonych)

Association Tutor: Marek Niewiński, Ph. D.

The main areas of interest are: developing mixed analog-digital system using SoC board, designing extension board for SoC, programming microcontrollers and Integrated Circuit design.

5.2 Photovoltaic Platform, Warsaw University of Technology (PVP)

Coordinator: Ryszard Piramidowicz, Ph.D, D.Sc.

The Photovoltaic Platform was established in 2014 at Warsaw University of Technology in order to increase utilization of the scientific potential and encouraging industry-oriented research services. The Photovoltaic Platform aims to bring together complementary competences of various research groups of WUT, thus creating strong multidisciplinary photovoltaic group capable of successful realization of both large research projects and development of complete solutions for the industry partners. The Photovoltaic Platform core consists of teams from the Faculty of Electronics and Information Technology and Faculty of Physics, as well as teams from other faculties involved in research on various aspects of photovoltaic technologies.

Range of competences of PVP covers all levels of photovoltaics – from physics of the solar cells, structure of modules, inverters and mounting large methods, design, development and performance evaluation of photovoltaic systems up to energy profiles prediction and assessment of grid integration issues. The Platform teams also help prospective investors to evaluate their models of engagement in the photovoltaic market, taking into consideration technical challenges, legal environment and economic feasibility.

Cooperation with industry partners is critical for long term development of photovoltaics at the Warsaw University of Technology. The Photovoltaic Platform cooperates closely with a number of companies interested in taking part in expected rapid development of photovoltaic market. Broad knowledge of Polish photovoltaic market provides the Photovoltaic Platform basis for further development of competences in connection with identified needs of the industry. In parallel with involvement in the cooperation with business partners the Photovoltaic Platform teams remain engaged in a number of research project.

6. DEGREES AWARDED

6.1. Ph.D. Degrees

Number	Doctoral thesis
[PhD1]	Kamiński Maciej, **Development of Elements of the Technology for Manufacturing High-Voltage p-i-n Diodes on Silicon Carbide Substrate** (Opracowanie wybranych elementów technologii wytwarzania wysokonapięciowych diod p-i-n na podłożu z węglika krzemu), scientific supervisor: Sochacki Mariusz, October 21
[PhD2]	Masłyk Monika, **Magnetron sputtering deposition of GaN layers doped with oxygen and analysis of ohmic contacts with n+-GaN:O subcontact layer to n-type GaN and AlGaN/GaN HEMT transistors** (Domieszkowanie warstw GaN tlenem metodą rozpylania magnetronowego i analiza kontaktów omowych z warstwą podkontaktową n+ GaN:O do n-GaN i tranzystorów AlGaN/GaN HEMT), scientific supervisor: Łukasiak Lidia, December 6

6.2. M.Sc. Degrees

Number	Master's thesis
[MSc1]	Domian Konrad, **Methods of implementing error detection and correction circuits in SRAM memories,** (Metody realizacji układów detekcji i korekcji błędów w pamięciach SRAM), supervisor: Pleskacz Witold, October 4
[MSc2]	Głąbicki Adam, **Hardware implementation of selected encryption algorithms,** (Implementacja sprzętowa wybranych algorytmów szyfrowania), supervisor: Wielgus Andrzej, October 4
[MSc3]	Harbaszewski Kamil, **Analysis of non-linear structures with a modulated refractive index showing anti-PT symmetry**, (Analiza własności nieliniowych struktur o modulowanym współczynniku załamania wykazujących symetrię anti-PT), supervisor: Mossakowska-Wyszyńska Agnieszka, February 28
[MSc4]	Kosowski Karol, **Classified work** (Praca utajniona), supervisor: Sochacki Mariusz, October 4
[MSc5]	Misztal Jakub, **Extension of the functionality of the bridge circuit converting Atomic Transactions between the AMBA AXI4 and AMBA AXI5 standards, and analysis of its implementation variants in terms of area optimization, power consumption, and performance**, (Rozszerzenie funkcjonalności układu mostka do konwersji transakcji atomowych między standardami AMBA AXI4 i AMBA AXI5 oraz analiza wariantów jego implementacji pod kątem optymalizacji powierzchni, poboru mocy oraz wydajności), supervisor: Pleskacz Witold, October 4
[MSc6]	Rahmanimanesh Yasaman, Management of temporal dynamics of ultrafast all polarization maintaining fiber lasers, (Kształtowanie czasowej dynamiki ultraszybkich laserów zbudowanych na światłowodach utrzymujących polaryzację), supervisor: Piramidowicz Ryszard, January 17
[MSc7]	Rękawek Michał, **The influence of counter-running wave interference on the properties of structures exhibiting PT symmetry**, (Wpływ interferencji fal przeciwbieżnych na właściwości struktur wykazujących symetrię PT), supervisor: Mossakowska-Wyszyńska Agnieszka, October 4
[MSc8]	Warszewski Jakub, **Magnetron sputtered indium tin oxide as an electrochemical electrode material in optical sensing systems**, (Tlenek cyny indu wytwarzany techniką rozpylania magnetronowego jako elektrochemiczny materiał elektrodowy w optycznych układach czujnikowych), supervisor: Koba Marcin, May 29

6.3. B.Sc. Degrees

Number	Engineering thesis
[BSc1]	Anderson Paweł, **Laboratory demonstrator of a mid-infrared free-space communication system**, (Laboratoryjny demonstrator systemu komunikacji w wolnej przestrzeni na zakres średniej podczerwieni), supervisor: Anders Krzysztof, February 09
[BSc2]	Antonowicz Sebastian, **A technological process controller for use with a magnetron sputtering chamber**, (Sterownik procesu technologicznego do zastosowania przy komorze napylania magnetronowego), supervisor: Szostak Sławomir, June 28

[BSc3]	Berliński Mateusz, **Implementations of on-chip clock signal generation systems in FD-SOI 22 nm technology**, (Implementacje układów generacji sygnałów zegarowych on-chip w technologii FD-SOI 22 nm), supervisor: Borejko Tomasz, September 26
[BSc4]	Dziedzic Antoni, **Integrated voltage-controlled generator in CMOS technology**, (Scalony generator przestrajany napięciem w technologii CMOS), supervisor: Pleskacz Witold, February 09
[BSc5]	Filipiuk-Ohradka Jarosław, **Hardware implementation of RISC-V processor extension for Bit Manipulation,** (Sprzętowa implementacja bloku realizującego rozszerzenie Bit Manipulation dla procesora RISC-V), supervisor: Siwiec Krzysztof, February 23
[BSc6],	Filonik Mikołaj, **Selected issues of implementation of IoT endpoint**, (Wybrane zagadnienia realizacji stacji końcowej Internetu Rzeczy), supervisor: Borecki Michał, September 26
[BSc7]	Freliszka Michał, **Social network implementation using the Spring framework**, (Implementacja serwisu społecznościowego z wykorzystaniem frameworka Spring), supervisor: Witoński Piotr, June 28
[BSc8]	Gmurczyk Michał, **Implementation of linear voltage regulator in CMOS 28 nm technology**, (Implementacja liniowego stabilizatora napięcia w technologii CMOS 28 nm), supervisor: Borejko Tomasz, May 17
[BSc9]	Kieraga Adrian, **Design of a Transconductance Amplifier for Use in a Delta-Sigma Converter in CMOS Technology,** (Projekt wzmacniacza transkonduktancyjnego w zastosowaniu do przetwornika Delta-Sigma w technologii CMOS), supervisor: Siwiec Krzysztof, June 28
[BSc10]	Kowalski Kacper, **THz signal processing, THz spectrometer**, (Pozyskiwanie i przetwarzanie danych w układzie spektrometru TDS-THz), supervisor: Garbat Piotr, February 23
[BSc11]	Kowarski Patryk, **Stand for measuring emission spectra of dielectric active materials,** (Stanowisko do pomiarów widm emisyjnych dielektrycznych materiałów aktywnych), supervisor: Kaczkan Marcin, February 14
[BSc12]	Kozicki Patryk, **Implementation of a digitally controlled oscillator**, (Implementacja oscylatora kontrolowanego cyfrowo), supervisor: Pleskacz Witold, February 09
[BSc13]	Krupski Konrad, **Stand for spectral measurements in the THz range**, (Stanowisko do pomiarów spektralnych w zakresie THz), supervisor: Kaczkan Marcin, February 14
[BSc14]	Kustosz Łukasz, **Beam positioning system for free-space communication systems**, (Układ pozycjonowania wiązki dla systemów komunikacji w wolnej przestrzeni), supervisor: Jusza Anna, February 09
[BSc15]	Kuszewski Edward, **Implementation of RC oscillator for real time clock circuit in FD-SOI 22 nm technology,** (Implementacja generatora RC dla układu zegara czasu rzeczywistego w technologi FD-SOI 22 nm), supervisor: Siwiec Krzysztof, February 14
[BSc16]	Lisovyi Ivan, **Technology and characterization of RRAM (Resistive-Random-Access-Memory) devices**, (Technologia i charakteryzacja pamięciowych struktur RRAM (Resistive-Random-Access-Memory)), supervisor: Jasiński Jakub, February 14
[BSc17]	Maciałek Konrad, **Remote car diagnostics system**, (System zdalnej diagnostyki samochodowej), supervisor: Szostak Sławomir, January 08
[BSc18]	Majorek Mateusz, **Implementation of an integrated circuit for magnetic field energy harvesting in CMOS 180 nm technology**, (Implementacja scalonego układu odzyskiwania energii z pola magnetycznego w technologii CMOS 180 nm), supervisor: Borejko Tomasz, January 08
[BSc19]	Małkowski Aleksander, **Production of Chromium Oxide by PVD for Application in Photolithographic Masks**, (Wytwarzanie tlenku chromu metodą PVD do zastosowań w maskach fotolitograficznych), supervisor: Firek Piotr, February 09
[BSc20]	Mańka Filip, **Technology of ultrathin dielectric layers for submicromeater MOS/MIS devices**, (Technologia ultracienkich warstw dielektrycznych dla submikrometrowych przyrządów MOS/MIS), supervisor: Mroczyński Robert, PaweĹ, February 09
[BSc21]	Matuszny Paweł, **Platform for managing and monitoring IoT devices using AWS tools**, (Platforma do zarządzania i monitorowania urządzeń IoT z użyciem narzędzi AWS), supervisor: Dec Bartosz, February 14
[BSc22]	Młynarski Piotr, **Hardware implementation of the Twofish encryption algorithm**, (Projekt układu realizującego algorytm szyfrowania Twofish), supervisor: Wielgus Andrzej, January 08
[BSc23]	Mrozowski Jan, **Programmable voltage source**, (Programowane źródło napięcia), supervisor: Szostak Sławomir, May 29

[BSc24]	Piskorski Konrad, **Spectroscopic and colorimetric characterization of YAG:RE ceramic phosphors,** (Charakteryzacja spektroskopowa i kolorymetryczna luminoforów ceramicznych YAG:RE), supervisor: Kaczkan Marcin, February 23
[BSc25]	Podkoński Filip, **Didactic system for characterization of semiconductor device parameters**, (System dydaktyczny do charakteryzacji parametrów przyrządów półprzewodnikowych), supervisor: Szostak Sławomir, May 29
[BSc26]	Polak Julia, **THz signal processing in the TDS spectrometer system**, (Przetwarzanie sygnału THz w układzie spektrometru TDS), supervisor: Garbat Piotr, June 28
[BSc27]	Shveida Bohdan, **Implementation of hardware trace buffer module for RISC-V processor core,** (Sprzętowy blok bufora śledzenia instrukcji (trace buffer) dla procesora o architekturze RISC-V), supervisor: Pleskacz Witold, February 09
[BSc28]	Ślubowski Jakub, **Implementation of an analog-to-digital converter with successive approximation in FD-SOI 22 nm technology** (Implementacja przetwornika analogowo-cyfrowego typu SAR w technologii FD-SOI 22 nm), supervisor: Borejko Tomasz, September 26
[BSc29]	Sobolewski Kacper, **Implementation of digital-to-analog converter in 22 nm FD-SOI technology**, (Implementacja przetwornika cyfrowo-analogowego w technologii FD-SOI 22 nm), supervisor: Borejko Tomasz, June 28
[BSc30]	Tęgowski Konrad, **Dedicated system for monitoring the parameters of general purpose power supply elements in FPGA technology**, (System dedykowany do monitorowania parametrów elementów zasilających ogólnego przeznaczenia w technologii FPGA), supervisor: Dec Bartosz, February 14
[BSc31]	Topp Damian, **The ways to maximize Bit Rate of a Long Haul systems (DWDM),** (Sposoby maksymalizacji przepustowości łącz dalekiego zasięgu (DWDM)), supervisor: Szymańska Agnieszka, February 14
[BSc32]	Zabrzewski Jakub, **Design and construction of a source measurement unit for reliability measurements of RRAM memory cells based on MIS type devices,** (Projekt i budowa jednostki wymuszająco-pomiarowej do pomiarów niezawodnościowych struktur komórek pamięci RRAM bazujących na przyrządach typu MIS), supervisor: Szostak Sławomir, September 26
[BSc33]	Żelech Jakub, **Integrated digital-to-analog converter in CMOS technology** (Scalony przetwornik cyfrowo-analogowy w technologii CMOS), supervisor: Pleskacz Witold, February 09

7 PUBLICATIONS

7.1. Scientific and Technical Papers published in Journals Included in the JCR[1] Database

Number	Journal	Authors	Title	Volume, number	Pages, article number	DOI
[Pub1]	ACS Photonics	Gościniak J., Khurgin J.	Schottky Photodetectors with Transparent Conductive Oxides for Photonic Integrated Circuits	11, 3	1137-1146	10.1021/acsphotonics.3c01609
[Pub2]	ACS Photonics	Śmietana M., Burnat D., Curda P., Janaszek B., Kieliszczyk M., Sezemsky P., Koba M., Stranak V., Szczepański P.	Electro-Optically Modulated Lossy-Mode Resonance─A New Approach for Label-Free Sensing	11, 5	2061-2069	10.1021/acsphotonics.4c00215
[Pub3]	Advanced Photonics Research	Gościniak J.	Integrated Bolometric Photodetectors Based on Transparent Conductive Oxides from Near- to Mid-Infrared Wavelengths	5, 2	1-10, 2300261	10.1002/adpr.202300261
[Pub4]	Advanced Science	Del Villar I., Gonzalez-Valencia E., Kwietniewski N., Burnat D., Armas D., Pituła E., Janik M., Matías I., Giannetti A., Torres P., Chiavaioli F., Śmietana M.	Nano-Photonic Crystal D-Shaped Fiber Devices for Label-Free Biosensing at the Attomolar Limit of Detection		1-14, 2310118	10.1002/advs.202310118
[Pub5]	Applied Physics A-Materials Science & Processing	Ryś P., Kowalczyk J., Mroczkowska-Szerszeń M., Kaczkan M., Majewska K., Moszczyński P., Pudełko W., Siekierski M.	Dispersion phenomena in EIS and DIS spectra of porous materials and their representation as transmission line bases ‘diffusion’ elements - part II - a case study of proton conductors	130, 12	1-15, 896	10.1007/s00339-024-08040-2
[Pub6]	Applied Physics A-Materials Science & Processing	Ryś P., Kowalczyk J., Mroczkowska-Szerszeń M., Kaczkan M., Moszczyński P., Pudełko W., Siekierski M.	Dispersion phenomena in EIS and DIS spectra of porous materials and their representation as transmission line bases ‘diffusion’ elements - part I: a case study of lead-acid systems	130, 11	1-14, 797	10.1007/s00339-024-07923-8
[Pub7]	Applied Sciences-Basel	Butt M., Kozłowski Ł., Goals M., Słowikowski M., Filipiak M., Juchniewicz M., Bieniek-Kaczorek A., Dudek M., Piramidowicz R.	Numerical and Experimental Demonstration of a Silicon Nitride-Based Ring Resonator Structure for Refractive Index Sensing	14, 14	1-14, 6082	10.3390/app14146082

1 Journal Citation Reports; https://jcr.clarivate.com

[Pub8]	Biosensors	Sosnowska M., Pituła E., Janik M., Bruździak P., Śmietana M., Olszewski M., Nidzworski D., Gromadzka B.	Peptide-Based Rapid and Selective Detection of Mercury in Aqueous Samples with Micro-Volume Glass Capillary Fluorometer	14, 11	1-14, 530	10.3390/bios14110530
[Pub9]	Biosensors	Wu X., Wang Y., Zhang J., Zhang Y., Rao X., Chen C., Liu H., Deng Y., Liao C., Śmietana M., Chen G., Liu L., Qu J., Wang Y.	A D-Shaped Polymer Optical Fiber Surface Plasmon Resonance Biosensor for Breast Cancer Detection Applications	14, 1	1-11, 15	10.3390/bios14010015
[Pub10]	Cancers	Dzieniszewska A., Garbat P., Piramidowicz R.	Improving Skin Lesion Segmentation with Self-Training	16, 6	1-22, 1120	10.3390/cancers16061120
[Pub11]	Chemosensors	Butt M., Piramidowicz R.	Integrated Photonic Sensors for the Detection of Toxic Gasses—A Review	12, 7	1-25, 143	10.3390/chemosensors12070143
[Pub12]	Communications Physics	Pianelli A., Dhama R., Judek J., Mazur R., Caglayan H.	Si-CMOS compatible epsilon-near-zero metamaterial for two-color ultrafast all-optical switching	7, 1	1-8, 164	10.1038/s42005-024-01654-1
[Pub13]	Electronics (Switzerland)	Borejko T., Pleskacz W.	Design of Voltage–Current Reference Source in CMOS Technology	13, 21	1-18, 4212	10.3390/electronics13214212
[Pub14]	Electronics (Switzerland)	Janaszek B., Butt M., Piramidowicz R.	Semi-Analytical Approach versus Finite Element Method for Analysis of Propagation Properties in Rectangular Waveguides: Silica-Titania Technological Platform	13, 1	1-12, 73	10.3390/electronics13010073
[Pub15]	Electronics (Switzerland)	Kasprowicz D., Kasprowicz G.	Generative Modeling of Semiconductor Devices for Statistical Circuit Simulation	13, 11	1-14, 2003	10.3390/electronics13112003
[Pub16]	Electronics (Switzerland)	Pietroń D., Borejko T., Pleskacz W.	Dual-Band Low-Noise Amplifier for GNSS Applications	13, 20	1-23, 4130	10.3390/electronics13204130
[Pub17]	Electronics (Switzerland)	Wojciechowski A.	A Proof-of-Concept FPGA-Based Clock Signal Phase Alignment System	13, 16	1-23, 3295	10.3390/electronics13163295
[Pub18]	Energies	Borecki M., Gęca M., Zan L., Prus P., Korwin-Pawlowski M.	Multiparametric Methods for Rapid Classification of Diesel Fuel Quality Used in Automotive Engine Systems	17, 16	1-42, 4189	10.3390/en17164189
[Pub19]	Energies	Firek P., Czerwosz E., Wronka H., Krawczyk S., Kozłowski M., Sochacki M., Moszczyńska D., Szmidt J.	The Preparation and Properties of a Hydrogen-Sensing Field-Effect Transistor with a Gate of Nanocomposite C-Pd Film	17, 13	1-12, 3261	10.3390/en17133261
[Pub20]	IEEE Journal of Lightwave Technology	Paśnikowska A., Stopiński S., Kaźmierczak A., Piramidowicz R.	Multi-channel integrated transmitters with cyclic AWG	42, 7	2371 - 2384	10.1109/jlt.2023.3339594

[Pub21]	IEEE Photonics Journal	Gościniak J.	Waveguide-Integrated Plasmonic Photodetectors and Activation Function Units With Phase Change Materials	16, 1	1-10, 4800110	10.1109/JPHOT.2023.3338415
[Pub22]	International Journal of Electronics and Telecommu-nications	Kalenik J., Stęplewski W., Borecki J., Chołaj A., Kozłowski M., Serzysko T.	False Piezoresistive Effect Detection	70, 4	895-900	10.24425/ijet.2024.152075
[Pub23]	Journal of Colloid and Interface Science	Głowacki M., Niedziałkowski P., Ryl J., Prześniak-Welenc M., Sawczak M., Prusik K., Ficek M., Janik M., Pyrchla K., Olewniczak M., Bojarski K., Czub J., Bogdanowicz R.	Enhancing colloidal stability of nanodiamond via surface modification with dendritic molecules for optical sensing in physiological environments	675	236-250	10.1016/j.jcis.2024.06.225
[Pub24]	Journal of Luminescence	Kaczkan M., Kowalczyk M., Majchrowski A., Chrunik M., Malinowski M.	Absorption and emission properties of Eu3+ doped Cs2Bi2O(Ge2O7) acentric biaxial single crystal	269	1-7, 120492	10.1016/j.jlumin.2024.120492
[Pub25]	Journal of Luminescence	Kaczkan M., Malinowski M., Suchocki A., Turczyński S.	Cooperative luminescence of Yb3+ ions in multisite YAM crystal	265	1-7, 120162	10.1016/j.jlumin.2023.120162
[Pub26]	Journal of Optics	Butt M.	Analyzing the evanescent field ratio of ridge waveguide based on different material platforms for sensing applications	26, 9	1-11, 095803	10.1088/2040-8986/ad6ce4
[Pub27]	Journal of Optics	Butt M.	Integrated optics: Conventional Mach-Zehnder interferometer configuration versus Loop terminated Mach-Zehnder interferometer configuration-A perspective	26, 10	1-15, 102501	10.1088/2040-8986/ad7515
[Pub28]	Journal of Optics	Butt M., Kozłowski Ł., Piramidowicz R.	Optimized hybrid plasmonic waveguide-based ring resonator for advanced refractive index sensing	26, 7	1-9, 075802	10.1088/2040-8986/ad535f
[Pub29]	Materials	Borecki M., Rychlik A., Zan L., Korwin-Pawlowski M.	Steel Automotive Wheel Rims—Data Fusion for the Precise Identification of the Technical Condition and Indication of the Approaching End of Service Life	17, 2	1-32, 475	10.3390/ma17020475

[Pub30]	Materials	Kamiński M., Król K., Kwietniewski N., Myśliwiec M., Sochacki M., Stonio B., Kisiel R., Martychowiec A., Racka-Szmidt K., Werbowy A., Żelazko J., Niedzielski P., Szmidt J., Strójwąs A.	The Overview of Silicon Carbide Technology: Status, Challenges, Key Drivers, and Product Roadmap	18, 1	1-36, 12	10.3390/ma18010012
[Pub31]	Materials Research Bulletin	Krupka J., Chen X., Xu X., Guo B., Wang H., Wang H., Salski B., Pacewicz A., Kopyt P.	Thermal characterization of ceramic pills at millimeter waves with a TE01δ cavity resonator	177	112879	10.1016/j.materresbull.2024.112879
[Pub32]	Materials Research Bulletin	Krupka J., Pacewicz A., Kopyt P., Salski B.	Measurements of the complex permittivity of low loss ferrites at millimeter wave frequencies	179	1-8, 112994	10.1016/j.materresbull.2024.112994
[Pub33]	Materials Science in Semiconductor Processing	Taube A., Borysiewicz M., Sadowski O., Wójcicka A., Tarenko J., Wzorek M., Klepka M., Bryśkiewicz A., Kamiński M., Hendzelek W., Szerling A.	The influence of oxygen partial pressure on the properties of sputtered vertical NiO/β-Ga2O3 heterojunction diodes	184	1-10, 108842	10.1016/j.mssp.2024.108842
[Pub34]	Measurement	Bartnik K., Koba M., Śmietana M.	Advancements in Optical Fiber Sensors for in Vivo Applications – a Review of Sensors Tested on Living Organisms	224	1-18, 113818	10.1016/j.measurement.2023.113818
[Pub35]	Micromachines	Brunetti G., Butt M.	Topic Editorial on Photonic and Optoelectronic Devices and Systems	15, 12	1-5, 1481	10.3390/mi15121481
[Pub36]	Micromachines	Butt M.	Topic Editorial on Fiber-Optic Sensors	15, 12	1-4, 1452	10.3390/mi15121452
[Pub37]	Micromachines	Butt M., Piramidowicz R.	Suspended Slot Membrane Waveguide Based on Germanium-on-Silicon-on-Insulator at $\lambda = 4.23$ µm for CO_2 Monitoring	15, 12	1-13, 1434	10.3390/mi15121434
[Pub38]	Optics and Laser Technology	Esposito F., Burnat D., Mihalcea R., Negut D., Srivastava A., Campopiano S., Sansone L., Giordano M., Stancalie A., Iadicicco A., Śmietana M.	Optical properties of thin films monitored in real-time at high gamma radiation doses using long period fiber gratings	176	1-8	10.1016/j.optlastec.2024.111019
[Pub39]	Optics and Laser Technology	Mostowski D., Jakubczak K., Garbat P.	Automated laser beam characterization using artificial intelligence (AI) for the predictive maintenance of lasers	177	1-16, 111087	10.1016/j.optlastec.2024.111087

[Pub40]	Optics Express	Janaszek B., Tyszka-Zawadzka A., Szczepański P.	Full control of density of states in integrated hyperbolic metamaterial waveguides	32, 14	25104-25117, 524182	10.1364/oe.524182
[Pub41]	Optics Express	Judek J., Dhama R., Pianelli A., Wróbel P., Michałowski P., Dana J., Caglayan H.	Ultrafast optical properties of stoichiometric and non-stoichiometric refractory metal nitrides TiNx, ZrNx, and HfNx	32, 3	3585-3596	10.1364/oe.505442
[Pub42]	Opto-Electronics Review	Kozłowski P., Jasik A., Łaszcz A., Czuba K., Chmielewski K., Zdunek K.	Intermetallic compound layer formation in indium-based micro-bump array fabrication technology for IR detectors	32, 1	148833-148833	10.24425/opelre.2024.148833
[Pub43]	Photonic Sensors	Wang Y., Rao X., Wu X., Chen G., Liao C., Śmietana M., Wang Y.	Highly-Sensitive Polymer Optical Fiber SPR Sensor for Fast Immunoassay	14, 4	1-11	10.1007/s13320-024-0729-x
[Pub44]	Photonics	Butt M.	A Comprehensive Exploration of Contemporary Photonic Devices in Space Exploration: A Review	11, 9	1-32, 873	10.3390/photonics11090873
[Pub45]	Photonics	Butt M.	Dielectric Waveguide-Based Sensors with Enhanced Evanescent Field: Unveiling the Dynamic Interaction with the Ambient Medium for Biosensing and Gas-Sensing Applications—A Review	11, 3	1-19, 198	10.3390/photonics11030198
[Pub46]	Photonics	Butt M., Piramidowicz R.	Small Footprint and High Extinction Ratio Cladding-Modulated Bragg Grating Structure as a Wideband Bandstop Filter	11, 2	1-12, 158	10.3390/photonics11020158
[Pub47]	Photonics and Nanostructures-Fundamentals and Applications	Rehman A., Khan Y., Ahmed U., Irfan M., Amirzada M., Butt M.	A comparative study of the photonic crystals-based cavities and usage in all-optical-amplification phenomenon	61	1-15, 101298	10.1016/j.photonics.2024.101298
[Pub48]	Physica Status Solidi A-Applications and Materials Science	Kamiński M., Taube A., Tarenko J., Sadowski O., Brzozowski E., Wierzbicka J., Zadura M., Ekielski M., Kosiel K., Jankowska-Śliwińska J., Abendroth K., Szerling A., Prystawko P., Bockowski M., Grzegory I.	Vertical GaN Trench-MOSFETs Fabricated on Ammonothermally Grown Bulk GaN Substrates	221, 21	1-8, 2400077	10.1002/pssa.202400077

[Pub49]	Physica Status Solidi A-Applications and Materials Science	Sadowski O., Kamiński M., Taube A., Tarenko J., Guziewicz M., Wzorek M., Maleszyk J., Jóźwik I., Szerling A., Prystawko P., Boćkowski M., Grzegory I.	Low-Resistivity Ti/Al/TiN/Au Ohmic Contacts to Ga- and N-Face n-GaN for Vertical Power Devices	221, 21	1-9, 2400076	10.1002/pssa.202400076
[Pub50]	Physica Status Solidi A-Applications and Materials Science	Tarenko J., Kamiński M., Taube A., Ekielski M., Kruszka R., Zadura M., Szerling A., Prystawko P., Boćkowski M., Król K., Jankowska-Śliwińska J., Komorowska K., Grzegory I.	Fabrication of Ultralow-Bevel Angle Mesa Structures for Vertical GaN Devices	221, 21	1-6, 2400079	10.1002/pssa.202400079
[Pub51]	Physica Status Solidi A-Applications and Materials Science	Taube A., Kamiński M.	Optimization of Two-Zone Step-Etched Junction Termination Structures for Vertical GaN Power Devices	221, 21	1-9, 2400075	10.1002/pssa.202400075
[Pub52]	Physica Status Solidi B - Basic Solid State Physics	Shokri A., Melikhov Y., Syryanyy Y., Demchenko I.	Hybrid Density Functional Theory Study on the Formation Energies of Donor and Acceptor N Impurities in β-Ga_2O_3	12	1-9	10.1002/pssb.202400448
[Pub53]	Physics Letters A	Butt M., Mateos X., Piramidowicz R.	Photonics Sensors: A perspective on current advancements, emerging challenges, and potential solutions (Invited)	516	1-9, 129633	10.1016/j.physleta.2024.129633
[Pub54]	Plasmonics	Butt M.	Plasmonic Sensor System Embedded with Orthogonal Mode Couplers for Simultaneous Monitoring of Temperature and Refractive Index		1-11	10.1007/s11468-024-02303-7
[Pub55]	Przegląd Elektro-techniczny	Bolek K., Urbański M.	A System for Simultaneous Measurement of Hysteresis Loops and Barkhausen Noise in Amorphous Ferromagnetic Ribbons	100, 12	241-246, 151807	10.15199/48.2024.12.53
[Pub56]	Russian Physics Journal	Sultana R., Islam K., Chakraborty S.	Electrical Response of Al Based Zr-Doped Stacked Tri-Layer HfO2 Deposited at Various Substrate Temperature	67, 7	923-931	10.1007/s11182-024-03198-x
[Pub57]	Scientific Reports	Burnat D., Janik M., Kwietniewski N., Martychowiec A., Musolf P., Bartnik K., Koba M., Rygiel T., Niedziółka-Jönsson J., Śmietana M.	Double-layer optical fiber interferometer with bio-layer-modified reflector for label-free biosensing of inflammatory proteins	14, 1	1-11, 23127	10.1038/s41598-024-70058-6

[Pub58]	Scientific Reports	Butt M., Piramidowicz R.	Orthogonal mode couplers for plasmonic chip based on metal–insulator–metal waveguide for temperature sensing application	14, 1	1-12, 3474	10.1038/s41598-024-54244-0
[Pub59]	Scientific Reports	Nieborek M., Jastrzębski C., Płociński T., Wróbel P., Seweryn A., Judek J.	Optimization of the plasmonic properties of titanium nitride films sputtered at room temperature through microstructure and thickness control	14, 1	1-13, 5762	10.1038/s41598-024-56406-6
[Pub60]	Sensors	Butt M.	Plasmonic Sensors Based on a Metal–Insulator–Metal Waveguide—What Do We Know So Far?	24, 22	1-28, 7158	10.3390/s24227158
[Pub61]	Sensors	Kiernich A., Kalenik J., Steplewski W., Kościelski M., Chołaj A.	Impact of Particular Stages of the Manufacturing Process on the Reliability of Flexible Printed Circuits	25, 1	1-21, 140	10.3390/s25010140
[Pub62]	Sensors	Sobotka P., Bolek K., Pawłowska Z., Kliś B., Przychodzki M., Fornalski K., Rutkowska K.	Sensitivity and Performance of Uncooled Avalanche Photodiode for Thermoluminescent Dosimetry Applications	24, 19	1-12, 6207	10.3390/s24196207
[Pub63]	Trac-Trends in Analytical Chemistry	Janik M., Koba M., Śmietana M.	Optical fiber chemo and biosensors operating in the electrochemical domain – A review,	178	1-11, 117829	10.1016/j.trac.2024.117829

7.2. Scientific and Technical Papers Published in Journals not Included in the JCR Database

Number	Journal	Authors	Title	Volume, number	Pages, article number	DOI
[Pub64]	Applied Research	Butt M.	Features of the modern development of metal-insulator-metal waveguide based plasmonic sensors	3, 6	1-4, e202400069	10.1002/appl.202400069
[Pub65]	arXiv	Gościniak J.	Thickness-dependent properties of transparent conductive oxides for epsilon-near-zero applications		1-10, 2406.15081	10.48550/arXiv.2406.15081

7.3. Scientific and Technical Papers Published in Conference Proceedings

Number	Proceedings of Conference, ISBN	Authors	Title	DOI	Pages, article number
[Pub66]	67th Annual Technical Conference Proceedings, ISBN 978-1-878068-44-6	Mroczyński R., Puźniak M., Gajewski W., Żelechowski M.	Optimization and Application of HiPIMS Hafnium Oxynitride (HfOxNy) Thin Films in MOS Structures	10.14332/svc24.proc.0015	1-36, Article number:15,
[Pub67]	AIP Conference Proceedings: XIV International Conference Electromachining 2023, vol. 3130, no. 1, ISBN 978-0-7354-4913-8	Różański P., Mroczyński R., Gajewski W.	Effect of hipims discharge in metal oxide nanocoatings for resistive random access memory application	10.1063/5.0203485	
[Pub68]	Book of abstract 46th International Microelectronics and Packaging IMAPS Poland Conference	Myśliwiec M., Kisiel R.	Presureless die attach of bare Si chips for Photonic Integrated Circuits applications		
[Pub69]	Book of abstract 46th International Microelectronics and Packaging IMAPS Poland Conference	Myśliwiec M., Kisiel R.	Study of mechanical and thermal properties of AgAl interface		
[Pub70]	Book of Abstracts - The Eight International Workshop on Advanced Spectroscopy and Optical Materials	Bogucki O., Kaczkan M., Kozłowska A.	Innovative luminescent materials for lighting and sensory applications		92-92, P4
[Pub71]	Proceedings of 2024 27th International Symposium on Design and Diagnostics of Electronic Circuits & Systems, vol. CFP24DDE-ART, ISBN 979-8-3503-5934-3	Grochowska M., Pleskacz W.	The Impact of Well-Edge Proximity Effect on PMOS Threshold Voltage in Various Submicron CMOS Technologies	10.1109/ddecs60919.2024.10508916	37-40
[Pub72]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Cheralathan M., Wiśniewski P., Beck R.	Parameter Extraction from SCLC Transport Mechanism in MIS RRAM Structures	10.23919/mixdes62605.2024.10614068	183-186
[Pub73]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Dec B., Pfitzner A.	Study of Storage Capacity of Charge Trap EAROM NAND Memory Designed for Integration with VeSTIC Technology	10.23919/mixdes62605.2024.10614028	193-198
[Pub74]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Ludwiniak M., Łuczyk A.	Using Cocotb Framework During Different Stages of IC Design	10.23919/mixdes62605.2024.10613994	154-157

[Pub75]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Misztal J., Korona M., Pleskacz W.	Bridge Circuit Converting Atomic Transactions Between AMBA AXI4 and AMBA AXI5 Standards	10.23919/mixdes62605.2024.10613978	249-253
[Pub76]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Piramidowicz R., Stopiński S.	Exploring Photonic Integrated Circuits - Technologies, Applications and Challenges	10.23919/mixdes62605.2024.10613996	16-16
[Pub77]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Shveida B., Marcinek K., Pleskacz W.	Implementation of Hardware Trace Buffer Module for RISC-V Processor Core	10.23919/MIXDES62605.2024.10614017	110-113
[Pub78]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Waśkiewicz J., Wielgus A.	Digital Fuzzy Logic Controller with Scalable Sequential Architecture	10.23919/mixdes62605.2024.10613960	86-91
[Pub79]	Proceedings of 31st International Conference on Mixed Design of Integrated Circuits and System (MIXDES 2024), vol. CFP2 MIX-CDR, ISBN 978-83-63578-25-1	Zubert M., Łuczyk A.	LLVM Library for a Dedicated Processor Instruction Set – A Case Study	10.23919/mixdes62605.2024.10613932	270-273
[Pub80]	Proceedings of 47th International Spring Seminar on Electronics Technology (ISSE 2024), ISBN 979-8-3503-8547-2	Myśliwiec M., Pavłov K., Kisiel R.	Silver Sintering Application in Packaging Al Metallized Chip onto Au Metallized Substrates	10.1109/ISSE61612.2024.10603731	1-4, 10603731
[Pub81]	Proceedings of Advances in Computational Collective Intelligence 16th International Conference, ICCCI 2024, ISBN 978-3-031-70248-8	Cabaj K., Kowalczyk M., Gregorczyk M., Choraś M., Kozik R., Mazurczyk W.	Strategies to Use Harvesters in Trustworthy Fake News Detection Systems	10.1007/978-3-031-70248-8_30	384-394
[Pub82]	Proceedings of SPIE Photonics Europe: Optical Sensing and Detection VIII, vol. 12999, ISBN 9781510673168	Bieniek-Kaczorek A., Stopinski S., Anders K., Jusza A., Słowikowski M., Piramidowicz R.	Integrated photonic interrogators for fiber-optic sensing applications	10.1117/12.3022541	129990X

[Pub83]	Proceedings of SPIE Photonics Europe: Optical Sensing and Detection VIII, vol. 12999, ISBN 9781510673168	Stopinski S., Anders K., Jusza A., Bieniek-Kaczorek A. Bortnowski P., Zabierowski F., Szostak S., Marciniak B., Mergo P., Pazdzior A., Wzorek L., Bednarski Ł., Skrzypkowski K., Piramidowicz R.	A fiber-optic sensing system for rock mass monitoring in coal mines	10.1117/12.3022524	129990E
[Pub84]	Proceedings of SPIE Photonics Europe: Semiconductor Lasers and Laser Dynamics XI, vol. PC13002	Paśnikowska A., Stopiński S., Jusza A., Anders K., Kustosz Ł., Rojewski M., Piramidowicz R.	Multi-channel transmitters for free-space optical communication systems	10.1117/12.3022544	PC1300209
[Pub85]	Proceedings of The 19th International Conference on Availability, Reliability and Security ARES 2024, ISBN 979-8-4007-1718-5	Rosales A., Malanowska A., Koohpayeh Araghi T., Kuribayashi M., Kowalczyk M., Mazurczyk W., Megías D.	Trustworthiness and explainability of a watermarking and machine learning-based system for image modification detection to combat disinformation	10.1145/3664476.3670934	1-10, 76
[Pub86]	Programme and Abstracts of the IOS'2024 Conference - Integrated Optics - Sensors, Sensing Structures and Methods	Bortnowski P., Lelit M., Paśnikowska A., Połatyński A., Stopiński S., Piramidowicz R.	AWG components of the mid-IR integrated photonics platform (MIRPIC) – design and simulations		68-69
[Pub87]	Programme and Abstracts of the IOS'2024 Conference - Integrated Optics - Sensors, Sensing Structures and Methods	Lelit M., Połatyński A., Paśnikowska A., Bieniek-Kaczorek A., Bortnowski P., Stopiński S., Wiśniewski P., Słowikowski M., Juchniewicz M., Piramidowicz R.:	Library of building blocks for MIRPIC technological platform		96-97
[Pub88]	Programme and Abstracts of the IOS'2024 Conference - Integrated Optics - Sensors, Sensing Structures and Methods	Piramidowicz R., Stopiński S., Anders K., Jusza A., Paśnikowska A., Lelit M., Połatyński A., Bieniek-Kaczorek A., Kaźmierczak A., Butt M., Wiśniewski P., Słowikowski M., Juchniewicz M., Pavłov K., Pierściński K., Pierścińska D., Jureńczyk J., Liebert M.	Photonic integrated circuits – on the road from telecom to sensing		21-22
[Pub89]	Programme and Abstracts of the IOS'2024 Conference - Integrated Optics - Sensors, Sensing Structures and Methods	Połatyński A., Lelit M., Paśnikowska A., Bieniek-Kaczorek A., Bortnowski P., Anders K., Stopiński S., Wiśniewski P., Słowikowski M., Juchniewicz M., Piramidowicz R.	Application-specific PDK library for MIRPIC platform		54-55

[Pub90]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Anders K., Stopiński S., Jusza A., Kaźmierczak A., Bieniek-Kaczorek A., Bortnowski P., Zabierowski F., Szostak S., Marciniak B., Mergo P., Paździor A., Wzorek Ł., Bednarski Ł., Skrzypkowski K., Piramidowicz R.	System monitorowania ruchu górotworu w kopalniach węgla bazujący na scalonym interrogatorze FBG	113-113, #P-33
[Pub91]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Bieniek-Kaczorek A., Stopiński S., Anders K., Jusza A., Piramidowicz R.	SMART BED – monitorowanie parametrów życiowych z wykorzystaniem światłowodowych siatek Bragga i zintegrowanych interrogatorów fotonicznych	98-98, #P-18
[Pub92]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Bogdanowicz K., Ekielski M., Głowadzka W., Sadowski O., Rygała M., Motyka M., Smołka T., Czyszanowski T., Szerling A.	Przezroczyste elektrody dla niespolaryzowanego światła podczerwonego	117-117, #P-37
[Pub93]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Bortnowski P., Jusza A., Anders K., Mergo P., Piramidowicz R.	Niskofononowe szkła i nanokryształy domieszkowane jonami Tm3+ i Tm3++Yb3+ - charakterystyka porównawcza właściwości luminescencyjnych	101-101, #P-21
[Pub94]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Gabler T., Janik M., Bleotu P., Stancalie A., Koba M., Bogdanowicz R., Śmietana M.	Mikrownękowy światłowodowy interferometr Macha-Zehndera jako platforma do monitorowania małych objętości w warunkach promieniowania jonizującego	89-89, #P-09
[Pub95]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Golas M., Słowikowski M., Stonio B., Drecka D., Filipiak M., Juchniewicz M., Wiśniewski P.	Optymalizacja sprzęgaczy siatkowych na zakres widzialny	114-114, #P-34
[Pub96]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Gościniak J., Khurgin J., Piramidowicz R.	Zintegrowane fotodetektory w NIR i MIR w oparciu o przezroczyste tlenki przewodzące	126-126, #P-46
[Pub97]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Janaszek B., Tyszka-Zawadzka A., Szczepański P.	Właściwości optyczne topologicznych hiperkryształów fotonicznych	124-124, #P-44

[Pub98]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Jusza A., Bieniek-Kaczorek A., Bortnowski P., Kozłowski Ł., Anders K., Stopiński S., Kalwas J., Piramidowicz R.	Zastosowanie metod spektroskopii optycznej dla systemów monitoringu wód i ścieków	99-99, #P-19
[Pub99]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Kaczkan M., Malinowski M.	Specyficzne właściwości jonów Eu3+ i ich wykorzystanie w badaniach spektroskopowych nowych materiałów optycznie aktywnych	59-59, #O-18
[Pub100]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Kądziela A., Drecka D., Golas M., Juchniewicz M., Lelit M., Stonio B., Słowikowski M., Wiśniewski P.	GST phase change material for photonic applications	112-112, #P-32
[Pub101]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Kalwas J., Łabaj F., Piramidowicz R., Kiedrzyńska E.	Opracowanie innowacyjnego fotonicznego systemu monitoringu zasobów wodnych	46-46, #O-05
[Pub102]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Kaźmierczak A., Jusza A., Bieniek-Kaczorek A., Bortnowski P., Kozłowski Ł., Piramidowicz R.	Koncepcja fotonicznego układu scalonego do zastosowania w monitoringu zasobów wodnych	110-110, #P-30
[Pub103]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Kiedrzyńska E., Jaszczyszyn K., Matwiej N., Rolbiecki D., Piwowarska D., Kiedrzyński M., Piramidowicz R., Jusza A., Kalwas J.	Monitoring jakości wód – zapotrzebowanie na nowe metody analiz w czasie rzeczywistym	123-123, #P-43
[Pub104]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Kozłowski Ł., Jusza A., Anders K., Stopiński S., Bieniek-Kaczorek A., Bortnowski P., Kalwas J., Piramidowicz R.	Detekcja mikroplastiku w wodzie metodami spektroskopii ramanowskiej	106-106, #P-26
[Pub105]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Łabaj F., Kalwas J., Rukat P., Majewski P., Piramidowicz R.	Układ statycznego spektrometru fourierowskiego do zastosowań czujnikowych w środowiskach wodnych	116-116, #P-36
[Pub106]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Lelit M., Połatyński A., Anders K., Stopiński S., Wiśniewski P., Słowikowski M., Juchniewicz M., Stonio B., Pavłov K., Michalak B., Filipiak M., Piramidowicz R.	Strategie projektowania niskostratnych interfejsów optycznych dla układów fotoniki scalonej pracujących w nietypowych zakresach spektralnych	93-93, #P-13

[Pub107]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Mossakowska-Wyszyńska A., Rękawek M., Witoński P., Szczepański P.	Wpływ interferencji fal przeciwbieżnych na właściwości nieliniowych struktur wykazujących symetrię PT	120-120, #P-40
[Pub108]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Olszewski J., Anders K., Stopiński S., Piramidowicz R.	Architektury falowodów Ge-on-Si do zastosowań czujnikowych w zakresie średniej podczerwieni – charakterystyka porównawcza	119-119, #P-39
[Pub109]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Paśnikowska A., Stopiński S., Anders K., Rojewski M., Kustosz Ł., Piramidowicz R.	Zintegrowane fotoniczne nadajniki wielokanałowe do komunikacji optycznej w wolnej przestrzeni	83-83, #P-03
[Pub110]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Pituła E., Janik M., Kasztelanic R., Olszewski M., Koba M., Buczyński R., Śmietana M.	Wielokanałowy system czujnikowy do detekcji jonów metali ciężkich w wodzie wykorzystujący zmodyfikowane białko zielonej fluorescencji	131-131, #P-51
[Pub111]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Połatyński A., Lelit M., Paśnikowska A., Bieniek-Kaczorek A., Bortnowski P., Kozłowski Ł., Anders K., Stopiński S., Wiśniewski P., Słowikowski M., Juchniewicz M., Piramidowicz R.	Platforma do symulacji i projektowania układów fotoniki zintegrowanej na zakres średniej podczerwieni MIRPIC	107-107, #P-27
[Pub112]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Słowikowski M., Juchniewicz M., Filipiak M., Pavłov K., Stonio B., Michalak B., Myśliwiec M., Wiśniewski P., Stopiński S., Piramidowicz R.	Technologiczne aspekty wytwarzania fotonicznych układów scalonych na zakres średniej podczerwieni	96-96, #P-16
[Pub113]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Stopiński S., Anders K., Jusza A., Lelit M., Połatyński A., Wiśniewski P., Słowikowski M., Juchniewicz M., Jureńczyk J., Liebert M., Olszewski J., Pierściński K., Pierścińska D., Piramidowicz R.	MIRPIC/HyperPIC do fabryki układów fotoniki scalonej – od platformy technologicznej	29-29, #I-07
[Pub114]	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne, ISBN 978-83-64102-06-6	Witoński P., Mossakowska-Wyszyńska A., Szczepański P.	Badanie wpływu efektu Kerra na właściwości nieliniowych struktur wykazujących symetrię PT	88-88, #P-08

7.4. Scientific and Technical Books

Number	Authors	Publisher	Title	ISBN	Pages
[Pub115]	Piramidowicz R., Anders K. (*eds.*)	Instytut Mikroelektroniki i Optoelektroniki PW	XIV Sympozjum Techniki Laserowej, 9-13 września 2024, Zamek Ryn, Materiały Konferencyjne	978-83-64102-06-6	150
[Pub116]	Piramidowicz R., Nowakowski M., Dorosz D., Kopczyński K., Mergo P., Urban P., Mossakowska-Wyszyńska A., Stopiński S., Anders K.	Stowarzyszenie Elektryków Polskich	FOTONIKA.PL – W którą stronę? Stan obecny i perspektywy rozwoju fotoniki w Polsce, In: Raport końcowy IV Kongresu Elektryki Polskiej / Cieślik Sławomir (*eds.*)	978-83-66668-41-6	73-107
[Pub117]	Piramidowicz R., Nowakowski M., Dorosz D., Kopczyński K., Mergo P., Urban P., Mossakowska-Wyszyńska A., Stopiński S., Anders K.	Stowarzyszenie Elektryków Polskich	Raport otwarcia KEP nr 3: Fotonika - polska specjalność w elektronice, In: Raport otwarcia IV Kongresu Elektryki Polskiej / Cieślik Sławomir (*eds.*)	978-83-66668-39-3	415-451

8. PATENTS

Number	Patent
[Pat1]	Borejko Tomasz, Butryn Igor, Stępniewski Kamil, Łuczyk Arkadiusz Władysław, Siwiec Krzysztof, Pleskacz Witold: **Test circuit #1 of the IDSoC cryptographic component building blocks** (Układ testowy nr 1 bloków składowych komponentu kryptograficznego IDSoC), Topography of integrated circuits, Protected, Application number: S.0139, Patent/rights number: **T.0135**, Application date: 06-03-2024, Patent (decision) date: 28-03-2024, Publication of patent: [WUP 24-06-2024]
[Pat2]	Borejko Tomasz, Pleskacz Witold: **NFC PHY Module** (Moduł NFC PHY), Topography of integrated circuits, Protected, Application number: S.0136, Patent/rights number: **T.0132**, Application date: 06-03-2024, Patent (decision) date: 28-03-2024, Publication of patent: [WUP 24-06-2024]
[Pat3]	Borejko Tomasz, Pleskacz Witold: **Power module** (Moduł zasilania), Topography of integrated circuits, Protected, Application number: S.0135, Patent/rights number: **T.0131**, Application date: 06-03-2024, Patent (decision) date: 28-03-2024, Publication of patent: [WUP 24-06-2024]
[Pat4]	Borkowski Adam, Siwiec Krzysztof, Pleskacz Witold, Kasprowicz Grzegorz Henryk: **Test structures for testing cryogenic systems** (Struktury testowe do badania układów kriogenicznych), Topography of integrated circuits, Protected, Application number: S.0114, Patent/rights number: **T.0127**, Application date: 09-11-2023, Patent (decision) date: 05-12-2023, Publication of patent: [WUP 08-04-2024]
[Pat5]	Borkowski Adam, Siwiec Krzysztof, Pleskacz Witold, Kasprowicz Grzegorz Henryk: **Transimpedance amplifier** (Wzmacniacz transimpedancyjny), Topography of integrated circuits, Protected, Application number: S.0113, Patent/rights number: **T.0126**, Application date: 09-11-2023, Patent (decision) date: 05-12-2023, Publication of patent: [WUP 08-04-2024]
[Pat6]	Butryn Igor, Borejko Tomasz, Stępniewski Kamil, Łuczyk Arkadiusz Władysław, Siwiec Krzysztof, Pleskacz Witold: **Test circuit #3 of the IDSoC cryptographic component building blocks** (Układ testowy nr 3 bloków składowych komponentu kryptograficznego IDSoC), Topography of integrated circuits, Protected, Application number: S.0137, Patent/rights number: **T.0133**, Application date: 06-03-2024, Patent (decision) date: 28-03-2024, Publication of patent: [WUP 24-06-2024]
[Pat7]	Derlecki Mariusz, Siwiec Krzysztof, Pleskacz Witold: **True Random Number Generator** (Generator liczb prawdziwie losowych), Topography of integrated circuits, Protected, Application number: S.0117, Patent/rights number: **T.0130**, Application date: 09-11-2023, Patent (decision) date: 05-12-2023, Publication of patent: [WUP 08-04-2024]
[Pat8]	Rawski Mariusz, Ludwiniak Marcin, Łuczyk Arkadiusz Władysław, Stępniewski Kamil, Tomaszewicz Paweł, Borejko Tomasz, Siwiec Krzysztof, Pleskacz Witold: **Test circuit #2 of the IDSoC cryptographic component building blocks** (Układ testowy nr 2 bloków składowych komponentu kryptograficznego IDSoC), Topography of integrated circuits, Protected, Application number: S.0138, Patent/rights number: **T.0134**, Application date: 06-03-2024, Patent (decision) date: 28-03-2024, Publication of patent: [WUP 24-06-2024]
[Pat9]	Reszewicz Szymon, Siwiec Krzysztof, Pleskacz Witold: **Integrated circuit of physically unclonable function** (Scalony układ funkcji fizycznie nieklonowalnej), Topography of integrated circuits, Protected, Application number: S.0115, Patent/rights number: **T.0128**, Application date: 09-11-2023, Patent (decision) date: 05-12-2023, Publication of patent: [WUP 08-04-2024]
[Pat10]	Stępniewski Kamil, Siwiec Krzysztof, Pleskacz Witold: **Analog temperature sensor** (Analogowy czujnik temperatury), Topography of integrated circuits, Protected, Application number: S.0116, Patent/rights number: **T.0129**, Application date: 09-11-2023, Patent (decision) date: 05-12-2023, Publication of patent: [WUP 08-04-2024]
[Pat11]	Stępniewski Kamil, Siwiec Krzysztof, Pleskacz Witold: **Comparator for controlling the supply voltage** (Komparator do kontroli napięcia zasilającego), Topography of integrated circuits, Protected, Application number: S.0111, Patent/rights number: **T.0124**, Application date: 09-11-2023, Patent (decision) date: 05-12-2023, Publication of patent: [WUP 08-04-2024]
[Pat12]	Stępniewski Kamil, Siwiec Krzysztof, Pleskacz Witold: **Digitally controlled ring generator for frequencies 100-200MHz** (Generator pierścieniowy sterowany cyfrowo dla częstotliwości 100-200MHz), Topography of integrated circuits, Protected, Application number: S.0112, Patent/rights number: **T.0125**, Application date: 09-11-2023, Patent (decision) date: 05-12-2023, Publication of patent: [WUP 08-04-2024]
[Pat13]	Stępniewski Kamil, Siwiec Krzysztof, Pleskacz Witold: **Light sensor** (Czujnik oświetlenia), Topography of integrated circuits, Protected, Application number: S.0140, Patent/rights number: **T.0136**, Application date: 06-03-2024, Patent (decision) date: 28-03-2024, Publication of patent: [WUP 24-06-2024]

[Pat14]	Zdrojek Mariusz, Judek Jarosław, Jakubczak Krzysztof, Dużyńska Anna, Żerańska Klaudia, Wróblewska Anna, Łapińska Anna: **Composite material for shielding electromagnetic radiation, raw material for additive manufacturing methods and a product comprising the composite material as well as a method of manufacturing the product** (Materiał kompozytowy do ekranowania promieniowania elektromagnetycznego, surowiec do metod wytwarzania przyrostowego oraz produkt obejmujący materiał kompozytowy, a także sposób wytwarzania produktu), Invention, Protected, Application number: IN 202024008015 , Patent/rights number: **IN 534476**, Application date: 25-02-2020, Patent (decision) date: 23-04-2024, Publication of patent: [Intellectual Property India 23-04-2024]
[Pat15]	Zdrojek Mariusz, Krzysztof Jakubczak, Judek Jarosław, Dużyńska Anna, Łapińska Anna, Wróblewska Anna, Żerańska-Chudek Klaudia: **Composite material for shielding electromagnetic radiation, raw material for additive manufacturing methods and a product comprising the composite material as well as a method of manufacturing the product** (Materiał kompozytowy do ekranowania promieniowania elektromagnetycznego, surowiec do metod wytwarzania przyrostowego oraz produkt obejmujący materiał kompozytowy, a także sposób wytwarzania produktu), Invention, Protected, Application number: JP 2020143275, Patent/rights number: **JP 7566296**, Application date: 27-02-2020, Patent (decision) date: 04-10-2024, Publication of patent: [Other publisher 04-10-2024]

9. REPORTS

Number	Authors	Title	Type
[Rep1]	Anders K.	Development of optical interfaces for silicon-nitride-based photonic platform	**Scientific report** from the project granted by Warsaw University of Technology
[Rep2]	Bolek K., Urbański M.	Układ pomiaru pętli histerezy i szumów Barkhausena cienkich taśm amorficznych	**Paper Presented:** XVI Konferencja Naukowo-Techniczna Podstawowe Problemy Metrologii
[Rep3]	Borecki M., Gęca M., Szmidt J., Korwin-Pawlowski M.	Sensing device of capillary action for diesel type fuels fit for use determination	**Paper Presented**: 18th Conference Integrated Optics - Sensors, Sensing Structures and Methods
[Rep4]	Bortnowski P., Lelit M., Paśnikowska A., Połatyński A., Stopiński S., Piramidowicz R.	AWG components of the mid-IR integrated photonics platform (MIRPIC) – design and simulations	**Poster:** 18th Conference Integrated Optics - Sensors, Sensing Structures and Methods
[Rep5]	Fetliński B.	Hyperbolic metamaterials for enhancing energy yield of photovoltaic modules	**Scientific report** from the project granted by Warsaw University of Technology
[Rep6]	Fetliński B.	Thin-film photoluminescent structures using large-particle organic and non-organic matrices	**Scientific report** from the project granted by Warsaw University of Technology
[Rep7]	Firek P.	Development of an innovative technology for PVD deposition of a multilayer, nanocomposite transistor gate	**Scientific report** from the project granted by Warsaw University of Technology
[Rep8]	Janaszek B.	The era of the AI-assisted photonics	**Paper Presented:** Engineer Week: Welcome to the Future 2024
[Rep9]	Janik M.	Influence of biological materials' charge on the functional parameters of opto-electrochemical biosensors	**Scientific report** from the project granted by Warsaw University of Technology
[Rep10]	Janik M.	Ultrasensitive genosensory optical fiber microsystem	**Scientific report** from the project granted by Warsaw University of Technology
[Rep11]	Judek J.	Plasmons and polariton on structured Surfaces of group IVb metal notrides	**Scientific report** from the project granted by Warsaw University of Technology
[Rep12]	Lelit M., Połatyński A., Paśnikowska A., Bieniek-Kaczorek A., Bortnowski P., Anders K., Stopiński S., Wiśniewski P., Słowikowski M., Juchniewicz M., Piramidowicz R.	Library of building blocks for MIRPIC technological platform	**Poster:** 18th Conference Integrated Optics - Sensors, Sensing Structures and Methods
[Rep13]	Lisovyi I., Stonio B., Jasiński J., Wiśniewski P.	Study of RRAM devices with PECVD silicon-oxide resistive switching layer	**Poster:** 2024 Joint International EUROSOI Workshop and International Conference on Ultimate Integration on Silicon
[Rep14]	Mierzwiński P.	Feasibility study of logic circuits using thermally stabilized complementary bipolar transistors	**Scientific report** from the project granted by Warsaw University of Technology

[Rep15]	Mroczyński R.	System for the characterization of ferroelectric (FE) properties of thin films and FE nanoelectronic and photonic devices	**Scientific report** from the project granted by Warsaw University of Technology
[Rep16]	Mroczyński R.	Ultrathin ferroelectric PVD films for novel Non-Volatile Semiconductor Memory (NVSM) structures	**Scientific report** from the project granted by Warsaw University of Technology
[Rep17]	Myśliwiec M., Kisiel R.	Presureless die attach of bare Si chips for Photonic Integrated Circuits applications	**Poster:** 46th International Microelectronics and Packaging Conference
[Rep18]	Myśliwiec M., Kisiel R., Kruszewski J.	Study of mechanical and thermal properties of AgAl interface	**Paper Presented:** 46th International Microelectronics and Packaging Conference
[Rep19]	Paśnikowska A., Stopiński S., Kaźmierczak A., Piramidowicz R.	10 Gb/s integrated multichannel transmitters in InP generic technology for telecom and datacom applications	**Paper Presented**: 18th Conference Integrated Optics - Sensors, Sensing Structures and Methods
[Rep20]	Piramidowicz R.	Development of an innovative photonic system for monitoring water resources	**Scientific report** from the project granted by the National Centre for Research and Development
[Rep21]	Piramidowicz R.	Photonic integrated circuits for applications in free-space optical communication systems	**Scientific report** from the project granted by Warsaw University of Technology
[Rep22]	Piramidowicz R.	Photonics Integrated Circuits technologies for MIDIR	**Scientific report** from the project granted by the National Centre for Research and Development
[Rep23]	Piramidowicz R., Stopiński S., Anders K., Jusza A., Paśnikowska A., Lelit M., Połatyński A., Bieniek-Kaczorek A., Kaźmierczak A., Butt M., Wiśniewski P., Słowikowski M., Juchniewicz M., Pavłov K., Pierściński K., Pierścińska D., Jureńczyk J., Liebert M.	Photonic integrated circuits – on the road from telecom to sensing	**Paper Presented**: 18th Conference Integrated Optics - Sensors, Sensing Structures and Methods
[Rep24]	Połatyński A., Lelit M., Paśnikowska A., Bieniek-Kaczorek A., Bortnowski P., Anders K., Stopiński S., Wiśniewski P., Słowikowski M., Juchniewicz M., Piramidowicz R.	Application-specific PDK library for MIRPIC platform	**Paper Presented**: 18th Conference Integrated Optics - Sensors, Sensing Structures and Methods
[Rep25]	Siwiec K.	The study of the robustness of GNSS positioning against signal disturbances	**Scientific report** from the project granted by Warsaw University of Technology
[Rep26]	Sochacki M.	Development, fabrication and characterization of HBT phototransistor test structures for the UV detection with limited sensitivity to the visible spectrum range	**Scientific report** from the project granted by Warsaw University of Technology
[Rep27]	Stopiński S.	Optical gyroscope in photonic integration technology	**Scientific report** from the project granted by Warsaw University of Technology
[Rep28]	Sultana R.	An analysis of Opto-electronic characteristics of ZrxHf1−xO2/Al/ZrxHf1−xO2 thin-films deposited at different substrate temperature	**Poster:** The 1st International Online Conference on Photonics

[Rep29]	Sultana R.	Impact of Zirconium Doping and Lattice Oxygen Release on Resistive Switching Characteristics of Metal-Oxide-Semiconductor Devices based on Sputtered ZrxHf1–xO2 gate dielectric	**Poster:** The 5th International Electronic Conference on Applied Sciences
[Rep30]	Szmidt J.	Development of a modular quantum computer infrastructure for special and military IT applications	**Scientific report** from the project granted by the National Centre for Research and Development
[Rep31]	Śmietana M.	Biopolymer materials with chemically and genetically programmed heavy metal selectivity for new generation ultra-sensitive biosensors	**Scientific report** from the project granted by the National Centre for Research and Development
[Rep32]	Śmietana M.	Heterogenous diamond biosensing nanoarchitectures: opto-electro-chemical interactions with antibody complexes	**Scientific report** from the project granted by the National Science Centre
[Rep33]	Śmietana M.	Optical multi sensor fusion for ionizing radiation diagnostics (WP1)	**Scientific report** from the project granted by the Ministry of Education and Science
[Rep34]	Śmietana M.	Real-time monitoring of impact of gamma radiation on properties of thin films	**Scientific report** from the project granted by Warsaw University of Technology
[Rep35]	Śmietana M.	Translucent titanium dioxide nanostructures deposited on substrates with complex geometry for photoconversion and sensorics	**Scientific report** from the project granted by the National Science Centre
[Rep36]	Wiśniewski P., Mazurak A., Kądziela A., Filipiak M., Stonio B., Beck R.	Silicon-oxide resistive switching memory based on the HSQ layer	**Poster:** 2024 Joint International EUROSOI Workshop and International Conference on Ultimate Integration on Silicon

10.CONFERENCES, SEMINARS AND MEETINGS

Number	Conference, Seminars and Meetings
[Con1]	1st International Online Conference on Photonics (ICOP 2024), 2024, October 14-16, Online, Switzerland
[Con2]	5th International Electronic Conference on Applied Sciences (ASEC 2024), 2024, December 04-06, Online, Switzerland
[Con3]	16th International Conference on Computational Collective Intelligence (ICCCI) (ICCCI 2024), 2024, September 09-11, Leipzig, Germany
[Con4]	18th Conference Integrated Optics - Sensors, Sensing Structures and Methods (IOS2024), 2024, February 26 - March-01, Szczyrk, Poland
[Con5]	19th International Conference on Availability, Reliability and Security (ARES 2024), 2024, July 30 – August 02, Vienna, Austria
[Con6]	31st International Conference Mixed Design of Integrated Circuits and Systems (MIXDES 2024), 2024, June 27-28, Gdańsk, Poland
[Con7]	46th International Microelectronics and Packaging Conference (IMAPS Poland 2024), 2024, September 22-25, Gdańsk, Poland
[Con8]	47th International Spring Seminar on Electronics Technology “Electronics Technology Innovations towards Green Electronics” (ISSE 2024), 2024, May 15-19, Online, Czech Republic
[Con9]	67th Annual Technical Conference of Society of Vacuum Coaters (SVC TechCon 2024), 2024, May 04-09, Chicago, USA
[Con10]	Conference SPIE Photonics Europe 2024 (SPIE PE 2024), 2024, April 07-12, Strasbourg, France
[Con11]	Engineer Week: Welcome to the Future, 2024, February 19-22, Online, USA
[Con12]	IEEE 27th International Symposium on Design and Diagnostics of Electonic Circuits and Systems (DDECS 2024), 2024, April 03-05, Kielce, Poland
[Con13]	IV Kongres Elektryki Polskiej (KEP 2024), 2024, June 06-07, Poznań, Poland
[Con14]	Joint International EUROSOI Workshop and International Conference on Ultimate Integration on Silicon (EuroSOI-ULIS 2024), 2024, May 15-17, Athens, Greece
[Con15]	The Eight International Workshop on Advanced Spectroscopy and Optical Materials (IWASOM'2024), 2024, July 07-12, Gdańsk, Poland
[Con16]	XIV Sympozjum Techniki Laserowej (STL 2024), 2024, September 09-13, Ryn, Poland
[Con17]	XVI Konferencja Naukowo-Techniczna Podstawowe Problemy Metrologii (PPM'24), 2024, June 05-07, Gliwice, Poland

11.AWARDS

Number	Award
[Award1]	Anders Krzysztof, **1st prize in the Prof. Z. Puzewicz Competition for Young Scientists on STL Conference 2024** (I nagroda w Konkursie im. prof. Z. Puzewicza dla Młodych Naukowców za najlepszy elevator pitch pt. "System monitorowania ruchu górotworu w kopalniach węgla bazujący na scalonym interrogatorze FBG" na XIV Sympozjum Techniki Laserowej STL 2024)
[Award2]	Anders Krzysztof, **Medal of Prof. Mieczysław Pozaryski** (Medal im. prof. Mieczysława Pożaryskiego)
[Award3]	Bieniek Aleksandra, **Audience award for the Best Poser on STL Conference 2024** (Nagroda publiczności za najlepszą prezentację plakatową pt. "SMART BED – monitorowanie parametrów życiowych z wykorzystaniem światłowodowych siatek Bragga i zintegrowanych interrogatorów fotonicznych" na XIV Sympozjum Techniki Laserowej STL 2024)
[Award4]	Bieniek Aleksandra, **Award: Best student paper presentation at SPIE Photonics Europe International Symposium, Conference on Optical Sensing and Detection 12999-35**, (Najlepsza prezentacja pracy studenckiej na SPIE Photonics Europe International Symposium, Conference on Optical Sensing and Detection 12999-35)
[Award5]	Cabaj Krzysztof, Mazurczyk Wojciech, Kowalczyk Marcin, Malanowska Agnieszka, Szary Przemysław, Rzepka Karol, Orzechowski Natan, **WUT Rector's Collective Award for Scientific achievements in 2022/23 (1st stage)** (Nagroda zespołowa I stopnia JM Rektora za osiągnięcia naukowe 2022-2023)
[Award6]	Dec Bartosz, Pfitzner Andrzej, **Best Paper Award on 31st International Conference MIXDES 2024** (Nagroda dla Najlepszej Pracy na 31 Międzynarodowej Konferencji MIXDES 2024)
[Award7]	Janaszek Bartosz, **WUT Rector's Individual Award for Scientific Achievements (3rd degree)** (Nagroda indywidualna III stopnia JM Rektora PW za osiągnięcia naukowe)
[Award8]	Malinowski Michał, **Medal of National Education Commission** (Medal Komisji Edukacji Narodowej)
[Award9]	Mazurak Andrzej, Pałka Piotr, Mroczyński Robert, **WUT Rector's Collective Award for Organizational Achievements (3rd stage)** (Nagroda zespołowa III stopnia JM Rektora PW za osiągnięcia organizacyjne)
[Award10]	Misztal Jakub, **Best Scientific Paper Award on 31st International Conference MIXDES 2024** (Nagroda dla Najlepszej Pracy Naukowej na 31 Międzynarodowej Konferencji MIXDES 2024)
[Award11]	Piramidowicz Ryszard, **Medal of Prof. Mieczysław Pozaryski** (Medal im. prof. Mieczysława Pożaryskiego)
[Award12]	Salski Bartłomiej Wacław, Kopyt Paweł, Krupka Jerzy, Pacewicz Adam, Czekała Piotr, Cuper Jerzy, Krysicki Mateusz: Scientific or research activity, **WUT Rector's Collective Award for Scientific Achievements (1st stage)**, (Nagroda zespołowa I stopnia JM Rektora PW za osiągnięcia naukowe)
[Award13]	Shveida Bohdan, **Best Scientific Paper Award on 31st International Conference MIXDES 2024** (Nagroda dla Najlepszej Pracy Naukowej na 31 Międzynarodowej Konferencji MIXDES 2024)
[Award14]	Sultana Rezwana, **The Best Poster Award on conference ICOP 2024** (Nagroda za najlepszy poster na konferencji ICOP 2024)
[Award15]	Szczepański Paweł, **WUT Rector's Individual Award for Scientific Achievements (1st degree)** (Nagroda indywidualna I stopnia JM Rektora PW za całokształt osiągnięć naukowych)
[Award16]	Szmidt Jan, Tyszka-Zawadzka Anna, Szczepański Paweł, Mroczyński Robert, Janaszek Bartosz, Kieliszczyk Marcin, Mazurak Andrzej, Kwietniewski Norbert, **WUT Rector's Collective Award for Organizational Achievements (1st stage)** (Nagroda zespołowa I stopnia JM Rektora PW za osiągnięcia organizacyjne)
[Award17]	Urbański Michał, Bolek Karol, Wójcicki Paweł, **WUT Rector's Collective Award for Scientific achievements (3rd stage): for a series of 5 publications in 2022/23 devoted to the metrology of physical quantities** (Nagroda Zespołowa III stopnia JM Rektora Politechniki Warszawskiej za cykl 5 publikacji w latach 2022/23 poświęconych metrologii wielkości fizycznych)