



**JERZY HABER INSTITUTE OF CATALYSIS
AND SURFACE CHEMISTRY
POLISH ACADEMY OF SCIENCES**



HR EXCELLENCE IN RESEARCH

RESEARCH REPORT

**General information
for years 2020-2023**



Contents

Introduction	3
Statistics	10
Research groups and laboratories	11
Research themes and projects	13
Scientific output of the institute	23
Presentations at conferences	78
Conferences and scientific events organized by the Institute	113
Career Advancement	114
Awards	116

Introduction

Research

The research team of the Jerzy Haber Institute of Catalysis and Surface Chemistry Polish Academy of Sciences is committed to in-depth understanding of phenomena and material transformations occurring at gas-solid, gas-liquid and liquid-solid interfaces through research combining significant aspects of chemistry, physics, chemical technology, material engineering, biology and medicine. Our fundamental theoretical and experimental studies are combined with applied research so that the results obtained are used in the protection of health, environment and cultural heritage, as well as to improve technological processes. We educate and train doctoral students in the theoretical foundations and methods of surface studies by engaging them in innovative research projects and making available our unique instrumentation.

The Institute employs about 125 people including around 85 research staff. Approximately 20 PhD students are also involved in the Institute's research activities. The recruitment in ICSC PAS is conducted according to the Open Transparent Merit-Based Recruitment Policy implement within 'HR excellence in research' actions. The HR excellence logo is a prestigious award of European Commission recognizing institutions that align their human resource policies to EU 'Charter and Codex'. As all recruitments in ICSC PAS are conducted with help of EURAXESS platform. In result, a number of foreigners among scientific staff steadily increases.

The research activity of the Institute focuses on three fundamental areas:

1. Catalytic materials and processes for sustainable development
2. Physics and chemistry of surfaces and nanostructures of soft matter
3. Physics and chemistry in cultural heritage protection

The scientific activities of the Institute in the domain of catalysis encompass the design, synthesis, and testing new catalytic materials. In the area of heterogeneous catalysis, the effort is focused on developing new materials, with well-defined structure-property relations, tuneable to the requirements of a particular catalytic reaction. The materials under investigation include new types of oxidic structures, nanodispersed metal catalysts and novel micro- and mesoporous inorganic solids, mostly zeolite-based. The work is targeted at the application in processing of selective oxidation reaction of hydrocarbons, selective hydrogenation of bio-waste feedstock as well as small molecules activation including CO₂ and CH₄ utilization. The studies combine experimental and theoretical research and involve the description of kinetic and mechanistic aspects of the studied processes. An important aspect is to provide theoretical background, mostly based on Density Functional Theory (DFT), for catalytic experiments and to lay the foundations to structure-activity relationships for the studied processes. The field of expertise ranges from modelling the structures of transition metal oxides, composite nanomaterials, and enzyme active centers to elucidating catalytic reaction mechanisms.

In the field of surface chemistry of dispersed systems, investigations are focused on adsorption phenomena, surfactants, mechanism of foam formation, nano- and colloidal particles interactions, thin polymer layers, encapsulation of active chemical compounds, nanostructured coatings in an application for corrosion inhibition, biocompatible materials such as stents or bone implants. Model systems, such as well-defined single crystal surfaces, epitaxial films and nanostructures are studied in view of their catalytic and magnetic applications. An important aspect of the research carried out at ICSC PAS is to provide the theoretical background for experimental studies. The field of expertise

ranges from elucidating catalytic reaction mechanisms and modelling the structures of transition metal oxides, composite nanomaterials and enzyme active centres, to describing surfactant adsorption at liquid/gas and liquid/liquid interfaces, and simulating polymer particle adsorption on solid homogenous surfaces.

Biocatalytic studies are conducted at ICSC PAS in a group of Theoretical and Experimental Biocatalysis and within the Joint Laboratory of Biotechnology and Enzyme Catalysis, which goes with its organizational framework beyond ICSC PAS. The research conducted in the group focuses on fundamental studies of the mechanism for the reaction catalyzed by the enzymes. This goal is pursued with a range of experimental techniques encompassing the whole research cycle, starting from the development and optimization of enzyme expression systems (wild type and recombinant), bacteria growth, enzyme isolation and purification, followed by structural (by means of X-ray crystallography and cryo-EM), kinetic (steady and pre-steady state using spectrophotometric and LC-MS/MS techniques) and biophysical studies. The experimental research is accompanied by theoretical studies such as MD simulation, QM and QM:MM modelling of reaction profiles. The theory is combined with experiments using kinetic isotope studies or prediction of enzyme reactivity and enantioselectivity based on theoretical calculations. The researchers of ICSC PAS pursue several topics, such as the study of i) bacterial and eukaryotic metalloenzymes that catalyze redox reactions (e.g. Fe-dependent monooxygenases, Mo and W-dependent oxidoreductases), ii) bacterial dehydrogenases catalyzing the synthesis of chiral alcohols or regioselective dehydrogenation of steroids as well as iii) bacterial glycin radical synthases that catalyze C-C bond formation. The fundamental studies are supplemented by applied research focusing on developing catalytic methods that can be applied in the pharmaceutical and fine chemical industries. The scope of this study encompasses reaction engineering, reactor tests, upscaling of reaction scale, enzyme immobilization and analysis of enzyme deactivation processes, as well as rational-based computer-aided enzyme mutation leading to the broadening of substrate specificity. The obtained methods are secured with patents and know-how and transferred to the industrial partners.

In the new facility of the ICSC PAS, where Bioprocess Development Laboratory is located, extensive studies are conducted aiming in understanding the processes of production of bacterial polymers – polyhydroxyalkanoates (PHA) from biomass. These polymers are produced in the fermentation processes by microorganisms from various renewable carbon sources (including vegetable oils, fatty acids, glycerol). Within the Laboratory, fundamental research is carried out to determine the complete physicochemical and biological characterization of PHA polymers. A strong aspect is the search for application uses for these biocompatible substances. A parallel research pathway is studies on bacterial PHA monomers. Hydroxy acids are subjected to physical, chemical and enzymatic modifications, which allows the synthesis of a range of new and unique chemical compounds (surfactants or new organic solvents). The Bioprocess Development Laboratory operates in five thematic areas: (i) bioprocess development – bacterial, yeast fermentations – including PHA (substrate/strain interaction; application of advanced modeling methods in process parameterization), (ii) cell research, using mammalian cells for evaluation of materials/compounds with potential medical applications, (iii) biosurfactants (sugar esters) synthesis for targeted drug delivery, (iv) antibiotics, designing as a result of structural modifications of PHA monomers, by introduction of new functionalities to the ester molecule by e.g. halogenation, (v) ionic liquids/deep eutectic solvents as a new green solvents based on biocomponents; identification of application possibilities (e.g. biomass separation, energy storage, medium for heterogeneous catalysis).

One of the focal points in the research carried out at ICSC PAS is the preservation of the cultural heritage at the crossroads of science and the humanities. Research has particularly focused on understanding of environmentally induced deterioration processes, in particular related to

microclimatic variations and the monitoring of physical changes in the materials of historical objects using non-invasive research methods. The basic research has been linked to extensive programmes in museums and historical buildings, practical conservation work and the development of tools supporting preservation strategies for collections. Institute has developed of the on-line HERIE software for quantitative assessment of risk of physical damage to cultural objects due to relative humidity variations. The tool is freely available to conservation and museum professionals who do not have specialized competence in modelling the risk of damage to objects, as a support in the decision-making process for the control of indoor environmental conditions in historical buildings and museums. Our researchers experimentally determined properties of historic and artistic materials contained in heritage objects – wood, grounds, paints, parchment, paper – necessary for modelling objects' temperature and moisture response, and determining their vulnerability to physical damage: sorption of water vapour, moisture-related swelling and shrinkage, water vapour diffusion and surface emission, stress-strain relationships, resistance to cracking and fatigue failure. They make use of time-dependent analysis of the response of cultural objects to variations in microclimate parameters, with the use of the finite element method to model water vapour movement and the resulting strain and stress fields across objects, as a tool for quantitative assessment of the risk of physical damage. Moreover, our researchers are involved in the direct tracing of the development of climate-induced physical damage to support the objective assessment of the safety of objects of art in their real-world environments, with the use of acoustic and optical methods.

In the years 2020-2023, our organizational structure changed. At the end of 2023 it consisted of 9 research groups and 9 laboratories:

Research groups

Catalysis:

1. Theoretical and Experimental Biocatalysis
2. Heterogeneous catalysis: theory and experiment

Surface chemistry:

3. Adsorption
4. Interfacial Interactions in Dispersed Systems (new)
5. Nano and Microscale Systems (new)
6. Nanostructures of Soft Matter
7. Physicochemistry of Colloidal Systems (new)
8. Surface Nanostructures

Protection of cultural heritage:

9. Cultural Heritage Research

Laboratories:

1. XRD and Thermoanalysis Laboratory
2. Surface Nanostructures
3. Joint Laboratory of Biotechnology and Enzyme Catalysis
4. Laboratory of Atomic Force Microscopy
5. Laboratory of Scanning Electron Microscopy
6. Nanotechnology Laboratory
7. Bioprocess Development Laboratory
8. Electrochemistry and Corrosion Laboratory
9. Laboratory of Microscopy and Ellipsometry

The groups available in a period of 2020-2023

1. Layered Minerals, Mesoporous Oxides, Nanostructures (until end of 2021)
2. Catalytic Processes for Clean Energy (until end of 2021)
3. Colloids (transformed into two groups: Physicochemistry of Colloidal Systems, Nano and Microscale Systems)
4. Dispersed Systems (transformed into Interfacial Interactions in Dispersed Systems)

Education

The Institute has a rich educational experience.

PhD studies

In period 2020-2023 doctoral programmes at the third-cycle level are established within five frameworks:

1. **International PhD Studies** (established in 2000). They are conducted on a full-time basis and last for 4 years. The subjects of doctoral thesis offered by ICSC PAS include a range of specialties, both experimental and theoretical, covering: heterogeneous, homogeneous and enzymatic catalysis, synthesis and physicochemistry of nanomaterials, quantum chemistry of catalytic systems and reactions, colloid chemistry, surfactants and dispersed systems, chemistry and plastic technology, organic, inorganic chemistry and technology as well as cultural heritage science.

Since 2017, the Institute participates in two new Interdisciplinary PhD projects:

2. as a coordinator – in the project **InterDokMed ‘PhD Studies in Interdisciplinarity for Innovative Medicine’** with May Institute of Pharmacology PAS, The Henryk Niewodniczanski Institute of Nuclear Physics PAS, Faculty of Chemistry and Faculty of Medicine Jagiellonian University, where PhD students from different units implement a common framework program, covering classes in various fields and translational sciences; dissertations will be conducted under the supervision of two promoters representing different institutions and fields of science. The choice of implementing units guarantees the implementation of interdisciplinarity through the implementation of scientific research covering more than one area of knowledge (exact sciences / medical sciences), more than one field (chemical / physical / medical sciences) and several scientific disciplines (physics, chemistry, pharmacology, medicine).
3. as a partner – in the project **FCB ‘Physical, Chemical and Biophysical Foundations of Modern Technologies and Materials Engineering’**, with Faculty of Physics and Applied Computer Science AGH University Science and Technology as coordinator, The Henryk Niewodniczanski Institute of Nuclear Physics PAS, Faculty of Chemistry Jagiellonian University, Faculty of Materials Science and Ceramics AGH University Science and Technology, where the studies offer the opportunity to obtain a degree in the following disciplines: physics, chemistry, biophysics, material engineering and chemical technology.

On 1st October 2018, the new Law on Higher Education and Science came into force. According to this Act of Law, Polish universities and institutes of Polish Academy of Sciences were required to establish doctoral schools. ICSC PAS participate in two doctoral school:

4. with partners from Krakow (Institute with The Henryk Niewodniczański Institute of Nuclear Physics PAS, Maj Institute of Pharmacology PAS, Aleksander Krupkowski Institute of Metallurgy and Materials Science PAS and AGH University of Science and Technology) in **Krakow Interdisciplinary doctoral school - KISD**, where education prepares for obtaining the doctoral degree and is conducted in the following disciplines: physical sciences, chemical sciences, medical sciences, pharmaceutical sciences, material engineering, environmental engineering, mining and energy. Education in KISD is characterized by modern and up-to-date research topics as well as a flexible curriculum allowing for selection of classes depending on the needs of the doctoral student. It is carried out through the implementation of an individual research program and education programmes.
5. with partners from Lublin (Maria Curie-Skłodowska University, two institutes of Polish Academy and Sciences and State Research Institute) in **Doctoral School of Natural Sciences**.

Others

The Institute takes active part in educating young staff. In the years 2020-2023, under the supervision of the Institute's employees 22 bachelor's, engineering and master's theses are created (4 in 2020, 1 in 2021, 6 in 2022 and 11 in 2023). 130 students from Krakow Universities and even students at Krakow high schools undertakes their summer practices in the Institute (8 in 2020, 26 in 2021, 67 in 2022 and 29 in 2023).

National and international cooperation

The high international stance of ICSC PAS can be measured by joint publications, conference talks, scientific exchange of our employees and foreign guests with external institutions.

The Institute intensifies the use of its research infrastructure by organizing joint laboratories with a number of research centres: the Interinstitute Laboratory of Enzymatic Catalysis and Biotechnology, Interdisciplinary Centre of Physical, Chemical and Medical Sciences (ICNFMC), National Synchrotron Radiation Centre "Solaris", Joint Laboratory of advanced electron spectroscopy (with PREVAC).

The Institute cooperates with leading institutions in Poland and abroad as apart of many networks and consortia. As an example, it is worth mentioning the selected consortia from recent years: E-RIHS PL (2015), Scientific Consortium "PHATTechMat" (2018), Consortium EIG Concert Japan (2019), Project Consortium "Nuclear magnetic resonance - a platform for interdisciplinary physico-chemical research" (2018), "Polish Synchrotron" National Consortium (2008).

The Institute is involved in extensive international cooperation. These activities include numerous bilateral international collaboration schemes, research projects of the successive Framework Programmes of the European Commission, as well as of the Operational Programmes: Innovative Economy and Human Capital, co-financed by the European Commission. Four projects founded by European Innovation Council are currently carried out in the Institute: *IPERION HS* Integrating Platforms for the European Research Infrastructure on Heritage Science, *nanoPaInt*: Dynamics of dense nanosuspensions: a pathway to novel functional materials, *NewCat*: Teaching Lytic Polysaccharide Monooxygenases to do Cytochrome P450 Catalysis and *GoGreen*: Green Strategies to Conserve the Past and Preserve the Future of Cultural Heritage.

The Institute actively participates in the actions of the COST Initiative. In the period 2019-2022 the ICSC PAS scientists participated in COST Action CA18234 "Computational materials sciences for efficient water splitting with nanocrystals from abundant elements".

The Institute has a long-standing tradition of animating and coordinating research in the field of catalysis and surface science in Poland. For almost fifty years, the Institute has organised the Annual Conference on Catalysis, a key event for the research community in the field.

The Institute's employees are actively involved in the organization and co-organization of national and international conferences and working meetings. The most important conferences organized or co-organized by ICSC PAS were:

- 15th European Congress of Catalysis - EuropaCat-15 „A Pilar for Modern Chemistry” 27.08-01.09.2023, Prague, Czechia
- LV Polish Annual Conference on Catalysis, March 22-24, 2023, Krakow
- EUFoam Conference July 3-6, 2022, Krakow
- 4th ISFMS-Biochemistry, Molecular Biology and Druggability of Proteins, Multidisciplinary Digital Publishing Institute, University of Florence, Italy, 06-09.09 2022
- Organization of the Catalytic Section as part of the 64th Scientific Meeting of Polish Chemical Society, September 11-16, 2022, Lublin

- LIV Polish Annual Conference on Catalysis, June 1-3, 2022, Krakow
- Workshops for Entrepreneurs "Catalytic solutions in industrial installations", September 28, 2022, Krakow
- 6th International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface, June 6-9, 2021, Krakow
- 34th Marian Smoluchowski Symposium on Statistical Physics, November 27-29, 2021, Zakopane
- Life Science Open Space Online Week 2021, November 22-26, 2021

The international position of the Institute is demonstrated by the prestigious functions performed by the employees of ICSC PAS: the vice-presidency of EFCATS (European Federation of Catalysis Societies); a membership in the Board of Directors ERIC (European Research Institute on Catalysis); a presidency of ECIS (European Colloid and Interface Society); editorships of 'Advance in Colloids and Interface Science', 'Current Opinion in Colloid and Interface Science'; 'Colloids and Surfaces A', 'Physicochemical Problems of Mineral Processes'; members of the scientific advisory board of 'Journal of Colloid Interface Science', 'Catalysis Letters', 'Topics in Catalysis', 'Surface Innovations', and 'Innovations & Impact'.

The Institute participates in the ERASMUS+ network as well as National Agency for Academic Exchange Programme (PROM). Both PhD students and research staff benefit from research and training visits at foreign research institutions financed by these networks. In addition, the Institute regularly hosts visiting students from abroad.

Popularising research

The Institute is involved in the promotion of science among the public.

For 16 years the Institute has been actively promoting Science through the organization of the annual Open Days. The event is extremely popular among primary and secondary school students as the Institute is visited yearly by approximately 1,000 visitors.

The Institute participates in the organization of the annual Science Festival at the Main Market Square in Krakow, as well as participated in the 18th Science Picnic at the National Stadium in Warsaw.

The Institute is involved in various outreach initiative during which the Institute's employees conduct lectures and experimental shows dedicated for various stages of educational institutions (pre-schools, primary and secondary level).

The Institute's employees regularly promote research in training for Polish museum workers organized by the National Institute of Museology and Collection Protection.

The Institute organizes a popular competition for master's theses, for the prizes in the field of chemistry, physics and the borderline of chemistry and biology, chemistry and physics or physics and biology regarding the issues of surface physiochemistry (Andrzej Pomianowski prize) or catalysis (Jerzy Haber prize), which covers all university units in Poland.

In order to be noticeable in society, the Institute has been active in social media for several years. The image of the Institute is created on Likedin and on Facebook. Doctoral students conducting research at the Institute also have their accounts. Using social media, the Institute provides the latest information and news and inform general public about the offer and latest achievements.

Statistics 2020-2022

	2020	2021	2022	2023	Σ
Publications					
<i>monographs</i>		1	1	1	3
<i>chapters in monographs</i>	2		4	6	12
<i>articles in journals evaluated in Thomson Reuters Journal Citation Reports</i>	151	168	152	116	587
<i>articles in other journals and books</i>	2	5	2	5	14
Patents	6	1	4	2	13
Patent applications	3	5	3	8	19
Domestic research projects	Σ	25	32	24	55
<i>granted in a given year</i>		1	8	5	11
International research projects	Σ	19	22	22	24
<i>granted in a given year</i>		5	4	4	2
Participation in conferences					
<i>invited lectures</i>	7	17	30	22	76
<i>orals</i>	66	100	98	103	367
<i>posters</i>	10	57	116	102	285
Conferences & Popular scientific events organized by the Institute	3 -	4 -	5 -	2 1	14 1
Scientific titles and degrees granted					
professor	2	2	0	0	4
DSc (habilitation) by ICSC	0	3	1	1	5
PhD (doctorate) by ICSC	1	9	4	11	20
PhD students	39	30	25	20	

RESEARCH GROUPS AND LABORATORIES

Heads of the research groups in italics

Staff members and PhD students as on December 31st, 2023

Theoretical and Experimental Biocatalysis

Professor Tomasz Borowski DSc

Professor Maciej Szaleniec DSc, Anna Kluza PhD, Anna Miłaczewska-Kręgiel PhD, Mateusz Tataruch PhD, Zuzanna Wojdyła PhD, Agnieszka Wojtkiewicz PhD

PhD students: Justyna Andrys-Olek, Maciej Hapke Gabriela Oleksy, Anna Sekuła,

Bioprocess Development Laboratory

Associate Professor Maciej Guzik DSc

Robert Karcz PhD, Joanna Kryściak-Czerwenka PhD, Justyna Prajsnar PhD, Ewelina Cichoń PhD, Anna Faruga MSc

Heterogeneous catalysis: theory and experiment

Associate Professor Dorota Rutkowska-Żbik DSc

Professor Małgorzata Witko, Associate Professor Renata Tokarz-Sobieraj DSc, Anna Micek-Ilnicka DSc, Małgorzata Zimowska DSc, Agnieszka Drzewiecka-Matuszek PhD, Mariusz Gackowski PhD, Robert Kosydar PhD, Łukasz Kuterasiński PhD, Erwin Lalik PhD, Małgorzata Ruggiero-Mikołajczyk PhD, Katarzyna Samson PhD, Jerzy Podobiński MSc

Adsorption

Professor Tomasz Pańczyk DSc

Professor Barbara Jachimska DSc, Professor Wojciech Płaziński DSc, Agnieszka Brzyska PhD, Agnieszka Kamińska PhD, Paweł Wolski PhD

PhD students: Valerii Lutsyk, Kamil Rakowski, Magdalena Szota, Joanna Szechyńska

Interfacial Interactions in Dispersed Systems

Associate Professor Jan Zawala DSc

Georgi Gochev DSc, Andrzej Baliś PhD, Dominik Kosior PhD, Agata Wiertel-Pochopień PhD

PhD students: Mariusz Borkowski, Dorota Gaweł, Łukasz Witkowski, Klaudia Zaręba

Nano and Microscale Systems

Associate Professor Jakub Barbasz DSc

Associate Professor Paweł Weroński DSc, Piotr Batys DSc, Aneta Michna DSc, Leszek Krzemień PhD, Maria Morga PhD, Agata Pomorska PhD,

Nanostructures of Soft Matter

Associate Professor Krzysztof Szczepanowicz DSc

Professor Piotr Warszyński, Marta Kolasińska-Sojka DSc, Michał Mosiałek DSc, Ewelina Jarek PhD, Dzmity Kharitonau PhD, Tomasz Kruk PhD, Marcel Krzan PhD, Marzena Noworyta Eng, Grzegorz Mordarski PhD, Joanna Odrobińska-Baliś PhD, Anna Pajor-Świerzy PhD, Konrad Skowron PhD, Marta Szczęch PhD, Lilianna Szyk-Warszyńska PhD, Magdalena Włodek PhD, Mikołaj Zaleski MSc

PhD students: Zofia Krasieńska-Krawet, Piotr Skowron, Amir Sultan, Hanna Wita

Physicochemistry of Colloidal Systems

Associate Professor Magdalena Oćwieja DSc

Anna Bratek-Skicki DSc, Małgorzata Nattich-Rak DSc, Aleksandra Pacuła DSc, Dorota Duraczyńska PhD, Julia Maciejewska-Prończuk PhD, Alicja Michalik PhD, Marta Sadowska PhD, Monika Wasilewska PhD, Paulina Żeliszewska PhD, Katarzyna Kusak Eng.

PhD students: Patrycja Gnacek, Oliwia Kowalska, Piotr Smoleń

Surface Nanostructures

Professor Nika Spiridis DSc

Professor Józef Korecki DSc, Jacek Gurgul DSc, Kinga Freindl PhD, Ewa Madej PhD, Ewa Młyńczak PhD, Robert Socha PhD, Dorota Wilgocka-Ślęzak PhD, Natalia Kwiatek MSc

PhD students: Bohdana Blyzniuk, Adam Dziwoki, Smibin Shaju, Adra Surendran

Cultural Heritage Research

Professor Łukasz Bratasz DSc

Sergii Antropov PhD, Sonia Bujok PhD, Marcin Bury PhD, Marcin Strojecki PhD, Nefeli Avgerou MSc, Łukasz Berger MSc

PhD student: Katarzyna Poznańska

XRD and Thermoanalysis Laboratory

Professor Wiesław Łasocha DSc

Katarzyna Pamin DSc, Daria Napruszewska MSc

RESEARCH THEMES AND PROJECTS

STATUTORY RESEARCH

2020

Catalytic Materials and Processes for Sustainable Development

- Effects of modifications of molybdenum trioxide on heat evolution accompanying the processes involving hydrogen bronze formation – *Professor Alicja Drelinkiewicz*
- Studies on the properties and application of enzymes with application potential – *Professor Tomasz Borowski*
- New peroxo and polyoxo compounds of Mo(VI), W(VI) and V(V). Synthesis, structural studies and applications in oxidation processes. – *Professor Wiesław Łasocha*
- Studies of structural effects and influence of support on the catalytic activity of copper-based systems – *Associate Professor Dorota Rutkowska-Żbik DSc*
- New catalytic materials for „green chemistry” processes – *Professor Ewa Serwicka-Bahranowska*

Physics and Chemistry of Surfaces and Nanostructures

- Mechanisms and kinetics of protein molecule immobilization at solid/electrolyte interfaces and determination of their interactions with macromolecule ligands. – *Professor Zbigniew Adamczyk*
- Monolayers of plasmonic nanoparticles of controlled structure and tunable electrokinetic properties – *Professor Zbigniew Adamczyk*
- Modeling of the mechanical properties of biological systems in the micrometer scale – *Dr Jakub Barbasz DSc*
- Structural, electronic and dynamics properties of surface and nanostructures studied with microscopic and spectroscopic techniques under ultra-high vacuum conditions – *Professor Nika Spiridis*
- Molecules with biological importance in reference to their interaction with a surface and refining their theoretical description – *Professor Tomasz Pańczyk*
- Determination of mechanisms of synthesis, structure, and transport parameters of supported colloidal particle multilayers – *Associate Professor Paweł Weroński DSc*
- Functional multilayer polyelectrolyte films – *Dr Marta Kolasieńska-Sojka DSc*
- Nanoparticles as neuroprotective substance carriers – *Associate Professor Krzysztof Szczepanowicz DSc*
- Influence of initial adsorption coverage at liquid/gas interface on stability of foam and wetting films under dynamic conditions – *Associate Professor Jan Zawala DSc*
- New cathode materials for high-temperature fuel cells with a reduced working temperature – *Dr Michał Mosiałek DSc*
- Physicochemical properties of functional nanocarriers based on dendrimers and proteins – *Professor Barbara Jachimska*

Physics and Chemistry in Cultural Heritage Protection

- Quantitative assessment of risk to heritage objects due to microclimatic conditions in the environment – *Associate Professor Łukasz Bratasz DSc*

Development grant

- Application of nanomaterials for the fabrication of conductive layers on power contacts – *Dr Anna Pajor-Świerzy*

2021

Catalytic Materials and Processes for Sustainable Development

- Effects of modifications of molybdenum trioxide on heat evolution accompanying the hydrogen bronze formation – *Professor Alicja Drelinkiewicz*
- Studies on the properties and application of enzymes with application potential – *Professor Tomasz Borowski*
- New peroxo and polyoxo compounds of Mo(VI), W(VI) and V(V). Synthesis, structural studies and applications in oxidation processes. – *Professor Wiesław Łasocha*
- Studies of structural effects and influence of support on the catalytic activity of copper-based systems – *Associate Professor Dorota Rutkowska-Żbik DSc*
- New catalytic materials for „green chemistry” processes – *Professor Ewa Serwicka-Bahranowska*

Physics and Chemistry of Surfaces and Nanostructures

- Determination of the mechanism of protein corona formation on the surface of nanoparticles for the myoglobin/latex system – *Dr Magdalena Oćwieja DSc*
- Monolayers of plasmonic nanoparticles of controlled structure and tunable electrokinetic properties – *Professor Zbigniew Adamczyk, Dr Magdalena Oćwieja DSc*
- Physicochemical and mechanical properties of "bio" systems – *Dr Jakub Barbasz DSc*
- Structural, electronic and dynamics properties of surface and nanostructures studied with microscopic and spectroscopic techniques under ultra-high vacuum conditions. – *Professor Nika Spiridis*
- Molecules with biological importance in reference to their interaction with a surface and refining their theoretical description – *Professor Tomasz Pańczyk*
- Determination of mechanisms of synthesis, structure, and transport parameters of supported colloidal particle multilayers – *Associate Professor Paweł Weroński DSc*
- „Functional multilayer polyelectrolyte films” – *Professor Piotr Warszyński*
- Theranostic nanocarriers of anticancer drugs – *Associate Professor Krzysztof Szczepanowicz*
- Elaboration of experimental set-up for examination of interfacial phenomena at fluid interfaces under static conditions – *Associate Professor Jan Zawala DSc*
- New cathode materials for high-temperature fuel cells with a reduced working temperature – continuation. – *Dr Michał Mosialek DSc*
- Physicochemical properties of functional nanocarriers based on dendrimers and proteins – *Professor Barbara Jachimska*

Physics and Chemistry in Cultural Heritage Protection

- Quantitative assessment of risk to heritage objects due to microclimatic conditions in the environment – *Associate Professor Łukasz Bratasz DSc*

Development grant

- Application of nanomaterials for the fabrication of conductive layers on power contacts – *Dr Anna Pajor-Świerzy*
- FAU-type zeolites as modifiers of ANFO – *Dr Łukasz Kuterasiński*

2022

Catalytic Materials and Processes for Sustainable Development

- Experimental and computational studies on selected enzymes of application potential – *Professor Tomasz Borowski*
- Research of biological systems at cellular level – *Dr Tomasz Witko*
- New peroxo and polyoxo compounds of Mo(VI), W(VI) and V(V). Synthesis, structural studies and applications in oxidation processes. - *Professor Wiesław Łasocha*
- Studies of structural effects and influence of support on the catalytic activity of copper-based systems – *Associate Professor Dorota Rutkowska-Żbik DSc*

Physics and Chemistry of Surfaces and Nanostructures

- Mechanisms and kinetics of protein immobilization on solid/electrolyte surfaces: Determination of the mechanisms of human serum albumin corona formation at polymer microparticle carriers – *Associate Professor Magdalena Oćwieja DSc*
- Monolayers of metal nanoparticles of controlled structure and electrokinetic properties deposited on the surfaces of oxide carriers – *Associate Professor Magdalena Oćwieja DSc*
- Physicochemical and mechanical properties of "bio" systems – *Associate Professor Jakub Barbasz DSc*
- Structural, electronic and dynamics properties of surface and nanostructures studied with microscopic and spectroscopic techniques under ultra-high vacuum conditions. – *Professor Nika Spiridis*
- Molecules with biological importance in reference to their interaction with a surface and refining their theoretical description. – *Professor Tomasz Pańczyk*
- Determination of mechanisms of synthesis, structure, and transport parameters of supported colloidal particle multilayers – *Associate Professor Paweł Weroński DSc*
- Functional multilayer polyelectrolyte films – *Professor Piotr Warszyński*
- Theranostic nanocarriers of anticancer drugs – *Associate Professor Krzysztof Szczepanowicz DSc*
- Kinetics of drainage of liquid films under dynamic conditions – experiment and numerical simulations – *Associate Professor Jan Zawala DSc*
- Design, synthesis and characterization of hydrogel layers based on bio-colloidal solid particles for medical and food applications - *Dr Marcel Krzan*
- Hydrogel microcapsules with nano-structured coatings – *Professor Piotr Warszyński*
- Influence of the presence of crystal lattice defects on the corrosion resistance of metals with hexagonal close-packed lattice – *Dr Grzegorz Mordarski*
- Physicochemical properties of functional nanocarriers based on dendrimers and proteins – *Professor Barbara Jachimska*

Physics and Chemistry in Cultural Heritage Protection

- Quantitative assessment of risk to heritage objects due to microclimatic conditions in the environment – *Professor Łukasz Bratasz*

Development grant

- Cu-containing FAU-type zeolite as a modifier of ANFO-based explosives – *Dr Łukasz Kuterasiński*

2023

Catalytic Materials and Processes for Sustainable Development

- Experimental and computational studies on selected enzymes of application potential – *Professor Tomasz Borowski*
- Bacterial biopolymers as a source of hydroxyacids for use as HBD-type components for the production of deep eutectic solvents (DES). – *Associate Professor Maciej Guzik DSc*
- New peroxy- and polyoxo- compounds of Mo (VI), W (VI) and V (V). Synthesis, structural studies and applications in oxidation processes - *Professor Wiesław Łasocha*
- Studies of structural effects and influence of support on the activity of bimetallic copper-nickel catalysts – *Associate Professor Dorota Rutkowska-Żbik DSc*

Surface chemistry and nanostructures of soft matter

- Mechanisms and kinetics of protein immobilization at solid/electrolyte interfaces: Mechanisms of human serum albumin corona formation at polymer and silica microparticle carriers – *Associate Professor Magdalena Oćwieja DSc*
- Fluorescent metal nanocluster monolayers of controlled structure and electrokinetic properties prepared on surfaces of colloidal carriers – *Associate Professor Magdalena Oćwieja DSc*
- Mechanical properties of biological systems, modeling on the micrometer scale – *Associate Professor Jakub Barbasz DSc*
- Structural, Electron Properties and Dynamics of Surface and Nanostructures Studied with Microscopic and Spectroscopic Techniques Radiation in the Ultra High Vacuum Conditions – *Professor Nika Spiridis*
- Computer-aided design of hybrid nanoparticles for cancer theranostics applications – *Professor Tomasz Pańczyk*
- Determination of mechanisms of synthesis, structure, and transport parameters of supported colloidal particle multilayers – *Associate Professor Paweł Weroński DSc*
- Theranostic nanocarriers of anti-cancer substances – *Associate Professor Krzysztof Szczepanowicz DSc*
- Kinetics of coalescence in water-in-water emulsions – *Associate Professor Jan Zawala DSc*
- Natural and modified polysaccharides as stabilizers of surface films, foams and emulsions - *Professor Piotr Warszyński*
- New electrolyte materials for solid oxide fuel cells with reduced operating temperature – *Associate Professor Krzysztof Szczepanowicz DSc, Michał Mosiałek DSc*
- Influence of severe plastic deformation of Mg on the properties of phosphate layers – *Associate Professor Krzysztof Szczepanowicz DSc, dr Grzegorz Mordarski*
- Molecular aspects of protein conformational stability in the context of the formation of amyloid superstructures – *Professor Barbara Jachimska*

Physics and Chemistry in Cultural Heritage Protection

- Quantitative assessment of risk to heritage objects due to microclimatic conditions in the environment – *Professor Łukasz Bratasz*

RESEARCH PROJECTS**"Sonata Bis" Research Projects of the National Science Centre**

- NZ1 [2015-2021] 2-Oxoglutarate Dependent Oxygenases in the Biosynthesis of Pharmacologically Active Alkaloids - Structure, Catalytic Mechanisms and Rational Redesign - *Professor Tomasz Borowski*
- ST4 [2016-2021] Molecular mechanics force field for structure, dynamics and conformation of carbohydrates involving furanoses – *Professor Wojciech Plaziński*
- ST8 [2021-2025] Synergistic effects of mixed biosurfactants solutions in stability of liquid films under dynamic conditions - fundamental research with practical importance in flotation separation process – *Associate Professor Jan Zawala DSc*
- ST3 [2023-2028] Topology meets magnetism: Sn-based compounds for magnetization-driven topological phase transitions (TopoTin) – *Ewa Młyńczak PhD*

"Sonata" Research Projects of the National Science Centre

- ST4 [2016-2020] Lipase-Mediated Biosynthesis of Novel Lactose Esters. Physicochemical and Anticancer Studies – *Dr Maciej Guzik*
- ST4 [2017-2021] Influence of ZrO₂ Crystallographic Structure on Activity of Cu/ZrO₂ and Cu/ZrO₂-ZnO Catalysts Doped with Ga, Mn, Ni in Low Temperature Steam Reforming of Bio-Ethanol – *Dr Michał Śliwa*
- ST5 [2019-2024] From a single molecule to smart material - understanding the polypeptide complexes formation and properties – *Dr Piotr Batys DSc*
- ST5 [2021-2024] Improving the conductivity of printed patterns by optimizing the synthesis process and physicochemical properties of metal nanoparticles. – *Dr Anna Pajor-Świerzy*
- ST5 [2023-2026] Nanohybrid systems containing graphene oxide and nanoparticles as functional components for a new type of biosensors – *Dr Tomasz Kruk*

"Opus" Research Projects of the National Science Centre

- ST3 [2017-2021] Magnetic Nanoparticles on Periodic Iron Oxide Templates: Control of Magnetism Using Particle Substrate Interaction and External Electric Field – *Professor Nika Spiridis*
- ST8 [2017-2022] Development of Modern Generation Technology of Stable Biological Surface Film for Various Bio-Medical Applications (Antibacterial or Regeneration Properties) – *Dr Marcel Krzan*
- ST4 [2017-2021] The Mechanism of Regioselective Oxidative Dehydrogenation of 3-Ketosteroids Catalyzed by Δ^1 -Cholest-4-en-3-one Dehydrogenase from *Sterolibacterium denitrificans* – *Professor Maciej Szaleniec*
- ST4 [2017-2021] Theoretical and Experimental Studies on the Mechanism of Oxidative Dehydrogenation (ODH) of Light Alkanes over Vanadium-containing Hierarchical Zeolite Materials – *Associate Professor Dorota Rutkowska-Żbik DSc*
- ST8 [2017-2022] Influence of Counterions on the Formation and Functionality of Polyelectrolyte Membranes – *Dr Marta Kolasińska-Sojka DSc*
- ST5 [2017-2021] Dendrimers as a Platform for Designing Biologically Active Carrier – *Professor Barbara Jachimska*
- ST8 [2018-2021] In Search of Effective and Environmental Friendly Frothers and Emulsifiers – Quantitative Description of Thin Liquid Film Stability in Solutions of „Green” Surfactants – *Associate Professor Jan Zawala DSc*

- ST4 [2018-2021] pH Stimuli Responsive Surfactants and Copolymers for Nanovehicles Formation – *Professor Piotr Warszyński*
- ST4 [2018-2021] Studies of the Interactions of Carbon Nanotubes with Telomeric DNA by Means of the Molecular Dynamics Simulations – *Professor Tomasz Pańczyk*
- ST5 [2018-2022] Biopolymers as Templates for Preparation of Nanostructured Hydrotalcite-Like Materials and their Calcined Mixed Oxides Derivatives for Catalytic Applications – *Professor Ewa Serwicka-Bahranowska*
- ST8 [2019-2023] New polysaccharide-based biomaterials as an effective platform for adsorption and release fibroblast growth factors: applications in diagnostics and treatment of diseases of affluence – *Dr Aneta Michna DSc*
- ST5 [2019-2024] Novel composites of smectite minerals and TiO₂ nanoparticles prepared by inverse microemulsion method for photocatalytic applications – *Professor Ewa Serwicka-Bahranowska*
- ST4 [2020-2024] Coarse-grained modeling of carbohydrates – *Professor Wojciech Płaziński*
- ST5 [2021-2024] External stimuli-assisted Molecular Beam Epitaxy of functional layers and nanostructures – *Professor Józef Korecki*
- NZ7 [2021-2025] New generation teranostatic nanocarriers for detection, diagnosis and neuroprotective treatment of ischemic stroke brain damage – *Professor Piotr Warszyński*
- ST8 [2022-2025] Elaboration of fast and simple physicochemical method of detection of water pollution based on monitoring of dynamic properties of liquid/gas interface – *Associate Professor Jan Zawala DSc*
- ST4 [2022-2026] Excited states under magnifying glass – adaptation of approaches based on density analysis for investigation of electronically excited molecular states – *Associate Professor Dorota Rutkowska-Żbik DSc*
- ST5 [2022-2026] Structure and Function of Protein Corona at the Nanoparticles Interface – *Professor Barbara Jachimska*
- ST4 [2023-2027] New generation of multi-charge surfactants of dedicated functionality – *Professor Piotr Warszyński*
- ST4 [2023-2027] Mechanisms of cyclization reactions leading to biologically active compounds catalyzed by iron dependent enzymes – *Professor Tomasz Borowski*
- ST8 [2023-2027] Biodegradable, biocompatible and interactive surfactants - as an ecologically safe alternative to synthetic compounds in the generation of foams and emulsions for cosmetic, medical and industrial applications – *Dr Marcel Krzan*
- ST8 [2023-2027] From Single Molecules to Stress Granules – Understanding the Mechanisms of Phase Separation of Proteins linked to Amyotrophic Lateral Sclerosis – *Dr Anna Bratek-Skicki DSc*

"Opus LAP" Research Projects of the National Science Centre

- ST4 [2021-2024] Exploring metal ion cooperation in binuclear transition metal sites – *Associate Professor Dorota Rutkowska-Żbik DSc*
- HS2 [2022-2025] Preventive Conservation Strategies for Poly(vinyl chloride) Objects – *Professor Łukasz Bratasz*

"Sonatina" Research Projects of the National Science Centre

- ST5 [2021-2024] Multifunctional chitosan-based composite coatings for biodegradable Mg alloys – *Dr Dzmitry Kharytonau*

"Preludium Bis" Research Projects of the National Science Centre

- ST5 [2023-2027] Impact of metal and metal oxide nanoparticle functionalization by low-molar mass polyphenols on their activity in protein fibrillation processes – *Assistant Professor Magdalena Oćwieja*

"Preludium" Research Projects of the National Science Centre

- ST4 [2018-2020] Effect of Controlled Adsorption Time on Kinetics of Three-Phase Contact Formation at Solid Surfaces with Different Hydrophobicity – *Agata Wiertel-Pochopień MSc*
- ST4 [2018-2023] Tungsten-Containing Aldehyde Oxidoreductase from *Aromatoleum aromaticum* - Study of Catalytic Reaction Mechanism – *Agnieszka Winiarska MSc*
- ST4 [2021-2024] The analysis of the influence of selected factors on changes in α -synuclein structure – *Paulina Tworek (Komorek) MSc*
- HS2 [2021-2024] Development of evidence-based environmental specifications for short religious, cultural and commercial events in historic buildings – *Dr Magdalena Soboń*
- ST8 [2023-2025] Synergistic foaming systems based on surface-modified magnetic nanoparticles and biodegradable amino acid surfactants in the controlled destabilization of real foams in a magnetic field – *Mariusz Borkowski MSc*

"Miniatura" Research Projects of the National Science Centre

- ST4 [2018-2021] Searching of Novel Bacterial Ketosteroid Dehydrogenases for Oxidative Dehydrogenation of Steroids – *Dr Agnieszka M. Wojtkiewicz*
- ST4 [2019-2021] Ultrasonic synthesis of faujasite type zeolite as catalysts for the decarbonylation of furfural into furan – *Dr Łukasz Kuterasiński*
- ST5 [2019-2021] 'Confinement effect' - 5-fluorouracyl in mesopores – *Dr Dzmitry Kharytonau*
- ST4 [2019-2021] Preliminary examination on the impact of rare-earth alloying on corrosion mechanisms of magnesium alloys and its prevention by inorganic inhibitors – *Dr Mariusz Gackowski*
- ST4 [2019-2022] Isothermal titration calorimetry (ITC) in biochemical characterization of α -ketoglutarate dependent enzymes. Internship at McGill University – *Dr Anna Miłaczewska-Kręgiel*
- ST5 [2021-2022] Fluorescent layered materials based on gold nanoclusters – preparation by self-assembly processes – *Dr Julia Maciejewska-Prończuk*
- ST4 [2021-2022] Application of enhanced sampling methods for modeling structural changes in proteins in the presence of carbon quantum dots – *Dr Paweł Wolski*
- ST4 [2022-2023] Effect of redox and acidobasic properties of the active sites on the activity of non-heme iron dependent enzymes - computational studies – *Dr Zuzanna Wojdyła*
- ST5 [2022-2023] Synthesis of new conjugates of neuroleptics belonging to phenothiazine derivatives with gold nanoparticles and evaluation of their activity in protein fibrillation processes – *Associate Professor Magdalena Oćwieja DSc*
- ST4 [2023-2024] Synthesis of new conjugates of neuroleptics belonging to phenothiazine derivatives with gold nanoparticles and evaluation of their activity in protein fibrillation processes – *Dr Andrzej Baliś*
- ST11 [2023-2024] Stability and physicochemical properties of foams formed from solutions of surface active substances and polyelectrolytes – *Dr Dominik Kosior*
- ST11 [2023-2024] Influence of nanocrystallization of Mg on structure and corrosion resistance of phosphate conversion coatings for biomedical applications – *Dr Konrad Skowron*

"Beethoven" Research Projects of the National Science Centre

- ST3 [2018-2022] Domain Wall Dynamics and Magnetic Texture Behavior in Magnetic Films with Dzyaloshinskii-Moriya Interaction – *Dr Piotr Mazalski*

"Beethoven Life" Research Projects of the National Science Centre

- NZ1 [2020-2023] Structure and function of fumarate-adding glycyl radical enzymes: biochemistry, modeling and application – *Professor Maciej Szaleniec*

"Solar-Driven Chemistry" Research Projects of the National Science Centre

- ST4 [2020-2023] SolarMethaChem: Solar light-driven photochemical processes for methane chemical conversion to valuable product – *Associate Professor Dorota Rutkowska-Żbik DSc*

"GRIEG" Research Projects of the National Science Centre

- HS2 [2020-2024] Craquelure – Model of paintings with craquelure patterns for evidence-based environmental control in museums – *Professor Łukasz Bratasz*
- ST5 [2021-2024] Theranostic nanocarriers for drug delivery in central nervous system disorders – *Professor Piotr Warszyński*

Research Programme Projects of the National Centre for Research and Development

- “Leader” [2017-2020] Novel functionalised biopolymers for medical applications – *Associate Professor Maciej Guzik DSc*
- “EIG CONCERT-JAPAN” [2019-2023] Outperforming functionality: composite/mixed matrix porous materials in membrane-based processes – *Dr Aleksandra Pacuła DSc*
- "TechMatStrateg" [2019-2023] Technology of biorefining vegetable oils for the production of advanced composite materials – *Associate Professor Maciej Guzik DSc*
- “POIR” [2021-2023] CULDIGI - Integrated digitalization, filing and documentation system for cultural heritage – *Associate Professor Jakub Barbasz DSc*
- „TANGO” [2022-2024] Development of a functional form of application of sugar esters of fatty acids based on bacterial polyhydroxyalkanoates that inhibit cancer cell growth – *Associate Professor Maciej Guzik DSc*

“Premia na Horyzoncie 2” Programme Projects of the Ministry of Science and Higher Education

- [2019-2020] ENERGY-X: Transformative Chemistry for a Sustainable Energy Future – *Associate professor Dorota Rutkowska-Żbik DSc and Professor Małgorzata Witko*
- [2019-2022] CollectionCare - Innovative and affordable service for PC monitoring of individual Cultural Artefacts during display, storage, handling and transport – *Professor Łukasz Bratasz*
- [2020-2024] IPERION HS - Integrating platforms for the European Research Infrastructure on heritage science – *Professor Łukasz Bratasz*
- [2021-2024] NanoPaInt - Dynamics of dense nanosuspensions: a pathway to novel functional materials (nanoPaInt) – *Professor Piotr Warszyński*

"Polskie Powroty – Polish Returns" Programme Research Projects of the Polish National Agency for Academic Exchange

- PPN/PPO/2018/1/00004 [2018-2022] CRAQUELURE – *Professor Łukasz Bratasz*

Exchange of PhD Students and Academic Staff Programme Projects of the Polish National Agency for Academic Exchange

- PPI/PRO/2018/1/00006/U/001 PROM [2018-2023] International Scholarship Exchange of PhD Candidates and Academic Staff (ICSC PAS) – *Professor Tomasz Borowski*

Bilateral Scientific Exchange Programme Projects of the Polish National Agency for Academic Exchange

- Czech Republic [2019-2021] Methane Selective Oxidation to Methanol of Over Metallozeolites Catalysts – *Associate Professor Dorota Rutkowska-Żbik DSc*
- Germany [2019-2020] Understanding Molecular Aspects of the Protein Misfolding Process: *in situ* Spectroscopic and Microscopic Studies – *Professor Barbara Jachimska*
- Germany [2019-2022] Switchable surfactants at air-water interface and their role in photo-responsive foam – *Dr Marcel Krzan*
- Italy „Canaletto” [2022-2023] Structure and Function of Protein Corona at the Nanoparticles Interface – *Professor Barbara Jachimska*

The Bekker NAWA Programme Projects of the Polish National Agency for Academic Exchange

- USA [2021-2022] Dynamic nanostructures at moving liquid/gas and liquid/liquid interfaces – *Associate professor Jan Zawala DSc*

EU Erasmus+ Programme

- Project “Learning mobility of individuals” [2014-2023] – *Dr Aleksandra Pacula DSc, Dr Agata Pomorska*

EC Horizon 2020 Framework Programme Projects

- Horizon 2020 [2019-2020] ENERGY-X: Transformative Chemistry for a Sustainable Energy Future – *Associate professor Dorota Rutkowska-Żbik DSc and Professor Małgorzata Witko*
- Horizon 2020 [2019-2022] CollectionCare - Innovative and affordable service for PC monitoring of individual Cultural Artefacts during display, storage, handling and transport – *Professor Łukasz Bratasz*
- Horizon 2020 [2020-2024] IPERION HS - Integrating platforms for the European Research Infrastructure on heritage science – *Professor Łukasz Bratasz*
- H2020-MSCA-ITN [2021-2024] NanoPaInt - Dynamics of dense nanosuspensions: a pathway to novel functional materials (nanoPaInt) – *Professor Piotr Warszyński*

EC Horizon Europe Framework Programme Projects

- Horizon Europe EIC-PATHFINDER [2022-2025] NewCat - Teaching Lytic Polysaccharide Monooxygenases to do Cytochrome P450 Catalysis – *Professor Tomasz Borowski*
- Horizon Europe HORIZON-WIDERA [2023-2026] GoGreen: green strategies to conserve the past and preserve the future of cultural heritage – *Professor Łukasz Bratasz*

EU COST Actions

- EC COST CA15124 [2016-2020] NEUBIAS: A New Network of European Bioimage Analyst to Advance Life Science Imaging – *Dr Marcel Krzan*
- EC COST CA18234 [2019-2023] CompNanoEnergy: Computational materials sciences for efficient water splitting with nanocrystals from abundant elements – *Professor Małgorzata Witko*

Projects of the Norwegian Research Council

- NRC 274749 SyMBoL [2018-2021] Sustainable Management of heritage Buildings in a Long-term Perspective – *Dr Marcin Strojecki*

Projects of EU Structural Funds Programmes

- POWER ŚSD InterDokMed [2017-2023] Cross-institutional PhD Studies „Interdisciplinarity for Innovative Medicine” – *Associate professor Renata Tokarz-Sobieraj DSc*
- POWER IŚSD FCB [2017-2023] FCB Interdisciplinary Environmental Doctoral Studies "Physical, Chemical and Biophysical Foundations of Modern Technologies and Materials Engineering" – *Dr Anna Micek-Ilnicka DSc*

Other International Projects

- Intergovernmental Polish-Bulgarian Project [2018-2021] Biocompatible Particle-Stabilized Foams and Emulsions as Carriers for Biomedical Application – *Dr Marcel Krzan*
- Intergovernmental Polish-Italian Project [2020-2022] Biocompatible foams and emulsions stabilized by natural surfactants and particles for bio-medical application – *Dr Marcel Krzan*
- PASIFIC 1 - Polish Academy of Sciences' Individual Fellowships: Innovation & Creativity [2022-2024] Neuroprotective properties of theranostic lanthanide oxide nanoparticles against neurotoxin-induced cellular models of Parkinson's disease Acronym: TheraLanOx – *Professor Piotr Warszyński - Rugmani Meenambal*
- ANSO Alliance of International Science Organizations [2023 -] Bioplastics upcyclig loop (BioPolyCycle) – *Associate Professor Maciej Guzik DSc*

SCIENTIFIC OUTPUT OF THE INSTITUTE

Printed scientific publications

2020

Chapters in monographs

1. S. Prodingier, M.A. Derewinski "Synthetic zeolites and their characterization", in: "Nanoporous Materials for Molecule Separation and Conversion", (J. Liu, F. Ding, Eds.), Micro & Nano Technologies Series, Elsevier, 2020, pp. 65-88 [ISBN: 978-0-12-818487-5]
2. M. Guzik, K. Harażna, J. Prajsnar, S. Skibiński, T. Witko "Bioplastiki przyszłości - polimery zbudowane z hydroksykwasów", w: "Biogospodarka: Wybrane Aspekty" (M. Pink, M. Wojnarowska, Eds.), Difin SA, Warszawa 2020, pp. 391–453 [ISBN 978-83-8085-291-4]

Articles in journals evaluated in Thomson Reuters Journal Citation Reports

1. Z. Adamczyk, M. Sadowska "Hydrodynamic Solvent Coupling Effects in Quartz Crystal Microbalance Measurements of Nanoparticle Deposition Kinetics", *Anal. Chem.*, 92(5) (2020) 3896-3903
2. Z. Adamczyk, M. Sadowska, P. Żeliszewska "Applicability of QCM-D for Quantitative Measurements of Nano- and Microparticle Deposition Kinetics: Theoretical Modeling and Experiments", *Anal. Chem.*, 92 (2020) 15087–15095
3. E. Andrews, J.A. Lopez-Ruiz, J.D. Egbert, K. Koh, U. Sanyal, M. Song, D. Li, A.J. Karkamkar, M.A. Derewinski, J. Holladay, O.Y. Gutiérrez, J.D. Holladay "Performance of Base and Noble Metals for Electrocatalytic Hydrogenation of Bio-Oil-Derived Oxygenated Compounds", *ACS Sustain. Chem. Eng.*, 8 (2020) 4407–4418
4. L. Archer, B. Jachimska, M. Krzan, M. Szaleniec, E. Hebda, P. Radzik, K. Pielichowski, M. Guzik "Physical Properties of Biomass-Derived Novel Natural Deep Eutectic Solvents Based on Choline Chloride and (R)-3-Hydroxyacids", *J. Mol. Liq.*, 315 (2020) 113680
5. S.G. Atlagic, A. Biessikirski, Ł. Kuterasiński, M. Dworzak, M. Twardosz, N. Sorogas, J. Arvanitidis "On the investigation of microstructured charcoal as an ANFO blasting enhancer", *Energies*, 13 (2020) 4681
6. E.R. Bandala, R. Sadek, J. Gurgul, K. Łątka, M. Zimowska, L. Valentin, O.M. Rodriguez-Narvaez, S. Dzwigaj "Assessment of the capability of Fe and Al modified BEA zeolites to promote advanced oxidation processes in aqueous phase", *Chem. Eng. J.*, (2020) 127379
7. P. Batys, M. Morga, P. Bonarek, M. Sammalkorpi "PH-Induced Changes in Polypeptide Conformation: Force-Field Comparison with Experimental Validation", *J. Phys. Chem. B.*, 124 (2020) 2961–2972
8. P. Batys, M. Nattich-Rak, Z. Adamczyk "Myoglobin molecule charging in electrolyte solutions", *Phys. Chem. Chem. Phys.*, 22 (2020) 26764-26775
9. C. Bertolin, L.de Ferri, G. Grottesi, M. Strojceki "Study on the Conservation State of Wooden Historical Structures by Means of Acoustic Attenuation and Vacuum Microbalance", *Wood Sci. Technol.*, 54(1) (2020) 203-226
10. A. Biała, K. Rugała, C. Czosnek, G. Mordarski, J. Gurgul "Copper-aluminum spinels doped with cerium as catalysts for NO removal", *Catalysts*, 10(12) (2020) 1388

11. A. Biessikirski, Ł. Kuterasiński, M. Dworzak, M. Twardosz, M. Tatko, B.D. Napruszewska "On the influence of the ammonium nitrate(V) provenance on its usefulness for the manufacture of ANFO type explosives", *Energies*, 13(18) (2020) 4942
12. A. Biessikirski, M. Pytlik, Ł. Kuterasiński, M. Dworzak, M. Twardosz, B.D. Napruszewska "Influence of the ammonium nitrate(V) porous prill assortments and absorption index on ammonium nitrate fuel oil blasting properties", *Energies*, 13(15) (2020) 3763
13. M. Borkowski, D. Kosior, J. Zawała "Effect of initial adsorption coverage and dynamic adsorption layer formation at bubble surface in stability of single foam films", *Colloids Surf. A Physicochem. Eng. Asp.*, 589 (2020) 124446
14. P. Borowiecki, N. Telatycka, M. Tataruch, A. Żądło-Dobrowolska, T. Reiter, K. Schühle, J. Heider, M. Szaleniec, W. Kroutil "Biocatalytic Asymmetric Reduction of γ -Keto Esters to Access Optically Active γ -Aryl- γ -butyrolactones", *Adv. Synth. Catal.*, 362 (2020) 2012–2029
15. B. Bożek, P. Neves, M. Oszejca, A.A. Valente, J. Połtowicz, K. Pamin, W. Łasocha "Simple Hybrids Based on Mo or W Oxides and Diamines: Structure Determination and Catalytic Properties", *Catal. Letters*, 150 (2020) 713–727
16. Ł. Bratasz, K.G. Akoglu, P. Kékicheff "Fracture Saturation in Paintings Makes Them Less Vulnerable to Environmental Variations in Museums", *Heritage Sci.*, 8(1) (2020) 11
17. A. Bratek-Skicki, "Design of ultra-thin PEO/PDMAEMA polymer coatings for tunable protein adsorption", *Polymers (Basel)*, 12 (2020) 660
18. A. Brzęczek-Szafran, P. Więcek, M. Guzik, A. Chrobok "Combining Amino Acids and Carbohydrates into Readily Biodegradable, Task Specific Ionic Liquids", *RSC Adv.*, 10 (2020) 18355–18359
19. A. Brzyska, K. Woliński "Simulation of the conformational flexibility of the mycodextran under external forces", *Biopolymers*, 111 (2020) 23357
20. A. Brzyska, K. Woliński "Driving proton transfer reactions in the 2-methylfuran ring with external forces", *New J. Chem.*, 44 (2020) 8784–8795
21. P. Chilimoniuk, R.P. Socha, T. Czujko "Nanoporous anodic aluminum-iron oxide with a tunable band gap formed on the FeAl₃ intermetallic phase", *Materials*, 13 (2020) 3471
22. M. Chojecki, D. Rutkowska-Zbik, T. Korona "Description of Chiral Complexes within Functional-Group Symmetry-Adapted Perturbation Theory - The Case of (S/R)-Carvone with Derivatives of (-)-Menthol", *J. Phys. Chem. A.*, 124 (2020) 7735–7748
23. P. Czaja, J. Przewoźnik, R. Chulist, K. Stan-Głowińska, Ł. Rogal, A. Wójcik, A. Wierzbicka-Miernik, D. Duraczyńska, E.M. Serwicka, L. Lityńska-Dobrzyńska "Microstructure and catalytic activity for selective hydrogenation of phenylacetylene of intermetallic Ni₇₀Ga₃₀, Ni₇₀In₃₀, and Ni₇₀Sn₃₀ melt-spun alloys", *Intermetallics*, 122 (2020) 106797
24. P. Czaja, K. Stan-Głowińska, J. Przewoźnik, A. Wójcik, A. Wierzbicka-Miernik, Ł. Rogal, D. Duraczyńska, E.M. Serwicka, L. Lityńska-Dobrzyńska "Evolution of Microstructure and Catalytic Activity in Melt-Spun and Aged Ni₃Al Ribbons", *Journal of Materials Engineering and Performance*, 29(3) (2020) 1473-1478
25. A. Czakaj, A. Kannan, A. Wisniewska, G. Grzes, M. Krzan, P. Warszynski, G.G. Fuller "Viscoelastic interfaces comprising of cellulose nanocrystals and lauroyl ethyl arginate for enhanced foam stability", *Soft Matter.*, 16 (2020) 3981–3990

26. M. Dąbkowska, K. Łuczowska, D. Rogińska, A. Sobuś, M. Wasilewska, Z. Ulańczyk, B. Machaliński "Novel design of (PEG-ylated)PAMAM-based nanoparticles for sustained delivery of BDNF to neurotoxin-injured differentiated neuroblastoma cells", *J. Nanobiotechnol.*, 18 (2020) 120 (1-16)
27. P. Drózdź, M. Ślęzak, W. Janus, M. Szpytma, H. Nayyef, A. Koziół-Rachwał, K. Freindl, D. Wilgocka-Ślęzak, J. Korecki, T. Ślęzak "Driving the polar spin reorientation transition of ultrathin ferromagnets with antiferromagnetic–ferromagnetic phase transition of nearby FeRh alloy film", *Sci. Rep.*, 10 (2020) 14901
28. P. Drózdź, M. Ślęzak, K. Matlak, K. Freindl, N. Spiridis, D. Wilgocka-Ślęzak, A. Koziół-Rachwał, J. Korecki, T. Ślęzak "Perpendicular Magnetic Anisotropy and Residual Magnetic Phases in Gold-Capped FeRh Film on MgO(001)", *J. Magn. Magn. Mater.*, 495 (2020) 165804
29. P. Drózdź, M. Ślęzak, K. Matlak, A. Koziół-Rachwał, J. Korecki, T. Ślęzak "Spin-flop coupling induced large coercivity enhancement in Fe/FeRh/W(110) bilayers across ferromagnetic–antiferromagnetic phase transition of FeRh alloy", *J. Magn. Magn. Mater.*, 498 (2020) 166258
30. A. Drzewiecka-Matuszek, R. Tokarz-Sobieraj, M. Witko, D. Rutkowska-Zbik "Comparison of Catalytic Properties of Vanadium Centers Introduced into BEA Zeolite and Present on (010) V₂O₅ Surface–DFT Studies", *Catalysts*, 10 (2020) 1080 (1–20)
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Patents

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Patents

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Patent applications

1. M. Niemiec, A. Gorczyca, J. Sikora, M. Komorowska, M. Guzik „Kompozycja zawierająca mieszaninę włókien celulozy i kleju celulozowego, sposób biogazowania brzezki pofermentacyjnej i zastosowanie kompozycji zawierającej włókna celulozy i klej celulozowy w procesie wytwarzania biogazu”, Polish Patent application, P.443737 (2023)

- 2 M. Niemiec, A. Gorczyca, J. Sikora, M. Komorowska, M. Guzik „Kompozycja zawierająca środki emulgujące zwiększająca efektywność fermentacji metanowej odpadów bogatych w tłuszcz, sposób wytwarzania biogazu w procesie fermentacji produktów bogatych w tłuszcz oraz zastosowanie kompozycji zawierającej środki emulgujące do wytwarzania biogazu”, Polish Patent application, P.443735 (2023)
- 3 K. Szczepanowicz, M. Szwed, A. Marczak „Sposób wytwarzania wielordzeniowego nanonośnika polielektrolitowego syntezowanego na bazie siarczanu dodecyłu sodu i wielordzeniowy nanonośnik polielektrolitowy do zastosowania do leczenia w terapii przeciwnowotworowej”, Polish Patent application, P.443843 (2023)
- 4 A. Panek, P. Wójcik, M. Urbaniak, E. Kozłowska, M. Szaleniec, Ł. Stępień, T. Janeczko „1 α -hydroksy-pregn-1,4-dien-3,20-dion i sposób wytwarzania 11 α -hydroksy-pregn-1,4-dien-3,20-dionu”, Polish Patent application, P.444646 (2023)
- 5 A. Panek, P. Wójcik, M. Szaleniec, T. Janeczko „Sposób wytwarzania 11 α -hydroksy-pregn-1,4-dien-3,20-dionu”, Polish Patent application, P.444648 (2023)
- 6 A. Panek, P. Wójcik, M. Szaleniec, T. Janeczko „6 β ,11 α -Dihydroksy-pregn-1,4-dien-3,20-dion i sposób wytwarzania 6 β ,11 α -dihydroksy-pregn-1,4-dien-3,20-dionu”, Polish Patent application, P.444649 (2023)
- 7 A. Panek, P. Wójcik, M. Szaleniec, T. Janeczko „6 β ,17 α -Dihydroksy-pregn-1,4-dien-3,20-dion i sposób wytwarzania 6 β ,17 α -dihydroksy-pregn-1,4-dien-3,20-dionu”, Polish Patent application, P.444651 (2023)
- 8 A. Panek, P. Wójcik, M. Szaleniec, T. Janeczko „12 β ,17 α -Dihydroksy-pregn-1,4-dien-3,20-dion i sposób wytwarzania 12 β ,17 α -dihydroksy-pregn-1,4-dien-3,20-dionu”, Polish Patent application, P.444652 (2023)

Presentations at conferences

Oral presentations are only listed.

2020

Plenary, keynote and invited lectures

1. T. Borowski "Redox-Active Metalloenzymes – How Computations Supplement Structural and Biochemical Studies" XLVII Szkoła Zimowa Wydziału Biochemii, Biofizyki i Biotechnologii UJ, Zakopane, 8-12 lutego 2020
2. T. Borowski "Combining Experimental and Computational Studies to Understand Reaction Mechanisms of Redox-Active Metalloenzymes" 4th EMBO Workshop on Computational and Structural Biology and Chemistry 2020, Waplewo, 28-29 February 2020
3. A. Brzyska "(Poly)molecules under Forces: the Structural and Conformational Changes in the Mycodextran – the Theoretical Simulation on the AFM Experiment" 2nd Virtual Edition of Polymers, Plastics and Composites, 10-11 December 2020
4. M. Guzik „Biopolimery szansą dla gospodarkami - perspektywy zastosowań”, Life Science Open Space Online Week 2020, 23-27 November 2020
5. B. Jachimska “Insight into the Self-Assembling Properties of Proteins", Innovation Inspiration Insight global QSense user meeting 1-3 June 2020 (on-line)
6. M. Witko, R. Tokarz-Sobieraj "Catalytic Activity of Selected Heteropolyacids as a Function of their Chemical Composition. Theory versus Experiment", 4th International Conference on Catalysis and Chemical Engineering", Los Angeles 24-26 February 2020
7. M. Wlodek, M. Kolasinska-Sojka, P. Warszynski, W.H. Briscoe "Structural Evolution of Supported Lipid Bilayers Intercalated with Quantum Dots”, User Dedicated Microsymposium 2: "Nanomaterials life cycle: from nanoengineering to public health", ESRF User Meeting 3-5 February 2020

Oral presentations

1. J. Andrys, J. Heider, T. Borowski "Comparison of Different Approaches to Derive Classical Force-Field Parameters for a metal cofactor. Case Study for Ectoine Synthase", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
2. P. Batys, S.J. Nikkhah, Y. Zhang, S. Lalwani, J. Lutkenhaus, M. Sammalkorpi "Water Binding and Mobility in Polyelectrolyte Complexes", APS March Meeting 2020, Denver 2020
3. C. Bertolin, L. de Ferri, M. Strojceki "Application of the Guggenheim, Anderson, de Boer (GAB) Equation to Sealing Treatments on Pine Wood", MedFract1 - 1st Mediterranean Conference on Fracture and Structural Integrity, 26-28 luty 2020
4. K.A. Chałupka, R. Sadek, Ł. Szkudlarek, P. Mierczyński, W. Maniukiewicz, J. Rynkowski, J. Gurgul, S. Casale, D. Brouri, S. Dźwigaj "The Impact of Nickel Addition on Catalytic Activity of Microporous and Mesoporous CoBeta Zeolites Catalysts in Fischer-Tropsch Synthesis", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020

5. A. Czakaj, P. Warszynski, M. Krzan "Synergistic Foaming Properties of Lauroyl Ethyl Arginate and Cellulose Nanocrystals", EuFoam conference 2020, Aberystwyth 2020
6. M. Dudek, M. Mosiałek "The Emerging Hydrogen Economy in UE Countries", Energy Fuels Environment 2020, Kraków 2020
7. D. Duraczyńska, E.M. Serwicka, A. Drelinkiewicz, R.P. Socha, A. Michalik, B.D. Napruszewska „Uwodornienie acetofenonu w wodzie w łagodnych warunkach ciśnienia i temperatury w obecności katalizatorów rutenowych”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
8. L. de Ferri, C. Bertolin, M. Strojceki "Preliminary Results on Surface Treatments on Wood" HeriTech - The International Conference Florence Heri-tech: the Future of Heritage Science and Technologies, 14-16 października 2020
9. U. Filek, R. Tokarz-Sobieraj, A. Micek-Ilnicka, M. Witko, N. Ogrodowicz "Acidic and redox properties of heteropoly compounds in alcohols dehydration", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
10. M. Gackowski, A. Selent, I. Ainasoja, M. Mazur, V.-V. Telkki, J. Datka, M. Hunger "Cleansing the Crystals of Dealuminated Zeolite from Amorphous Debris", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
11. K. Gawlinska-Necek, P. Panek, Z. Starowicz, R.P. Socha, G. Putynkowski, M.K. Stodolny, B.B. Van Aken "The Use of Copper in Solar Cells and Modules", 37th European Photovoltaic Solar Energy Conference and Exhibition, Lizbona 2020
12. A. Gibała, J. Szaleniec, M. Oćwieja, M. Szaleniec, T. Gosiewski „Działanie nanocząstek srebra stabilizowanych kwasem taninowym na biofilm tworzony przez drobnoustroje wyhodowane od pacjentów z przewlekłym zapaleniem zatok", X Konferencja Doktorantów Uniwersytetu Jagiellońskiego -Collegium Medicum, Kraków 2020
13. M. Głanowski, P. Wójcik, M. Prochner, M. Szaleniec, A. Bojarski, K. Świderek, V. Moliner "Modeling of Oxidative 1-Dehydrogenation Catalyzed by 3-Ketosteroid Δ 1-Dehydrogenases", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
14. M. Guzik, M. Wojnarowska, M. Sołtysik "Socio-Economic Importance of Biomaterials in the Transition to the Circular Economy Model", Globalizacja 2020, Słowacja 2020, on-line
15. M. Guzik "The PHA Case within the Biopolymers Demo", Biopolymers stakeholder meeting, Inicjatywa Awangarda, 18/08/2020, on-line
16. K. Haraźna, E. Cichoń, S. Skibiński, T. Witko, D. Solarz, M. Zimowska, I. Kwiecień, A. Zima, I. Roy, M. Witko, M. Guzik "Chemically modified polyhydroxyoctanoate derived oligomers as matrix in calcium phosphate sponges prepared for bone tissue engineering", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
17. K. Haraźna, E. Cichoń, S. Skibiński, T. Witko, D. Solarz, E. Marcello, I. Roy, A. Zima, M. Witko, M. Guzik „Bakteryjne poliestry -polihydroksyalkaniany (PHA) oraz ich zastosowanie w różnych gałęziach medycyny”, Zjazd Zimowy Sekcji Studenckiej Polskiego Towarzystwa Chemicznego, 19.12.2020, on-line
18. K. Haraźna, I. Kwiecień, E. Szefer, B.D. Napruszewska, R. Bugno, R. Socha, K. Pielichowski, A.J. Bojarski, M. Witko, M. Guzik "The Physicochemical Characterisations of Diclofenac Modified Polyhydroxyoctanoate Derived Oligomers and its Blends", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020

19. K. Harażna, J. Prajsnar, W. Snoch, J. Staroń, A.J. Bojarski, M. Witko, M. Guzik „Bakteryjne polihydroksyalkaniiany (PHA) produkowane z kwasów tłuszczowych, jako cenny materiał do różnorodnych zastosowań”, Ogólnopolska Konferencja Naukowa „Biopolimery – źródło nowych materiałów”, organizowana przez fundację TYGIEL. 03.09.2020 r., on-line
20. K. Harażna, M. Witko, A.J. Bojarski, M. Guzik „Bakteryjne biopolimery – polihydroksyalkaniiany (PHA) na ratunek środowisku oraz medycynie”, IV Konferencja Doktorantów Polskiej Akademii Nauk, 23.11.2020, on-line
21. S. Kachhap, Z. Wojdyla, T. Borowski "Unraveling the Catalytic Mechanism of Thebaine 6-O-Demethylase from Papaver Somniferum", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
22. R. Karcz, B.D. Napruszewska, D. Duraczyńska, J.E. Olszówka, M. Guzik, A.M. Wojtkiewicz, M. Szaleniec, E.M. Serwicka "Mg-Al hydrotalcite-like heterogeneous catalysts for Baeyer-Villiger type oxidation of epiandrosterone to corresponding lactones with hydrogen peroxide", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
23. P. Komorek, I. Brand, B. Jachimska "Effect of the Surface Charge on the Structure of Lysozyme Adsorbed on the Gold Surface", 4th International Wrocław Scientific Meeting, Wrocław 2020 (online)
24. P. Komorek, M. Wałek, I. Brand, B. Jachimska „Wpływ procesu adsorpcji lizozymu na orientację, konformację oraz hydratację uzyskanych warstw białkowych”, Symposium Młodych Naukowców Wydziału Fizyki UW, Warszawa 2020 (on-line)
25. P. Komorek, M. Wałek, B. Jachimska „Orientacja, konformacja oraz hydratacja lizozymu na powierzchni Au”, E-zjazd Zimowy Sekcji Studenckiej Polskiego Towarzystwa Chemicznego, Warszawa 2020 (online)
26. M. Krzan, E. Jarek, A. Czakaj, E. Santini, F. Ravera, L. Ligierri, P. Warszynski, B. Braunschweig "Analysis of Saponin-Chitosan Mixtures at the Air-Water Interface with Vibrational Sum-Frequency, Generation and their Role in Foam Properties", EuFoam conference 2020, Aberystwyth 2020 (online)
27. Ł. Kuterasiński, U. Filek, M. Zimowska, B.D. Napruszewska, M. Gackowski, P.J. Jodłowski "Sonically Desilicated Zeolites with FAU Type Structure as Catalysts for the Production of Diethyl Ether from Ethanol”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
28. Ł. Kuterasiński, M. Zimowska, M. Gackowski, M. Ruggiero-Mikołajczyk, P.J. Jodłowski „Ultradźwiękowa synteza i modyfikacja zeolitów jako katalizatorów reakcji dekarbonylacji furfuralu do furanu”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
29. J. Kwaśny, W. Balcerzak, M. Kryłów, A. Wassilkowska, M. Ruggiero-Mikołajczyk "Impact of Bentonite Modification on its Adsorption Properties”, XI Międzynarodowa Konferencja Naukowa: Ochrona i Inżynieria Środowiska - Zrównoważony Rozwój; Kraków 24-25 września 2020 (on line)
30. M. Lemishka, K. Mlekodaj, S. Sklenak, Ł. Kuterasiński, M. Smoliło, M. Śliwa, Z. Sobalik, D. Rutkowska-Żbik, J. Dedecek, E. Tabor "Effect of Transition Metal Ion on the Activity of Binuclear Cationic Sites in Zeolites in the Selective Oxidation of Methane to Methanol", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020

31. B. Lis, M. Dudek, A. Raźniak, T. Šalkus, A. Kežionis, S. Daugela, M. Mosiałek, A. Rapacz-Kmita, R. Lach "NiO-Ba_{1-x}M_xCe_{0.9}Y_{0.1}O_{3-δ} – Based Anodes for Ceramic Proton Fuel Cells, where M = Ca, Sr", Energy Fuels Environment 2020, Kraków 2020
32. J.L. Lutkenhaus, M. Sammalkorpi, P. Batys "Water's Effect on the Glass Transition and Dynamic Mechanical Properties of Polyelectrolyte Complexes", APS March Meeting 2020, Denver, Colorado 2020
33. W. Łasocha, A. Sławińska, K. Pamin, R. Karcz „Wybrane izopolitrimolibdeniany jako katalizatory w reakcji Baeyer-Villigera”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
34. P. Mazalski, R. Gieniusz, U. Guzowska, I. Sveklo, J. Fassbender, A. Wawro, A. Maziewski "Ga⁺ Ions Irradiation Driven Dzyaloshinskii-Moriya Interaction and Magnetic Anisotropy in Pt/Co/Au Trilayers", The Joint European Magnetic Symposia 2020, 07-11.12.2020
35. A. Micek-Ilnicka, U. Filek, G. Mordarski, A. Rostecka „Nanomateriały na bazie TiO₂ do zastosowań katalitycznych”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
36. M. Mosiałek, T. Šalkus, A. Kežionis "Scandia-Stabilized Alumina-Doped Zirconia Ceramics as a Perspective Electrolyte for Solid Oxide Fuel Cell", Energy Fuels Environment 2020, Kraków 2020
37. J. Mrówka, M. Gackowski, L. Lityńska-Dobrzyńska, A. Bernasik, R. Kosydar, A. Drelinkiewicz, M. Hasik "Emulsion Templated Poly(Methylsilyloxane)-Based Materials with Incorporated Pd Nanoparticles - Potential Catalysts for Selective Hydrogenation of Phenylacetylene", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
38. H. Pálková, M. Barlog, V. Hronský, E. Šimon, L. Petra, M. Zimowska "Structural Changes Occurring upon Dry Grinding of Dioctahedral and Trioctahedral Smectites", Clay Minerals and Selected Industrial Minerals in Material Science, Applications and Environmental Technology, 7th Workshop of Slovak Clay Group, Demänovská dolina, Slovakia 2020
39. K. Pamin, M. Kompanets, B. Napruszewska, M. Tsariuk "Selective Cyclooctane Oxidation Catalyzed by Cobalt Porphyrin and Co-Catalysts", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
40. M. Prochner, P. Wójcik, M. Szaleniec, G. Bailleul, M. Fraaije, M. Oszejca, R. van Eldik "Stopped-Flow Technique for Mechanistic Studies of Catalytic Reactions", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
41. M. Ruggiero-Mikołajczyk, M. Smoliło-Utrata, S. Scirè, L. D'urso, P.G. Mineo, F. Vento, K. Samson, D. Rutkowska-Żbik "Structure and Stability of VxFAU Systems", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
42. D. Rutkowska-Zbik, R. Tokarz-Sobieraj, A. Drzewiecka-Matuszek, M. Witko "Transition Metal - Based Systems for Applications in Catalysis and Photochemistry", International Conference on Computational Materials Science for Nanoscale Modelling, Neapol, Włochy 2020
43. A. Sekuła, M. Szaleniec, J. Heider "Impact of Active-Site Mutations on Substrate Specificity of Benzylsuccinate Synthase", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
44. A. Sławińska, M. Oszejca, P. Serda, K. Pamin, M. Tyszka-Czochara, W. Łasocha „Hybrydowe peroksidomolibdeniany z kwasami dikarboksypirydynowymi”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020

45. M. Smoliło, K. Samson, M. Ruggiero-Mikołajczyk, A. Drzewiecka-Matuszek, G. Mordarski, M. Śliwa, D. Rutkowska-Żbik „Wanadowe katalizatory zeolitowe w reakcji utleniającego odwodnienia propanu”, I Pomorskie Studenckie Sympozjum Chemicznym, Gdańsk 2020 (on line)
46. M. Smoliło-Utrata, K. Samson, M. Ruggiero-Mikołajczyk, A. Drzewiecka-Matuszek, D. Rutkowska-Żbik, L. Valentin, F. Averseng, Y. Millot, S. Dzwigaj "Experimental and Theoretical Investigation of Siliceous Vanadium-Containing BEA Zeolites and their Application in ODH of Propane", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
47. M. Soboń, Ł. Bratasz "Assessing the Risk of Cracking for Wooden Sculptures due to Dynamic Relative Humidity Changes", COMSOL Conference Europe 2020, (on-line)
48. M. Soboń, Ł. Bratasz "Fracturing of Wooden Objects due to Dynamic Changes in Environment", NUACCESS/PIRE International Seminar Series on Cultural Heritage Research, 17.06.2020 (on-line)
49. M. Synowiec, A. Micek-Ilnicka, M. Ruggiero-Mikołajczyk, M. Radecka "Catalytic Transformaton of Bio-Butanol Derived from Biomass to Butene Isomers", Energy Fuels Environment 2020, Kraków 2020
50. M. Śliwa, K. Samson, M. Ruggiero-Mikołajczyk "Hydrogen Production from Ethanol over Copper-Zirconia Based Catalysts Modified with Mn, Ni, Ga", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
51. M. Tataruch, P. Borowiecki, M. Szaleniec "(S)-1-Phenylethanol Dehydrogenase from *A. Aromaticum* as an Enantioselective Catalyst for Reduction of 4-Oxo-4-Phenylbutanoate", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
52. M. Tataruch, V. Illeová, M. Antošová, T. Borowski, M. Polakovič "Inactivation of 1-(4-Hydroxyphenyl)-Ethanol Dehydrogenase from *Aromatoleum Aromaticum*", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
53. M. Tataruch, V. Illeová, M. Antošová, T. Borowski, M. Polakovič "Inactivation of 1-(4-Hydroxyphenyl)-Ethanol Dehydrogenase", Green chemistry for Sustainable Development of the Agri-Food Sector, Bratislava 2020
54. M. Tataruch, J. Staroń, M. Szaleniec „Immobilizacja dehydrogenazy 1-(R)-fenyloetanolowej na polilizynie poprzez wiązanie bis-aryl-hydrazonowe”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
55. A. Walczyk, A. Michalik, B.D. Napruszewska, R. Karcz, A. Gaweł, K. Bahrnowski, E.M. Serwicka "Catalytic and Sorptive Properties of Alkali-Activated Sepiolite”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
56. A. Walczyk, A. Michalik, B.D. Napruszewska, J. Kryściak-Czerwenka, R. Karcz, D. Duraczyńska, R.P. Socha, Z. Olejniczak, M. Wójcik-Bania, K. Bahrnowskim, E.M. Serwicka "Physico-Chemical Characterization of Desilicated Sepiolite", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
57. A. Winiarska, F. Arndt, D. Hege, A. Bodzoń-Kułakowska, J. Heider, M. Szaleniec "Tungsten-Containing Enzyme from *Aromatoleum Aromaticum* as a Catalyst for Aldehyde Oxidation and Carboxylic Acid Reduction", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
58. Z. Wojdyła, T. Borowski "A QM/MM Study for Clavaminc Acid Synthase: Multifunctionality via Control of Substrate Positioning", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020

59. A.M. Wojtkiewicz, M. Guzik "Exploring Novel 3-Ketosteroid Dehydrogenases for Anabolic Androgenic Steroids Production", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
60. A.M. Wojtkiewicz, M. Tataruch, K. Zaczyk, P. Wójcik, K. Szymańska, M. Szaleniec „Porównanie procesów reaktorowych z zastosowaniem immobilizowanej i homogenicznej $\Delta 1$ -dehydrogenazy-3-ketosteroidowej”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
61. P. Wolski, T. Pańczyk „Nanorurki węglowe i krótkie fragmenty DNA jako platformy kontrolowanego uwalniania dokсорubicyny”, VII Ogólnopolska konferencja naukowa Innowacje w Praktyce, Lublin 2020
62. P. Wójcik, B. Mrugała, M. Głanowski, O. Zastawny, A.M. Wojtkiewicz, K. Kurpiewska, E. Niedziałkowska, W. Minor, M. Szaleniec "Investigation of the Structure and the Reaction Mechanism of the 3-Ketosteroid Dehydrogenase from *Stereolibacterium Denitrificans* for Further Application to the Biosynthesis of Pharmaceuticals", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
63. M. Zajac, T. Giela, K. Matlak, N. Olszowska, J. Szade, M. Szczepanik-Ciba, A. Wawrzyniak, B. Wolanin, K. Freindl, E. Madej, J. Korecki, N. Spiridis, D. Wilgocka-Slezak, M. Slezak, T. Slezak, M. Sikora, J. Stepień, M. Stankiewicz "New Opportunity for the Magnetic Material Characterization at SOLARIS", INTERMAG Americas 2020, Montréal, Canada 2020
64. M. Zając, T. Giela, K. Freindl, J. Korecki, E. Madej, M. Sikora, N. Spiridis, M. Stankiewicz, J. Stepień, J. Szade, M. Ślęzak, T. Ślęzak, D. Wilgocka-Ślęzak "The PEEM/XAS Beamline Status Presented on the Magnetic Material Directed Experiments”, Synchrotron Radiation in Natural Science, The Joint Meeting of the Polish Synchrotron Radiation Society and SOLARIS Users, Kraków 2020
65. M. Zimowska, E. Scholtzová, H. Pálková "FAR IR Spectroscopy Study of Iron Oxides Developed on the Surface of Porous Clay Based Composites for Toluene Combustion", LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020
66. M. Zimowska, M. Mosiałek, J. Gurgul, D. Kharitonov, A. Komenda, M. Górski, M. Krzan "Synthesis of $\text{YFe}_{0.5}\text{Co}_{0.5}\text{O}_3\text{-La}_{0.8}\text{Sr}_{0.2}\text{MnO}_{3-\delta}$ Composite Cathode Material for Solid Oxide Fuel Cells with Enhanced Catalytic Activity in Oxygen Reduction Reaction”, LII Ogólnopolskie Kolokwium Katalityczne, Kraków 2020

2021

Plenary, keynote and invited lectures

- 1 S. Antropov, N. Zabari, L. Bratasz, "Właściwości mechaniczne farb temperowych", Analiza Chemiczna w Ochronie Zabytków, Warszawa 2021
- 2 Ł. Bratasz, "Crack patterns in panel paintings: modelling and experimental verification", Mechanics for Art Conservation Workshop, London 2021
- 3 Ł. Bratasz "Ilościowa analiza ryzyka w obszarze dziedzictwa kulturowego", Międzynarodowa Konferencja Naukowa "Ochrona Dziedzictwa Kultury na wypadek szczególnych zagrożeń – zagrożenia klimatyczne, pandemiczne i pożarowe. Dobre praktyki", Kraków 2021

- 4 Ł. Bratasz, "Heritage science – an emerging discipline", International Conference Museums Fit for the 21th Century. The Challenge of Technology, Europejskie Centrum Solidarności, Gdańsk 2021
- 5 Ł. Bratasz, M. Soboń "Preservation of wooden heritage objects: needs and gaps in knowledge", VirtEx - Virtual Experiments for Wooden Artwork - International Online-Colloquium, , Dresden 2021
- 6 A. Bratek-Skicki "Mixed polymer brushes for reversible adsorption and desorption of proteins", "Polymer Brushes", Dresden 2021
- 7 B. Jachimska, J. Rea, M. Szota, K. Rakowski "Protein corona formation: impact on nanoparticles bio-behavior", 10th International Workshop on Surface Modification for Chemical and Biochemical Sensing – SMCBS'2021, 2021
- 8 J. Lutkenhaus, M. Sammalkorpi, P. Batys "Temperature, water, and ion-pairing effects in polyelectrolyte complexes and multilayers", APS March Meeting 2021, Chicago 2021
- 9 M. Oćwieja "Trendy w badaniach bioaktywności nanocząstek srebra" 63 Zjazd Naukowy Polskiego Towarzystwa Chemicznego, Łódź 2021
- 10 T. Pańczyk, P. Wolski, P. Wojtoń „Telomerowe motywy DNA jako aktywatory wiązania/uwalniania leków w nośnikach czułych na zmianę pH. Modelowanie z zastosowaniem dynamiki molekularnej”, Fizykochemia Granic Faz – Metody Instrumentalne, Lublin 2021.
- 11 K. Poznańska, A. Hola, N. Zabari, M. Strojcecki, R. Kozłowski, L. Bratasz „Zastosowanie skanera mikroskopowego do analizy siatki spękań”, Analiza Chemiczna w Ochronie Zabytków, Warszawa 2021
- 12 M. Soboń, Ł. Bratasz "Preservation of wooden heritage objects – gaps in knowledge impairing development of optimal environmental specifications", Workshop Virtual Experiments for Wooden Artwork – VirtEx, Drezno 2021
- 13 M. Strojcecki "Airborne particles in historic churches – sources, deposition and soiling", The 3rd International Conference on Advances in Civil and Ecological Engineering Research (ACEER 2021), Beijing 2021
- 14 M. Strojcecki "HERIE - decision-supporting platform in the service of heritage science", Imaging Cultural Heritage: technologies, methods, models and risk assessment workshop (on-line), Sønderborg 2021
- 15 M. Strojcecki "HERIE - digital decision-supporting platform in the service of cultural heritage research", MCI seminar, (on-line), 7.04.2021, Sønderborg 2021
- 16 M. Szczęch and K. Szczepanowicz "Polymeric core-shell nanoparticles – preparation, characterization and biomedical application", 9th International Conference "Nanotechnologies and Nanomaterials" NANO-2021, Lviv 2021
- 17 J. Zawała “Influence of interfacial mobility on bubble motion, collision kinetics and stability of liquid films at interfaces - experiment and modeling”, CHISA Virtually, Prague 2021

Oral presentations

- 1 C. Bertolin, M. Strojceki, L. de Ferri, G. Grottesi, A.M. Siani, "Salt contamination of wooden materials: the case of Trondheim (Norway) warehouses", 12th International Conference on Structural Analysis of Historical Constructions (SAHC 2021), Barcelona 2021
- 2 C. Bertolin et al., "The Symbol – Sustainable Management of Heritage Building in a Long-term perspective Project", SyMBoL - Sustainable Management of heritage Buildings in a Long-Term prospective - Final conference (on-line), Trondheim 2021
- 3 M. Borkowski, J. Zawala „Wpływ pola magnetycznego na mechanizm wyciekania pojedynczego filmu ciekłego oraz pian rzeczywistych stabilizowanych magneto-reaktywnymi surfaktantami”, Fizykochemia Granic Faz – metody instrumentalne, Lublin 2021
- 4 I. Brand, P. Komorek, B. Jachimska "Effect of the surface charge density of a gold electrode on the amount and conformation of adsorbing lysozyme", XXVIth International Symposium on Bioelectrochemistry and Bioenergetics of the Bioelectrochemical Society 2021, Bioelectrochemical Society, Cluj-Napoca 2021
- 5 Ł. Bratasz, M. Soboń, M. Strojceki, Ł. Berger, C. Bertolin, R. Kozłowski "HERIE tool to support preservation of stave churches", SyMBoL - Sustainable Management of heritage Buildings in a Long-Term prospective - Final conference (on-line), Trondheim 2021
- 6 Ł. Bratasz, M. Soboń, M. Strojceki, Ł. Berger, R. Kozłowski "HERIE as a decision supporting tool", COLLECTION CARE: New Challenges in Preventive Conservation, Predictive Analysis and Environmental Monitoring, (on-line), Valencia 2021
- 7 N. Diban, A. Pacula, I. Kumakiri, M. Mantecón, M. Romay, M.J. Rivero, A. Urtiga, I. Ortiz "Porous polymer membranes functionalized with active materials" 6th International Symposium on Green and Smart Technologies for a Sustainable Society" on-line 9-10/12/2021
- 8 E. Dryzek, K. Skowron, M. Wróbel, L.L Joncour, M. François, B. Panicaud "Positron annihilation spectroscopy study of gradient microstructure in surface mechanical attrition treated titanium", 12.5th International Workshop on Positron and Positronium Chemistry, Maria Curie-Skłodowska University, on-line 2021
- 9 A. Drzewiecka-Matuszek, R. Tokarz-Sobieraj, M. Witko, D. Rutkowska-Żbik "DFT and MD studies of hydrocarbon adsorption on zeolites", 53 Polish Annual Conference on Catalysis, Kraków 2021
- 10 M. Duda, M. Grzesiak-Nowak, M. Oszejca, W. Łasocha "Synteza i badania strukturalne połączeń bromku kadmu z diaminami alifatycznymi z wykorzystaniem techniki rentgenowskiej dyfraktometrii proszkowej ", 62 Konwersatorium Krystalograficzne, Wrocław 2021
- 11 M. Gackowski, M. Ruggiero-Mikołajczyk, D. Duraczynska, A. Karabasz, M. Bzowska, K. Szczepanowicz "The Role of Water in the Confinement of Ibuprofen in SBA-15", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 12 D. Gaweł, J. Zawala „Wpływ warunków dynamicznych na stabilność filmów emulsyjnych w roztworach białek i klasycznych surfaktantów”, Fizykochemia Granic Faz – metody instrumentalne, Lublin 2021
- 13 M. Głanowski, P. Wójcik, M. Prochner, M. Oszejca, K. Świderek, V. Moliner, A. J. Bojarski, M. Szaleniec "Dehydrogenazy 3-ketosteroidowe – modelowanie QMMM skonfrontowane z pomiarami kinetycznego efektu izotopowego", 63. Zjazd Naukowy Polskiego Towarzystwa Chemicznego, Warszawa 2021

- 14 M. Glanowski, P. Wójcik, M. Prochner, M. Oszejca, K. Świderek, V. Moliner, A. J. Bojarski, M. Szaleniec "Insight into enzymatic Δ^1 -dehydrogenation of 3-ketosteroids: over 50 years of research verified with QM/MM", 2021 International Chemical Congress of Pacific Basin Societies, on-line 2021
- 15 G. Gochev, B. Braunschweig, R. Campbell, E. Schneck, R. Miller "Effect of pH on the stability of protein foams", 63. Zjazd Naukowy Polskiego Towarzystwa Chemicznego, (on-line) Łódź 2021
- 16 M. Guzik, A. Szeligowski, T. Witko, K. Harażna, D. Solarz, K. Feliksiak, S. Skibiński, T. Majka, K. Pielichowski, M. Seta "Polyhydroxyalkanoate Biopolymers For Medical Applications", 30th conference "Biomaterials in medicine and veterinary medicine", Rytro 2021
- 17 K. Harażna, E. Cichon, S. Skibinski, T. Witko, D. Solarz, E. Marcello, M. Zimowska, A. Zima, M. Witko, I. Roy, M. Guzik "The differences in proliferation and cytotoxicity of MC3T3-E1 cell line on tricalcium phosphate composites containing physically and chemically bonded diclofenac to polyhydroxyoctanoate (PHO) polymer" - FEBS OPEN BIO 2021
- 18 K. Harażna, K. Stępień, A. Walczyk, M. Witko, M. Guzik "Synteza oraz charakterystyka koniugatów oli(3HO)-gentamycyna", 63 Zjazd Naukowy Polskiego Towarzystwa Chemicznego, Łódź 2021
- 19 B. Jachimska, M. Szota, K. Rakowski "Corona Formation and Conformational Changes in Proteins on Dendrimers", XXVIth International Symposium on Bioelectrochemistry and Bioenergetics of the Bioelectrochemical Society 2021
- 20 B. Jachimska, M. Szota, K. Rakowski "Structure and Function of Protein Corona on the Dendrimer Surface", Spring 2021 American Chemical Society National Meeting, (on-line) USA 2021
- 21 M.Y.A. Jamalabadi, N. Zabari, Ł. Bratasz "Numerical and Experimental Investigation of Fracture Mechanism in Paintings on Wood", International Conference on Museums Heritage Conservation, Paryż 2021
- 22 R. Karcz, B.D. Napruszewska, A. Michalik, J. Kryściak-Czerwenka, D. Duraczyńska, E.M. Serwicka "Fine crystalline Mg-Al hydrotalcite-like compounds as catalysts for Baeyer-Villiger oxidation of cyclohexanone to ϵ -caprolactone", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 23 R. Karcz, B. D. Napruszewska, A. Walczyk, J. Kryściak-Czerwenka, A. Michalik, E.M. Serwicka, "Baeyer-Villiger oxidation of cyclohexanone over Mg-Al hydrotalcite catalysts precipitated with different bases", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 24 T. Kastinen, P. Batys, M. Morga, J. L. Lutkenhaus, M. Sammalkorpi "Effect of pH on complexation and secondary structures of polypeptides", Computational Chemistry Days 2021, (on-line)
- 25 P. Komorek, E. Martin, M. Walek, B. Jachimska "Adsorption behavior of lysozyme at solid/liquid interface studied by QCM-D, MP-SPR, and FTIR", ACS Spring 2021, on-line, 2021
- 26 P. Komorek, E. Martin, B. Jachimska, "Behaviour of adsorbed proteins on gold surface", 1st Yale Postgraduate Trainee Research Symposium, New Haven 2021

- 27 T. Kruk, E. Jarek, Z. Krasińska-Krawet, Ł. Lamch, S. Ronka, M. Szuwarzyński, K.A. Wilk, P. Warszyński "Polymer films containing amphiphilic polyelectrolytes as novel materials for formation of pH responsive nanostructures", 63 Zjazd Naukowy Polskiego Towarzystwa Chemicznego, Łódź 2021
- 28 T. Kruk, P. Warszyński "Conductive nanofilms with charged reduced graphene oxides as a base for electroactive coatings and sensors", Graphene Week 2021, (on-line), hosted by Universite de Strasbourg 2021
- 29 Z. Kurant, S.K. Jena, R. Gieniusz, U. Guzowska, M. Kisielewski, P. Mazalski, I. Sveklo, A. Wawro, A. Maziewski "Magnetic ordering in epitaxial ultrathin Co layers surrounded by Pt and W covers", The European Conference Physics of Magnetism 2021 (PM'21), Poznań 2021
- 30 Ł. Kuterasiński, P.J. Jodłowski, G. Kurowski, P. Jelen, M. Sitarz "Sonochemical-assisted preparation of Co-Ce/ γ -Al₂O₃ as catalysts for cyclohexene oxidation", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 31 Ł. Kuterasiński, J. Podobiński, J. Datka "IR spectroscopy studies of the Oxidation of Ethanol in Cu-Faujasites", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 32 D. Lupa, P. Batys, T. Kastinen, M. Sammalkorpi "Mechanizmy tworzenia i właściwości kompleksów liniowych polipeptydów", Fizykochemia Granic Faz, Lublin 2021
- 33 V. Lutsyk, W. Płaziński "Conformational properties of glycosaminoglycan building blocks: molecular dynamics simulations", X Konwersatorium Chemii Medycznej, Lublin 2021
- 34 M. Łukomski, N. Fujisawa, A. Bridarolli, Ł. Bratasz, A. Janas, R. Kozłowski, L. Fuster López, C. Krarup Andersen, M. Scharff "Mechanical properties of historic oil paints established by combination of macro-, micro- and nano - techniques" CollectionCare conference - New chalanges in preventive conservation, Predictive Analysis and Environemntal Monitoring, Valencia 2021
- 35 E. Madej, M. Zając, J. Dedecek, K. Freindl, T. Giela, J.Korecki, M. Lemishka, K. Mlekodaj, J. Olszówka, D. Rutkowska-Żbik, M. Smoliło-Utrata, N. Spiridis, E. Tabor, D. Wilgocka-Ślęzak "SOLARIS - pożyteczne narzędzie dla chemii", 63 Zjazd Naukowy Polskiego Towarzystwa Chemicznego, (on-line) Łódź 2021
- 36 I. Martynowicz, J. Adamowicz, M. Strojecki, M. Plotek "The altar by Veit Stoss in Krakow: Main issues involved in a complex conservation research project". In Transcending Boundaries: Integrated Approaches to Conservation. ICOM-CC 19th Triennial Conference Preprints, Beijing 2021
- 37 P. Mazalski et al., "Submicrometer domains creation by temperature-induced changes of magnetic anisotropy in ultrathin Co/NiO bilayer", Physics of Magnetism 2021 (PM'21), Poznań 2021
- 38 P. Mazalski, R. Gieniusz, I. Sveclo, M. Kowacz, B. Anastaziak, P. Kuświk, U. Guzowska, A. Maziewski "Strong interfacial Dzyaloshinskii-Moriya interaction and magnetic anisotropy in NiO/Co/Pt trilayers", Trends in MAGnetism 2021, Cefelu 2021
- 39 A. Micek-Ilnicka, M. Ruggiero-Mikołajczyk, K. Samson, M. Zimowska „Nanomateriały bazujące na TiO₂ do zastosowań katalitycznych”, 63 Zjazd Naukowy Polskiego Towarzystwa Chemicznego; Łódź 2021
- 40 A. Micek-Ilnicka, M. Ruggiero-Mikołajczyk, K. Samson, M. Zimowska, D. Rutkowska-Żbik, "Nanomateriały Cu-heteropolikwas-TiO₂ w roli fototermokatalizatorów", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021

- 41 A. Michalik, B.D. Napruszewska, D. Duraczyńska, E.M. Serwicka "Physicochemical characterization of montmorillonite composites with TiO₂ nanoparticles prepared by inverse microemulsion method", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 42 A. Michna, A. Pomorska, J. Maciejewska-Prończuk, M. Wasilewska, T. Kilicer, Ö. Özcan "Wpływ warstwy kotwiczącej i rodzaju transportu na kinetykę adsorpcji lambda- karagenu", III Ogólnopolskiej Konferencji Naukowej „Biopolimery – źródło nowych materiałów”, Lublin 2021
- 43 E. Młyńczak, L. Plucinski, C.M. Schneider "Electronic structure of Fe(001) with symmetry breaking due to the magnetization direction", The European Conference Physics of Magnetism, Poznań 2021
- 44 G. Pacek, A. Alhaj Zein, K. Krämer, J. Heider, M. Szaleniec "Fumarate-adding enzymes: activity of the new BSS and NMS mutants", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 45 A. Pajor-Świerzy, R. Pawłowski, K. Szczepanowicz "Materiały kompozytowe na bazie nanocząstek metalicznych do zastosowań w przemyśle elektroenergetycznym", „Fotowoltaika 2025” II Krajowa Konferencja Nauki i Przemysłu, Ryto 2021
- 46 A. Pajor-Świerzy, F. Szendera, R. Pawłowski, K. Szczepanowicz "Application of nanocomposite metallic ink for fabrication of conductive coatings at low-temperature sintering" 9th International Conference "Nanotechnologies and Nanomaterials" NANO-2021, Lwów 2021
- 47 A. Pajor-Świerzy, F. Szendera, R. Pawłowski, and K. Szczepanowicz "Nanocomposite inks based on metallic nanoparticles for fabrication of conductive coatings at low-temperature sintering" 11th International Conference NanoTech, Poznań 2021
- 48 K. Pamin, J. Gurgul, L. Valentin, S. Dzwigaj "The effect of cobalt doping on properties of Co-containing siliceous BEA zeolite", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków, 2021
- 49 T. Panczyk "Telomeric DNA Fragments and Carbon Nanotubes as pH Controlled Carriers of Doxorubicin. Molecular Level Analysis", The 6th Ed. of the Smart Materials and Surfaces - SMS 2021 Conference, Milan 2021
- 50 T. Panczyk, P. Wolski, P. Wojton "Carbon nanotubes and telomeric DNA fragments as novel materials for drug delivery technology. Insights from molecular simulations", 23th International Conference MATERIALS, METHODS & TECHNOLOGIES, Burgas 2021
- 51 T. Panczyk, P. Wolski, P. Wojton "Interaction of Human Telomeric i-motif DNA with Single Walled Carbon Nanotubes. Insights from Molecular Dynamics Simulations", Chemistry World 2021 Webinar, Rome 2021
- 52 N. Piergies, A. Dazzi, A. Deniset-Besseau, J. Mathurin, M. Oćwieja, C. Paluszkiwicz, W.M. Kwiatek "A novel approach to characterize the drug-loaded nanoparticle systems based on nanospectroscopy", 11th International Conference on Advanced Vibrational Spectroscopy, (on-line) 2021
- 53 A. Płazińska, W. Płaziński, "Chirality-related effects in biomolecular systems: methodologies for calculating the relative free energies by molecular dynamics simulations", X Konwersatorium Chemii Medycznej, Lublin 2021
- 54 A. Pomorska, A. Michna, J. Maciejewska-Prończuk, M. Wasilewska, J. Witt, Ö. Özcan "Mechanizm formowania i stabilność warstw lambda karagenu na powierzchniach makroskopowych", 63 Zjazd Naukowy Polskiego Towarzystwa Chemicznego (online) 2021

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- 55 K. Poznańska, A. Hola, N. Zabari, M. Strojceki, R. Kozłowski, Ł. Bratasz "Mechanical properties of tempera Paints", CollectionCare conference - New chalanges in preventive conservation, Predictive Analysis and Environemntal Monitoring, Valencia 2021
- 56 K. Poznańska, A. Hola, N. Zabari, M. Strojceki, R. Kozłowski, Ł. Bratasz "Właściwości mechaniczne farb temperowych", Analiza Chemiczna w Ochronie Zabytków, Warszawa 2021
- 57 M. Procter, G. Höff, J. Heider, M. Szaleniec "Exploration of unknown biochemical role of selenocysteine in enzymes", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 58 F. Ravera, E. Santini, K. Dziza, L. Liggieri, E. Jarek, M. Krzan, L. Szyk-Warszyńska, P. Warszynski, F.G. Huang, T. Fischer "Interfacial Properties, Emulsification and Emulsion Stability of Biocompatible Liquid-Liquid Systems", 35th Conference of the European Colloids & Interface Society ECIS 2021, Ateny 2021
- 59 D. Rutkowska-Żbik, M. Smoliło, K. Samson, M. Ruggiero-Mikołajczyk, J. Gurgul, A. Drzewiecka-Matuszek, L. Valentin, F. Averseng, Y. Millot, S. Dźwigaj „Wanad wprowadzony do krzemowej formy zeolitu BEA jako aktywny katalizator reakcji utleniającego odwodornienia lekkich alkanów: badania doświadczalne i teoretyczne”, 63 Zjazd Naukowy Polskiego Towarzystwa Chemicznego, Łódź 2021
- 60 D. Sang-Hoon Lee, N. Kim, M. Scharff, A. Valbjørn Nielsen, M. Mecklenburg, L. Fuster-Lopez, L. Bratasz, C. Krarup Andersen "Numerical modelling of mechanical degradation of canvas paintings under dissication" CollectionCare conference - New chalanges in preventive conservation, Predictive Analysis and Environemntal Monitoring, Valencia 2021
- 61 S. Seweryn, K. Skirlińska-Nosek, N. Wilkosz, J. Barbasz, M. Oćwieja, D. Perez-Guaita, K. Sofińska, M. Szymoński, E. Lipiec "Plasmonic hot spots enable spectroscopic exploration of the local conformational transitions induced by DNA double strand breaks" 11th International Conference on Advanced Vibrational Spectroscopy, (on-line) 2021
- 62 K. Skirlińska-Nosek, S. Seweryn, N. Wilkosz, J. Barbasz, E. Lipiec, M. Oćwieja, D. Perez-Guaita, K. Sofińska, M. Szymoński "SERS and PLS - an ideal marriage?" e-Book of Abstracts 11th International Conference on Advanced Vibrational Spectroscopy, (on-line) 2021
- 63 K. Skowron, E. Dryzek, M. Wróbel, P. Nowak, M. Marciszko-Wiąckowska, L.L. Joncour, M. François, B. Panicaud, A. Baczymański "Gradient microstructure induced by Surface Mechanical Attrition Treatment (SMAT) in magnesium studied by positron annihilation spectroscopy", YOUNG MULTIS - Multiscale Phenomena in Condensed Matter - conference for young researchers, (on-line) Kraków 2021
- 64 K. Skowron, E. Dryzek, M. Wróbel, P. Nowak, M. Marciszko-Wiąckowska, L. Le Joncour, M. François, B. Panicaud, A. Baczymański "Positron annihilation spectroscopy study of gradient microstructure induced by Surface Mechanical Attrition Treatment (SMAT) in Mg", 12.5th International Workshop on Positron and Positronium Chemistry, (on-line) 2021
- 65 A. Sławińska, K. Pamin, P. Serda, M. Oszejca, W. Łasocha "Nowe perokso- oraz polioksozwiązki Mo(VI). Synteza, badania "strukturalne i zastosowania w procesach utleniania", 53. Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 66 M. Smoliło-Utrata, K. Samson, M. Gackowski, G. Mordarski, M. Śliwa, J. Podobiński, J. Datka, D. Rutkowska-Żbik "Vanadium-Loaded Faujasites as Catalysts for the Oxidative Dehydrogenation of Propane" 6th International School-Conference on Catalysis for Young Scientists. Catalyst Design: From Molecular to Industrial Level, Novosibirsk 2021

- 67 M. Smoliło-Utrata, K. Samson, M. Gackowski, M. Ruggiero-Mikołajczyk, D. Rutkowska-Żbik "Vanadium-loaded zeolites as catalysts for the oxidative dehydrogenation of propane", School on Catalysis, Liblice Castle 2021
- 68 M. Smoliło-Utrata, K. Samson, M. Ruggiero-Mikołajczyk, M. Gackowski, D. Rutkowska-Żbik „Wpływ specjacji wanadu w katalizatorach na osnowie fojazytu w reakcji ODH lekkich alkanów”, LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 69 M. Soboń, Ł. Bratasz, M. Strojceki "Effect of relative humidity variations on massive wooden objects in stave churches based on numerical modeling", SyMBoL - Sustainable Management of heritage Buildings in a Long-Term prospective - Final conference (on-line), Trondheim 2021
- 70 M. Soboń, Ł. Bratasz, M. Strojceki "Modelling the risk of fracture in massive sculptures due to environmental stresses", Imaging Cultural Heritage: technologies, methods, models and risk assessment workshop, (on-line) Sønderborg 2021
- 71 M. Soboń, M. Strojceki, Ch. Bertolin "Impact of dynamic environmental variations on massive wooden cultural objects", COLLECTION CARE: New Challenges in Preventive Conservation, Predictive Analysis and Environmental Monitoring, (on-line) Valencia 2021
- 72 M. Strojceki "Acoustic emission for assessing climate-induced risk of mechanical damage in stave churches", SyMBoL - Sustainable Management of heritage Buildings in a Long-Term prospective - Final conference, (on-line) Trondheim 2021
- 73 J. Szaleniec, A. Gibała, M. Oćwieja, P. Żeliszewska, M. Szaleniec, T. Gosiewski "Zastosowanie nanocząstek srebra uzyskanych przy użyciu kwasu taninowego do zwalczania patogenów izolowanych od chorych z przewlekłym zapaleniem zatok przynosowych", XVIII Konferencja Naukowo-Szkoleniowa XIII Konferencja Polskiego Towarzystwa Audiologicznego i Foniatrycznego Otorynolaryngologia 2021, (on-line) 2021
- 74 M. Szaleniec, A. Sekuła, I. Sali, A. Alhaj Zein, D. Seyhan, J. Heider "Determinants for substrate recognition in benzylsuccinate synthase from *Thaueria aromatica* - targeted mutagenesis and MD simulations", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 75 M. Szaleniec, A. Winiarska, D. Hege, J. Kryściak-Czerwenka, J. Heider "A novel hydrogenase activity of tungsten aldehyde oxidoreductase from *Aromatoleum aromaticum*", 63. Zjazd Naukowy Polskiego Towarzystwa Chemicznego, Łódź 2021
- 76 M. Szaleniec, A. Winiarska, D. Hege, J. Kryściak-Czerwenka, A. Seubert, J. Schuller, J. Heider "A tungsten enzyme is a hydrogenase, reducing carboxylic acid with electron bifurcation", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 77 K. Szczepanowicz, A. Hinz, N. Łopuszyńska, K. Jasiński, W.P. Węglarz, M. Bzowska "Theranostic nanocarriers of anticancer drugs", 11th International Conference, Poznań 2021
- 78 M. Szczęch, A. Hinz, N. Łopuszyńska, K. Jasiński, W.P. Węglarz, M. Bzowska, P. Warszyński, K. Szczepanowicz "Fluorine-based theranostic multilayer nanocarriers", 35th conference of the European Colloid & Interface Society ECIS 2021, Athens 2021
- 79 M. Szota, K. Reczyńska, E. Pamuła, O. Michel, J. Kulbacka, B. Jachimska "PAMAM dendrimers as nanocarriers for 5-fluorouracil: effectiveness of complex formation and cytotoxicity studies", Spring 2021 American Chemical Society National Meeting, (on-line) USA 2021
- 80 M. Szota, K. Reczyńska, E. Pamuła, O. Michel, J. Kulbacka, B. Jachimska "Poly(amidoamine) dendrimers as nanocarriers for anticancer drugs and their interactions with plasma proteins", Interfaces International Conference From new materials to life science – Structure, Interactions, Dynamics and Activity, Pula 2021

- 81 M. Szota, K. Reczyńska, E. Pamuła, O. Michel, J. Kulbacka, B. Jachimska "PAMAM dendrimers as effective 5-Fluorouracil delivery systems", II Sympozjum Biomateriały w Medycynie i Kosmetologii, (on-line) 2021
- 82 M. Szpytma, A. Koziol Rachwał, J. Korecki, M. Slezak, P. Drozd, W. Janus, H. Nayyef, M. Zajac, T. Slezak "Beating the limit of ordering temperature of FeO with antiferromagnetic proximity in FeO/CoO", IEEE International Magnetism INTERMAG 21 Virtual Conference, 2021
- 83 M. Śliwa, R. Socha, K. Samson, M. Ruggiero-Mikołajczyk, B. Napruszewska "Copper based catalysts for ethanol steam reforming", 53 Polish Annual Conference on Catalysis, Kraków 2021
- 84 S. Świątek, P. Komorek, G. Turner, B. Jachimska " β -lactoglobulin as a platform for designing biologically active carriers – experimental and computational studies", 1st Symposium on Theranostics, Kraków 2021
- 85 M. Tataruch, V. Illeová, A. Miłaczewska, T. Borowski, M. Polakovič "Effects of temperature, pH and additives on the activity of R-specific 1-(4-hydroxyphenyl)- ethanol dehydrogenase from *Aromatoleum aromaticum*", 47th International Conference of the Slovak Society of Chemical Engineering, SSCHE 2021, (on-line) Bratislava 2021
- 86 M. Tataruch, V. Illeová, A. Miłaczewska, T. Borowski, M. Polakovič "Stability and inactivation of (R)-1-(4-hydroxyphenyl)- ethanol dehydrogenase from *A. aromaticum*", 63. Zjazd naukowy Polskiego Towarzystwa Chemicznego, Łódź 2021
- 87 M. Tataruch, V. Illeová, A. Miłaczewska, T. Borowski, M. Polakovič "Thermal inactivation and aggregation of (R)-1-(4-hydroxyphenyl)-ethanol dehydrogenase from *A. aromaticum*", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 88 J. Van Lindt, A. Bratek-Skicki, P. N. Nguyen, D. Pakravan, L. F. Durán-Armenta, A. Tantos, R. Panca, L. Van Den Bosch, D. Maes, P. Tompa "A generic approach to study the kinetics of liquid–liquid phase separation under near-native conditions", PhasAge International Conference, Phase Transitions in Aging and age-Related Diseases, on-line 2021
- 89 A. Walczyk, R. Karcz, A. Michalik, B.D. Napruszewska, D. Duraczyńska, J. Kryściak-Czerwenka, E.M. Serwicka, P. Jeleń, M. Sitarz "Physicochemical characterisation of mechanochemically and alkali activated talc", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 90 A. Walczyk, A. Michalik, B.D. Napruszewska, J. Kryściak-Czerwenka, R. Karcz, D. Duraczyńska, R.P. Socha, Z. Olejniczak, A. Gawel, A. Klimek, M. Wójcik-Bania, K. Bahranowski, E.M. Serwicka "New insight into the alkali activation of sepiolite - impact on composition, structure and texture", School of Catalysis, Liblice 2021
- 91 P. Warszyński, E. Jarek, Z. Krasieńska-Krawet, T. Kruk, L. Lamch, S. Ronka, K.A. Wilk "Effect of the Linker on Adsorption Properties of Soft Hydrophobically Functionalized PSS/MA Polyelectrolytes", ECIS 2021, Ateny 2021
- 92 P. Warszyński, E. Jarek, Z. Krasieńska-Krawet, T. Kruk, Ł. Lamch, S. Ronka, K. A. Wilk "Properties of Soft Hydrophobically Functionalized PSS/MA Polyelectrolytes", 35th Conference of the European Colloids & Interface Society, ECIS 2021, Ateny 2021
- 93 A. Winiarska, D. Hege, J. Kryściak-Czerwenka, J. Heider, M. Szaleniec "A new type of hydrogenase - tungsten aldehyde oxidoreductase from *Aromatoleum aromaticum*", MoTeC-12th Molybdenum and Tungsten Enzymes Conference, Marsylia 2021

- 94 A. Winiarska, D. Hege, J. Kryściak-Czerwenka, J. Heider, M. Szaleniec "Tungsten Aldehyde Oxidoreductase – a new type of hydrogenase", Biotrans -15th International Symposium on Biocatalysis and Biotransformations, Graz 2021
- 95 A. Winiarska, D. Hege, J. Kryściak-Czerwenka, A. Seubert, J. Schuller, J. Heider, M. Szaleniec "A tungsten enzyme is a hydrogenase, reducing carboxylic acid with electron bifurcation", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 96 A. Winiarska, D. Hege, A. Seubert, J. Schuller, J. Heider, M. Szaleniec "Manifold application of biocatalytic production of NADH and aromatic/aliphatic aldehydes", Life Science Open Space, Kraków 2021
- 97 T. Witko "Budowa Modułu Biorafinerii" Dzień Otwarty Klastra Life Science, Kraków 2021
- 98 P. Wojtoń, T. Pańczyk, P. Wolski "Interakcje nanorurek węglowych z telomerycznym DNA zawierającym niekanoniczne formy G-quadruplex i i-motif", Fizykochemia Granic Faz – Metody Instrumentalne, Lublin 2021
- 99 M. Zimowska, H. Pálková, M. Śliwa, J. Gurgul "Sorption properties of Laponite-derived nanocomposites triggered by chemical and hydrothermal treatment", LIII Ogólnopolskie Kolokwium Katalityczne, Kraków 2021
- 100 P. Żeliszewska, M. Sadowska, M. Morga, Z. Adamczyk "Deposition efficiency of particles with fibrinogen corona on solid substrate", 63. Zjazd Naukowy Polskiego Towarzystwa Chemicznego, Łódź 2021

2022

Plenary, keynote and invited lectures

1. J Barbasz, "The Climbing, Diffusion Models and Experiments" Diffusion Fundamentals 21-24.09.2022, Kraków 2022
2. Ł. Bratasz "What do we know about vulnerability of cultural heritage objects?", The Green Museum series of Deutsche Kongress, Dresden 2022
3. Ł. Bratasz "What do we know about vulnerability of cultural heritage objects?", The Green Museum series of Deutsche Kongress, Frankfurt 2022
4. Ł. Bratasz "What do we know about vulnerability of cultural heritage objects?", The Green Museum series of Deutsche Kongress, Monachium 2022
5. Ł. Bratasz, M. Soboń, M. Strojceki "Remote Access to Quantitative Risk Assessment for Heritage Assets from a Digital Decision Support Platform" at the conference "Technology Empowerment and Interdisciplinary Integration: Academic Forum on Scientific Conservation of Cultural Relics" Muzeum Narodowe w Pekinie, Pekin 2022
6. Ł. Bratasz, Soboń M., Strojceki M. "Remote Access to Quantitative Risk Assessment for Heritage Assets from a Digital Decision Support Platform" Gordon Research Conference, 2022
7. Ł. Bratasz "What do we know about the environmental vulnerability of cultural heritage objects?" International Climate Control Conference, Amsterdam 2022
8. Ł. Bratasz, M. Soboń, M. Strojceki, "Remote Access to Quantitative Risk Assessment for Heritage Assets from a Digital Decision Support Platform", Gordon Research Conference 2022: Scientific Methods in Cultural Heritage Research, 10-15.07.2022, Les Diablerets, Szwajcaria

9. B. Jachimska "Impact on Nanoparticles Bio-behavior: Protein Corona Formation", University of Cagliari, Italy 2022
10. B. Jachimska, M. Szota, K. Rakowski "Fibrinogen corona on the dendrimer nanoparticles" 4th ISFMS — Biochemistry, Molecular Biology and Druggability of Proteins, Florencja, Włochy, 06-09.09.2022, (https://isfms2022.sciforum.net/#conference_book)
11. A. Kluza, A. Miłaczewska-Kręgiel, Z. Wojdyła, T. Borowski "On computational (and other) studies aiding our understanding of reaction mechanisms by non-heme iron enzymes", European Colloquium on Inorganic Reaction Mechanisms, Kraków, 21-23.09.2022 <http://ecirm2022.com/>
12. Ł. Kuterasiński, "Mesoporous FAU-type zeolite as catalysts for the processing of furfural and ethanol", Bioref Winter School, Cracow University of Technology, 22-25.02.2022, Cracow, Poland.
13. A. Micek-Ilnicka "Wspomnienie Mistrza, Uczonego, Wykładowcy i Wychowawcy", Zjazd Dziekanów Wydziałów Chemicznych, nadanie imienia Pana Profesora Adama Bielańskiego pawilonowi A-3 AGH, AGH, Kraków 2022
14. S. Lalwani, C. Eneh, P. Batys; M. Sammakorpi, J. Lutkenhaus, "Water, salt and ion-pairing affect the glass transition and relaxation time of polyelectrolyte complexes", ACS Fall 2022, Chicago, USA
<https://www.morressier.com/o/event/62daef3a6fd3a00196fa00a/article/630fcb627e215f5e7f375e71?contentLibrary=ACS&contentLibraryTitle=American+Chemical+Society&from=%2Flibrary%2FACS>
15. A. Pajor-Świerzy, K. Szczepanowicz, A. Kamyshny, S. Magdassi "Metallic and Hybrid Metal-Metal Core-Shell Nanoparticles: Synthesis, Stabilization, and Application in Printed Electronics", NanoPaint Training School: "Fundamentals and Modelling in Colloids and Interface Science", Darmstad, Niemcy, 20-24.06.2022.
16. W. Płaziński "Computational modeling of carbohydrates", WATOC 2020 - 12th Triennial Congress of the World Association of Theoretical and Computational Chemists, Vancouver, Kanada, 2022
17. M. Smoliło-Utrata, A. Drzewiecka-Matuszek, K. Samson, K. Góra-Marek, M. Witko, S. Dźwigaj, J. Dedecek, D. Rutkowska-Zbik "Mechanism of oxidative dehydrogenation of light alkanes over metallozeolite-based catalysts: theory and experiment", 9th World Congress on Oxidation Catalysis, 4-8.09.2022 Cardiff, UK
18. M. Smoliło-Utrata, K. Samson, A. Drzewiecka-Matuszek, K. Tarach, M. Ruggiero-Mikołajczyk, S. Dźwigaj, K. Góra-Marek, D. Rutkowska-Zbik "Badania mechanizmu utleniającego odwodornienia lekkich alkanów na hierarchicznych zeolitach zawierających jony metali przejściowych", 64. Zjazd PTChem, 11-16.09.2022 Lublin, Polska
19. N. Spiridis, „Struktura i reaktywność powierzchni Fe₃O₄(111)”, XI Seminarium „Badania prowadzone metodami skaningowej mikroskopii bliskich oddziaływań” STM/AFM 2022, 30.11-4.12.2022 Zakopane
20. N. Spiridis, E. Madej, K. Freindl, D. Wilgocka-Ślęzak, M. Zając, J. Korecki, "FeO on Pt(111) – a new member of the ferromagnetic oxide family", Surface Science Discussion 2022, 11-12.01.2022 (on-line)

21. K. Szczepanowicz, M. Szczęch, T. Kruk, E. Jarek, P. Warszyński "Nanocarriers formed by the sequential adsorption of polyelectrolytes as targeted and theranostic delivery systems", The International Conference on Functional Nanomaterials and Nanodevice (NANOMAT2022), Bratysława, Słowacja, 05-07.09.2022.
22. M. Tataruch, J. Prajsnar, M. Guzik, A. Wojtkiewicz, M. Szaleniec "Enzymatyczna synteza syntonów związków biologicznie czynnych w Międzyinstytutowym Laboratorium Biotechnologii i Katalizy Enzymatycznej IKiFP PAN", I Warsztaty POL-OPENSREEN Krajowa Biblioteka związków chemicznych; Otwarty dostęp do innowacyjnych rozwiązań w poszukiwaniu związków biologicznie aktywnych, Łódź 10.06.2022
23. P. Warszyński, "Surfactants; more than tails and heads", European Student Colloid Conference, 26–30.06.2022 Szeged, Hungary
24. P. Weroński, K. Pałka "Application of the Static Structure Factor for Efficient Characterization of Finite-Size Particle-Films", 4th Global Summit on Future of Materials Science and Research, virtual event 2022
25. P. Weroński, K. Pałka "Roughness spectroscopy of particle monolayer: Implications for spectral analysis of the monolayer image", 10th Edition of Global Conference on Catalysis, Chemical Engineering and Technology, virtual event 2022
26. P. Weroński, K. Pałka "Spectral Analysis of the Image of Random Monolayer", 9th International Congress on Microscopy & Spectroscopy, Oludeniz 2022
27. A. Winiarska, D. Hege, Y. Gemmecker, M. Tataruch, G. Hochberg, S. Prinz, J. M. Schuller, P. Kalimuthu, P. V. Bernhardt, J. Heider, M. Szaleniec "Hydrogenase activity of tungsten-containing aldehyde oxidoreductase – a new pathway for synthesis of fine chemicals", European Global Congress on Catalysis, Chemical Engineering & Technology, 14-15.10.2022, Rome, Italy
28. A. Winiarska, D. Hege, Y. Gemmecker, M. Tataruch, G. Hochberg, S. Prinz, J.M. Schuller, P. Kalimuthu, P.V. Bernhardt, J. Heider, M. Szaleniec "Structure and Function of Tungsten Aldehyde Oxidoreductase from *Aromatoleum aromaticum*; H₂ Dependent Reduction of Organic Acids", 13th Molybdenum and Tungsten Enzyme Conference Indianapolis, IN, USA, 16-20.10.2022
29. A. Winiarska, A.M. Wojtkiewicz, D. Hege, M. Tataruch, J. Heider, M. Szaleniec "Oxidoreductases from anaerobic bacteria – from fundamental catalytic studies to industrial application", the 5th Symposium on Biotransformations for Pharmaceutical and Cosmetic Industry, 13–15.06.2022, Wyzyna Krakowsko-Częstochowska, Polska
30. A. Winiarska, A. M. Wojtkiewicz, M. Tataruch, J. Heider, M. Szaleniec „Oksydoreduktazy z bakterii beztlenowych – od katalitycznych badań podstawowych do wdrożeń przemysłowych”, VII Konferencja Naukowa Enzymos, 24.02.2022

Oral presentations

1. S. Antropov, Ł. Bratasz "Application of scanning microscopy for craquelure analysis" Computational approaches for technical imaging in cultural heritage (7th IP4AI), National Gallery with University College London & Imperial College London, 2022
2. B. Blyzniuk, A. Dziwoki, K. Freindl, E. Madej, E. Młyńczak, D. Wilgocka-Ślęzak, J. Korecki, N. Spiridis "Epitaxial Magnetite Films grown under external magnetic field", 1st Central and Eastern European Conference on Physical Chemistry and Materials Science, Split 26-30.07.2022

3. S. Bujok, A. Cairoli, K. Kruczała, Ł. Bratasz "Zastosowanie dynamicznej analizy mechanicznej do oceny zagrożeń obiektów z poli(chloroku winylu) podczas transportu i przechowywania" Analiza Chemiczna w Ochronie Zabytków, Warszawa 2022
4. S.G. Calhoun, J. Zawała, G.G. Fuller "Particle stabilization in non-aqueous foams", The Society of Rheology 93rd Annual Meeting, Chicago 9-13.10.2022
5. M.J. Chmiel, P. Boroń, K. Kulik, J. Prajsnar, M. Żelazny, A. Lenart-Boroń "Gradient zanieczyszczeń pochodzenia antropogenicznego wzdłuż górskiej rzeki Białki i jego wpływ na skład i funkcje populacji bakterii", VI Ogólnopolskie Sympozjum Mikrobiologiczne „Metagenomy Różnych Środowisk”, Puławy 23-24.06.2022
6. E. Cichoń, K. Haraźna, S. Skibiński, P. Pańtak, A. Ślósarczyk, J. Czechowska, M. Guzik, A. Zima "Scaffolds based on tricalcium phosphate and bacteria-derived polyhydroxyoctanoate - cytocompatibility studies", 32nd symposium and annual meeting of the International Society for Ceramics in Medicine, Venice 20–23.09.2022
7. A. Czakaj, M. Krzan, P. Warszyński "Coalescence in ethyl lauroul arginate -cellulose nanocrystals mixtures; dynamic thin film balance experiments", EuFoam 2022 international conference, Krakow 3-6.07.2022
8. M. Dabestani, S. Yeganehzad, M. Krzan, R. Miller "Mixtures of egg white and saponin – the difference between equilibrium and non-equilibrium adsorption layers", EuFoam 2022 international conference, Krakow 3-6.07.2022
9. O.M. Demchuk, M. Masłyk, K. Kubiński, K. Górka, M. Janeczko, A. Martyna, M. Kwaśnik, M. Borkowski, A. Boguszewska-Czubara, J. Kowalczyk, E. Stolarczyk „Preparation and assessment of new hydrogels drug carriers containing silver and gold nanoparticles”, Book of Abstracts, 64. Zjazd PTChem, Lublin 11-16.09.2022
10. K. Freindl, E. Madej, D. Wilgocka-Ślęzak, J. Korecki, N. Spiridis, "Oxidation Resistance of Fe on Ru(0001) – the Role of the Substrate and Preparation Conditions", 2022 IEEE 12th International Conference Nanomaterials: Applications & Properties, Kraków 11-16.09.2022
11. M. Gackowski, J. Datka, A. Selent, I. Ainasoja, M. Mazur, M. Hunger, V.-V. Telkki "Cleaving the crystals of dealuminated zeolite Y from amorphous debris", 20th International Zeolite Conference. Valencia 2022
12. P. Gnacek, A. Barbasz, O. Kowalska, M. Oćwieja "Aktywność biologiczna nanocząstek złota i ich koniugatów z wybranymi neuroleptykami z grupy fenotiazyn", Ogólnopolska Konferencja Młodych Naukowców: Nowe Wyzwania dla Polskiej Nauki Edycja XI, on-line, 3.12 i 10.12.2022
13. P. Gnacek, A. Barbasz, D. Ungor, A. Czyżowska, E. Csapó, J. Maciejewska-Prończuk, P. Żeliszewska, O. Kowalska, M. Oćwieja "Cytotoksyczność nanoklasterów i nanocząstek złota wobec wybranych komórek ludzkiego układu immunologicznego", BioOrg2022 IV Ogólnopolskie Sympozjum Chemii Bioorganicznej, Organicznej i Biomateriałów, Poznań, 3.12.2022
14. P. Gnacek, N. Piergies, D. Duraczyńska, M. Kozak, M. Oćwieja "A spectroscopic characteristic of novel erlotinib conjugates with platinum nanoparticles", ArchaeGraph Medical Conference, on-line, 2022
15. G. Gochev, B. Braunschweig, E. Scoppola, R. Campbell, E. Schneck, R. Miller "Effect of pH on the stability of protein foams", EuFoam 2022 international conference, Krakow 3-6.07.2022

16. G. Gochev, D. Gawęł, E.V. Aksenenko, V.I. Kovalchuk, R. Miller, J. Zawała "A new approach for theoretical treatment of experimental dynamic surface pressure data for globular proteins at liquid/fluid interfaces", 23rd International Symposium on Surfactant in Solution, Lublin 11-16.09.2022
17. M.W. Guzik, K. Harażna, W. Snoch, T. Witko, B. Jachimaska, M. Krzan, M. Szaleniec, K. Pielichowski, S. Bednarz, M. Mączka, P. Pasierb, "Polyhydroxyalkanoate monomers as building blocks of new green solvents", 18th International Symposium on Biopolymers, Sion 13-16.09.2022
18. M. Guzik, J. Prajsnar, K. Harażna, W. Snoch "Polyhydroxyalkanoates - a source of biomolecules for synthesis of advanced chemicals and materials" book of abstracts, 5th Symposium on Biotransformations for pharmaceutical and cosmetic industry, Kroczyce 13-15.06.2022
19. K. Harażna, S. Bujok, J. Hodan, H. Beneš, M. Guzik "The active packaging films based on bacterially derived poly(3-hydroxyoctanoate)P(3HO)", BioSheffield22, Sheffield 21.06.2022
20. K. Harażna, A. T. Fricker, C. S. Taylor, R. Konefał, E. Cichoń, M. Zimowska, K.N. Raftopoulos, K. Pielichowski, B. Leszczyński, A. Wróbel, I. Roy, M.W. Guzik "Diclofenac enriched poly(3-hydroxyoctanoate) porous patches as artificial skin graft for chronic wound treatment", 18th International Symposium on Biopolymers, Sion 13-16.09.2022
21. B. Jachimaska, M. Szota, K. Rakowski "Formation of fibrinogen corona on the dendrimer nanoparticles" section Colloid & Surface Chemistry Fall 2022, American Chemical Society National Meeting, 21–25.08.2022
22. A. Janas, M. F. Mecklenburg, L. Fuster-López, R. Kozłowski, P. Kékicheff, D. Favier, C. Krarup Andersen, M. Scharff, Ł. Bratasz "Ewolucja czasowa właściwości mechanicznych oraz skurcz schnących farb olejnych", Analiza chemiczna w ochronie zabytków, Warszawa 01-02.12.2022
23. E. Jarek, Ł. Lamch, K.A. Wilk, P. Warszyński "Surfactants; More than Tails and Heads", SIS2022, Lublin 11-16.09.2022
24. R.J. Jędrzejczyk, A. Gancarczyk, M. Iwaniszyn, Ł. Kuterasiński, M. Sitarz, A. Lewicki, P.J. Jodłowski "Structured reactor as catalytic system for biogas exhaust abatement", LIV Annual Polish Congress on Catalysis, Kraków 1-3.06.2022
25. P.J. Jodłowski, K. Dymek, G. Kurowski, K. Hyjek, A. Boguszewska-Czubara, B. Budzyńska, N. Skoczylas, Ł. Kuterasiński, W. Piskorz, P. Jeleń, M. Sitarz "Zirconium-based metal-organic frameworks as efficient mephedrone adsorbents – in vivo and in vitro studies", XVIth International Conference on Molecular Spectroscopy. From Molecules to Functional Materials, Szczawnica 11-14.09.2022
26. R. Karcz, B.D. Napruszewska, A. Walczyk, J. Kryściak-Czerwenka, E.M. Serwicka "Mg-Al hydrotalcite catalysts precipitated with inorganic and organic bases – effect of starch biotemplate", LIV Annual Polish Congress on Catalysis, Kraków 01-03.06.2022
27. R. Karcz, B.D. Napruszewska, A. Walczyk, J. Kryściak-Czerwenka, A. Michalik, D. Duraczyńska, E.M. Serwicka, "Mg-Al Hydrotalcites as Catalysts of Baeyer-Villiger Oxidation of Cyclohexanone: The Effect of Precipitating Base and of Biopolymer Template", 6th International Conference on Catalysis and Chemical Engineering, San Francisco 22-26.02.2022

28. A. Kornas, E. Tabor, K. Mlekodaj, M. Lemishka, H. Jirglová, J. Dedecek, M. Smoliło-Utrata, K. Samson, M. Śliwa, D. Rutkowska-Zbik "Binuclear Fe species in FER as active centres in oxidation of hydrocarbons", 15th Pannonian International Symposium on Catalysis, Jastrzębia Góra 4-8.09.2022
29. D. Kozień, P. Żeliszewska, B. Szermer-Olearnik, Z. Pędzich "Surface Functionalization of Boron Carbide Nanoparticles and Their Potential Assessment Use as a Carrier in Boron Neutron Capture Therapy (BNCT)", 2nd International Symposium on Characterization, Afyonkarahisar 22-25.09.2022
30. A. Kozioł-Rachwał, N. Kwiatek, W. Skowroński, K. Grochot, E. Madej, K. Freindl, J. Korecki, N. Spiridis "Insight into the structural and magnetotransport properties of epitaxial α -Fe₂O₃/Pt(111) heterostructures", 67th Annual Conference on Magnetism and Magnetic Materials, Minneapolis 2022
31. Z. Krasieńska-Krawet, E. Jarek, T. Kruk, K. Szczepanowicz, L. Szyk-Warszyńska, Ł. Lamch, S. Ronka, K.A. Wilk, P. Warszyński "Adsorption and Aggregation Properties of Hydrophobically Functionalized Polyanions", 18th European Student Colloid Conference, Szeged 26–30.06.2022
32. T. Kruk, Z. Krasieńska-Krawet, E. Jarek, Ł. Lamch, S. Ronka, M. Szuwarzyński, K.A. Wilk, P. Warszyński "Amphiphilic Polyelectrolytes Thin Films for Formation of pH Responsive Functional New Materials", 64 Zjazd Naukowy PTChem, Lublin 11-16.09.2022
33. M. Krzan, N.G. Rey, E. Jarek, A. Czakaj, E. Santini, F. Ravera, L. Liggieri, P. Warszyński, B. Braunschweig "Surface Properties of Saponin-Chitosan Mixtures", EuFoam 2022 International Conference, Krakow 3-6.07.2022
34. L. Krzemień, J. Barbasz "Learning from onion to balance between order and chaos", 35th Marian Smoluchowski Symposium on Statistical Physics Jagiellonian University, Kraków 17-21.09.2022
35. Ł. Kuterasiński, M. Gackowski, J. Podobiński, D. Rutkowska-Zbik, J. Datka „Badanie heterogeniczności kwasowych grup OH w zeolitach metodą spektroskopii w podczerwieni z zastosowaniem azotu jako cząsteczki-sondy", LIV Ogólnopolskie Kolokwium Katalityczne, Kraków 01-03.06.2022
36. Ł. Kuterasiński, M. Gackowski, J. Podobiński, D. Rutkowska-Zbik, J. Datka "Heterogeneity of OH groups in zeolites studied by IR technique with nitrogen as a probe molecule" XVIth International Conference on Molecular Spectroscopy ICMS 2022, Szczawnica 2022
37. Ł. Kuterasiński, M. Gackowski, J. Podobiński, D. Rutkowska-Zbik, J. Datka "Nitrogen as a probe molecule for the IR studies of the heterogeneity of acidic OH groups in zeolites" LIV Annual Polish Congress on Catalysis, Kraków 01-03.06.2022
38. Ł. Kuterasiński, A. Wojtkiewicz, M. Sadowska, P. Żeliszewska, B.D. Napruszewska, M. Zimowska, M. Pytlik, A. Biessikirski "FAU-type zeolites as modifiers of ANFO", XXIII Zeolite Forum, Niepołomice 21-25.06.2022
39. Ł. Kuterasiński, A. Wojtkiewicz, M. Sadowska, P. Żeliszewska, B.D. Napruszewska, M. Zimowska, M. Pytlik, A. Biessikirski "Variously modified faujasite as an enhancer of ANFO-type explosives", 20th International Zeolite Conference, Valencia 3-8.07.2022
40. N. Kwiatek, E. Madej, K. Freindl, E. Młyńczak, D. Wilgocka-Ślęzak, J. Korecki, N. Spiridis, "Chemical and magnetic properties of the Co/ α -Fe₂O₃(0001) and Co/Fe₃O₄(111) bilayers", 1st Central and Eastern European Conference on Physical Chemistry and Materials Science, Split 26-30.07.2022

41. K. Łęgowski, T. Kruk, K. Szczepanowicz "Synteza i charakterystyka właściwości antyadhezyjnych filmów polielektrolitowych funkcjonalizowanych glikolami polietylenowymi", 64 Zjazd Naukowy PTChem, Lublin 11-16.09.2022
42. E. Madej, K. Freindl, J. Korecki, N. Kwiatek, E. Młyńczak, D. Wilgocka-Ślęzak, M. Zając, N. Spiridis "Magnetic and Chemical Structure at Co/ α -Fe₂O₃(0001) Bilayers", 2022 IEEE 12th International Conference Nanomaterials: Applications & Properties, Kraków 11-16.09.2022
43. A. Michna, M. Wasilewska, M. Dąbkowska, W. Donerowicz, B. Kowalski "Adsorption kinetics of neurotrophins on polyelectrolyte multilayers- the impact of films on neuroblastoma cell viability", 36th Conference of the European Colloid and Interface Society (ECIS 2022), Chania 4-9.09.2022
44. A. Micek-Ilnicka, M. Synowiec, M. Radecka "Supported heteropolyacid based on shape-controlled TiO₂ as (photo)catalyst in alcohol conversion", 15th Pannonian International Symposium on Catalysis (PISC), Jastrzębia Góra 4-8.09.2022
45. K. Mlekodaj, A. Kornas, E. Tabor, R. Pilar, M. Sliwa, J.E. Olszowka, H. Jirglova, S. Sklenak, D. Rutkowska-Zbik, J. Dedecek "Activation of molecular oxygen over binuclear iron centers in Al-rich beta zeolite", 20th International Zeolite Conference, Valecia 2022
46. E. Młyńczak, M.C.T.D. Müller, C. Friedrich, L. Plucinski, S. Blügel, C.M. Schneider "Kink far below the Fermi level reveals new electron-magnon scattering channel in Fe", International Workshop on Correlations and Angle-Resolved Photoemission Spectroscopy (CORPES22), Brookhaven National Laboratory (USA), on-line 2022
47. M. Mosiałek, R.P. Socha, W. Łasocha, A. Kežionis, T. Šalkus, E. Kazakevičius, A. Feliksas Orliukas, M. Dziubaniuk, J. Wyrwa, M. Bilal Hanif, M. Motola "Properties of scandia and ytterbia doped zirconia examined by broadband impedance spectroscopy, XRD, SEM and XPS", International Conference Energy Fuels Environment EFE2022, Kraków 20–23.09.2022
48. S.M. Lalwani, P. Batys "Relaxation Times of Solid-like Polyelectrolyte Complexes of Varying pH and Water Content", APS March Meeting 2022, Chicago 14–18.03.2022
49. A. Lenart-Boroń, P. Boroń, J. Prajsnar, M. Guzik, M. Żelazny, M. Pufelska, M.J. Chmiel "Pandemia COVID-19 ujawniła skalę wpływu intensywnej turystyki na środowisko wodne obszarów górskich", VI Ogólnopolskie Sympozjum Mikrobiologiczne „Metagenomy Różnych Środowisk” Puławy 23-24.06.2022
50. V. Lutsyk, A. Plazinska, W. Plazinski "Wieloskalowe Modelowanie Molekularne Węglowodanów", 64. Zjazd Naukowy PTChem, Lublin 11-16.09.2022
51. K. Łęgowski, T. Kruk, K. Szczepanowicz "Synteza i charakterystyka właściwości antyadhezyjnych filmów polielektrolitowych funkcjonalizowanych glikolami polietylenowymi", 64. Zjazd Naukowy PTChem, Lublin 11-16.09.2022
52. G. Pacek, A. Zein, K. Krämer, A. Sekuła, J. Heider, M. Szaleniec "The effect of targeted mutagenesis on substrate spectrum of benzylsuccinate synthase", VI Ogólnopolska Konferencja Genetyczna, Kraków 2022
53. G. Pacek, A. Zein, K. Krämer, A. Sekuła, J. Heider, M. Szaleniec "New BSS mutants allow the synthesis of novel benzylsuccinate analogues", The 5th Symposium on Biotransformations for Pharmaceutical and Cosmetic Industry, Jura Krakowsko-Częstochowska 2022
54. A. Pacuła, M. Oćwieja, M. Sadowska, A. Medaj, B. N. Napruszewska, P. Nowak "Wpływ modyfikacji powierzchni tlenku tytanu(IV) nanocząstkami metali szlachetnych na jego fotokatalityczne działanie" 64 Zjazd Naukowy PTChem, Lublin 11-16.09.2022

55. A. Pajor-Świerzy, R. Pawłowski, P. Sobik, A. Kamyshny, K. Szczepanowicz "The low-temperature sintering of coatings based on Ni-Ag core-shell NPs", NanoTech Poland 2022, Poznań 1-3.06.2022
56. H. Palkova, J. Madejova, M. Barlog, V. Hronský, E. Simon, M. Zimowska "The effect of the occupancy of the octahedral sites on the mechanochemical stability of smectites", 10th Jubilee Mid-European Clay Conference, Kliczków Castle 11-15.09.2022
57. K. Pamin, J. Gurgul, L. Valentin and S. Dzwigaj "The Effect of Cobalt Doping on the Catalytic Properties of Co-Containing Siliceous BEA Zeolite", The 27th North American Catalysis Society Meeting NAM27, New York 22-27.05.2022
58. T. Pańczyk „Stabilność i Przemiany Niekanonicznych Form DNA w Atomistycznych oraz Gruboziarnistych Polach Siłowych”, 64 Zjazd Naukowy PTChem, Lublin 11-16.09.2022
59. T. Pańczyk, P. Wolski "Regulation of Water Access, Separation and Release of Carmustine from the Carbon Nanotube Functionalized by DNA Fragments", 24th International Conference Materials, Methods & Technologies, Burgas 19-22.08.2022
60. T. Pańczyk, P. Wolski, K. Nieszporek "Molecular Dynamics Simulations of Water Access, Storage and Release of Carmustine from the Interior of Carbon Nanotube", Eleventh International Symposium Effects of Surface Heterogeneity in Adsorption, Catalysis and related Phenomena, Zegrze 18-22.09.2022
61. T. Pańczyk, P. Wolski, P. Wojton "Interaction of non canonical telomeric DNA fragments with carbon nanotubes in aqueous solutions. Insights from molecular simulations", Frontiers Of Polymer Colloids From Synthesis to Macro-Scale and Nano-Scale Applications, 84th Prague Meeting on Macromolecules, Prague 24-28.07.2022
62. H. Petkova, M. Doychinov, E. Jarek, M. Krzan, E. Mileva "Synergy in aqueous systems of bio-surfactants: saponin/pectin mixtures", EuFoam 2022 International Conference, Krakow 3-6.07.2022
63. N. Piergies, M. Oćwieja, C. Paluszkiewicz, W. M. Kwiatek, "Surface enhancement in AFM-IR technique and its application in drug/ metal nanocarrier characterization" 5th European Forum on Nanoscale IR Spectroscopy, Wiedeń 2022
64. A. Płazińska, M. Maciąg, W. Płaziński, M. Koliński "Modelowanie molekularne i badania in vivo fenoterolu i jego pochodnych, potencjalnych leków w terapii niewydolności serca" 64. Zjazd Naukowy PTChem, Lublin 11-16.09.2022
65. A. Pomorska, A. Michna, J. Maciejewska-Prończuk, M. Wasilewska, J. Witt, Ö. Özcan "Adsorption mechanism of carrageenan and stability of its layers on macroscopic surfaces", 5th International Conference on Applied Surface, Palma 25-28.04.2022
66. K. Poznańska, A. Hola, M. Strojecki, A. Janas, R. Kozłowski, Ł. Bratasz "Mechanical properties of tempera paints", Gordon Research Seminar on Scientific Methods in Cultural Heritage Research, Les Diablerets 09-10.07.2022
67. M. Procner, M. Leśkiewicz, M. Regulska, M. Szczęch, K. Szczepanowicz, W. Lasoń, A. Basta-Kaim, P. Warszzyński "In vitro analysis of cytotoxicity of theranostic polyelectrolyte nanocarriers containing neuroprotective drugs", LIV Ogólnopolskie Kolokwium Katalityczne, Kraków 1-3.06.2022.
68. M. Procner, M. Leśkiewicz, M. Regulska, M. Szczęch, K. Szczepanowicz, W. Lasoń, A. Basta-Kaim, P. Warszzyński "In vitro analysis of cytotoxicity of theranostic polyelectrolyte Nanocarriers containing neuroprotective drugs", 64. Zjazd PTChem 2022, Lublin 11-16.09.2022

69. D. Rutkowska-Zbik, V. Kaipanchery, R. Tokarz-Sobieraj „Układy katalityczne do sprzęgania metanu – badania teoretyczne metodą DFT”, 64. Zjazd PTChem, Lublin 11-16.09.2022
70. D. Rutkowska-Zbik, V. Kaipanchery, R. Tokarz-Sobieraj “DFT mechanistic studies on CH₄ coupling over Au-TiO₂ catalysts” European Colloquim on Inorganic Reaction Mechanisms ECIRM, Krakow 21-23.09.2022
71. D. Rutkowska-Zbik, V. Kaipanchery, R. Tokarz-Sobieraj "Theoretical description of catalytic systems for methane coupling", 15th Pannonian International Symposium on Catalysis, Jastrzębia Góra 4-8.09.2022
72. D. Rutkowska-Zbik, V. Kaipanchery, R. Tokarz-Sobieraj "Density Functional Theory studies of catalytic systems for methane coupling” Workshop "Solar Driven Chemistry and Photocatalysis", Villeneuve d'Ascq 6.10.2022
73. D. Rutkowska-Zbik, V. Kaipanchery, M. Witko, R. Tokarz-Sobieraj "Density Functional Theory studies of catalytic systems for solar energy harvesting and storage" during “Challenges on the Renewable Energy Storage”, Liblice 29-31.08.2022
74. D. Rutkowska-Zbik, V. Kaipanchery, M. Witko, R. Tokarz-Sobieraj "DFT mechanistic studies on light-assisted methane coupling over Au_n/TiO₂ system”, 66th International Conference on Theoretical Aspects of Catalysis ICTAC, Lyon 13-17.06.2022
75. S. Skibiński, J.P. Czechowska, E. Cichoń, P. Pańtak, M. Guzik, P. Szymczak, A. Zima "β tricalcium phosphate and polyhydroxyalkanoate blends composites as bone substitutes", UK-Poland-Ukraine Bioinspired Materials Conference 2022, on-line 29-30.11.2022
76. S. Skibiński, J. Czechowska, M. Guzik, E. Cichoń, A. Ślósarczyk, A. Zima “Composite scaffolds based on β tricalcium phosphate and polyhydroxyalkanoate blends for bone tissue regeneration”, 32nd symposium and annual meeting of the International Society for Ceramics in Medicine, Venice 20–23.09. 2022
77. S. Skibiński, M. Seta, J.P. Czechowska, E. Cichoń, P. Pańtak, M. Guzik, A. Ślósarczyk, A. Zima “Evaluation of β tricalcium phosphate and poly(3-hydroxybutyrate) -based scaffolds for bone tissue regeneration”, International Society (TERMIS) European Chapter Conference 2022, Kraków 28.06.2022-1.07.2022
78. M. Smoliło-Utrata, K. Samson, M. Ruggiero, A. Drzewiecka-Matuszek, J. Gurgul, D. Rutkowska-Zbik, L. Valentin, F. Averseng, Y. Millot, S. Dzwigaj "Experimental and Theoretical Investigation of Siliceous Vanadium-Containing BEA Zeolites and Their Application in ODH of Light Alkanes", 27th North American Catalysis Society Meeting, New York 22-27.05.2022
79. M. Smoliło-Utrata, K. Tarach, K. Samson, M. Gackowski, D. Rutkowska-Zbik, K. Góra-Marek "Oxidative Dehydrogenation of Propane over Vanadium-Containing Faujasite Zeolite. Multi-spectroscopic approach to study vanadium sites in desilicated zeolite Y", LIV Ogólnopolskie Kolokwium Katalityczne, Kraków 1-3.06.2022
80. R.P. Socha, A. Zięba, M. Ciężkowska, M. Grodzik, B. Bażanów, M. Krzan, G. Putynkowski „włókniny kompozytowe zawierające nanocząstki tlenków metali o właściwościach bakterio- i wirusobójczych”, X Krajowa Konferencja Nanotechnologii, Kraków, 3-8.07.2022
81. M. Szczęch, T. Kruk, A. Hinz, N. Łopuszyńska, K. Jasiński, W.P. Węglarz, M. Bzowska, K. Szczepanowicz "Polymeric core-shell nanocarriers – preparation, characterization and biomedical application", NanoTech Poland 2022, Poznan 01-03.06.2022

82. M. Szczęch, T. Kruk, A. Hinz, N. Łopuszyńska, K. Jasiński, W. P. Węglarz, M. Bzowska, K. Szczepanowicz "Sequential adsorption of charged nanoobjects as a method of functionalization of drug delivery systems", The 36th European Colloid & Interface Society Conference (ECIS 2022), Chania 04-09.09.2022
83. M. Szczęch, M. Procner, M. Leśkiewicz, N. Łopuszyńska, K. Jasiński, W.P. Węglarz, W. Lasoń, P. Warszyński, and K. Szczepanowicz "Polymeric-based nanocarriers for the treatment of the central nervous system disorders", The 36th European Colloid & Interface Society Conference (ECIS 2022), Chania 04-09.09.2022
84. M. Szczęch, K. Szczepanowicz "Nanoemulsion template method for preparing polymeric nanocarriers", EuFoam2022, Kraków 3-6.07.2022.
85. M. Szota, B. Jachimska "Protein corona formation phenomenon around poly(amidoamine) dendrimers as potential nanocarriers for oncology applications", section Polymeric Materials Science and Engineering (Innovations in drug delivery), Fall 2022, American Chemical Society National Meeting, 21–25.08.2022
86. M. Szpytma, A. Koziol-Rachwał, N. Spiridis, K. Freindl, J. Korecki, W. Janus, H. Nayyef, P. Drozd, M. Slezak, M. Zajac, T. Slezak "Beating the limitation of the Néel temperature of FeO with antiferromagnetic proximity in FeO/CoO", JEMS 2022: the Joint European Magnetic Symposia, Warsaw 24-29.07.2022
87. D. Tarabasz, P. Szczeblewski, T. Laskowski, W. Płaziński, E. Baranowska-Wójcik, D. Sz wajgier, W. Kukula-Koch, H.O. Meissner "Glucosinolates as a Potential Acetylcholinesterase Inhibitors from *Lepidium Peruvianum*", Pharmaceutiicall Research: Changes, Challllenges and Experiences. International Symposium, Ulanbataar, Mongolia, 2022
88. A. Walczyk, B.D. Napruszewska, J. Kryściak-Czerwenka, D. Duraczyńska, E.M. Serwicka, P. Jeleń, M. Sitarz "Talc modified by dry milling and alkali activation: physico-chemical characterization", LIV Ogólnopolskie Kolokwium Katalityczne, Kraków 01-03.06.2022
89. M. Wasilewska, A. Michna, A. Pomorska, M. Nattich-Rak, Z. Adamczyk "Poly(amido amine) dendrimers adsorption kinetics on silica- hydrodynamic solvation effect" 5th International Conference on Applied Surface, Palma, 25-28.04. 2022
90. P. Weroński, K. Pałka "A Novel Statistical Method for Studies of 2D Nanoparticle Assemblies", 11th International Symposium Effects of Surface Heterogeneity in Adsorption, Catalysis and related Phenomena, Jachranka 2022
91. A.M. Wojtkiewicz, P. Wójcik, M. Tataruch, M. Szaleniec, "Application of 3-ketosteroid Δ^1 -dehydrogenases from *Sterolibacterium denitrificans* in a synthesis of pharmaceuticals and cosmetic components", The 5th Symposium on Biotransformations for Pharmaceutical and Cosmetic Industry, Jura Krakowsko-Częstochowska 2022
92. P. Wójcik, M. Głanowski, B. Mrugała, M. Procner, O. Zastawny, A.M. Wojtkiewicz, A.J. Bojarski, M. Szaleniec "The active site of 3-ketosteroid dehydrogenase – point mutations, kinetics and modelling", LIV Ogólnopolskie Kolokwium Katalityczne, Kraków 01-03.06.2022
93. M. Zając, E. Beyer, K. Freindl, J. Korecki, M. Sikora, N. Spiridis, J. Stępień, M. Ślęzak, T. Ślęzak, D. Wilgocka-Ślęzak, "The PIRX beamline performance presented on selected results", Joint Meeting of the Polish Synchrotron Radiation Society and SOLARIS Centre Users, Krakow 20-23.09.2022
94. M. Zaleski, A. Pajor-Swierzy, P. Warszynski "Development of conductive inks and conductive printed circuitson their basis", nanoPaInt Mid-Term Check and Summer Training School 20.06.-24.06.2022

95. M. Zaleski, P. Warszyński, A. Pajor-Świerzy "Development of Conductive Inks and of Conductive Printed Patterns on its Basis", NanoPaint Training School: "Fundamentals and Modelling in Colloids and Interface Science", Darmstadt 20-24.06.2022.
96. A. Zięba, K. Stan-Głowińska, Ł. Rogal, D. Duraczyńska, L. Lityńska-Dobrzyńska "Aluminium-based intermetallic catalysts prepared by the melt-spinning method", International Symposium Intermetallic Compounds in Catalysis, Chemnitz University of Technology, Germany, 13-15.09.2022
97. A. Zima, J. Czechowska, S. Skibiński, E. Cichoń, P. Pańtak, M. Guzik, A. Ślósarczyk, (2022) "Composite Scaffolds Based on β tricalcium Phosphate and Poly(3-hydroxybutyrate) for Bone Tissue Regeneration", book of abstracts, Scandinavian Society for Biomaterials 2022 (ScSB 2022) 15th Annual Meeting, Jurmala, Latvia 13-15.06.2022
98. M. Zimowska, M. Śliwa, J. Gurgul, K. Łątka "Optimizing of the basic properties of porous heterostructured composites derived from laponite for CO₂ sorption", 10th Jubilee Mid-European Clay Conference, Kliczków Castle 1-15.09.2022,

2023

Plenary, keynote and invited lectures

- 1 J. Andrys-Olek, T. Borowski, A. Kluza, A. Miłaczewska, Z. Wojdyła "Computational and experimental studies on selected non-heme iron enzymes", The 6th Quantum Bio-Inorganic Chemistry Conference, 29.08-1.09.2023, Warszawa, Poland
- 2 G. Gochev "Colloidal Systems Interactions between Surfaces", Research-Educational Workshop on "Relevance of colloids and interfacial science for developing scientific and technological projects", organizer: Colloid and Surface Academy of World Academies; 13.12.2023, online
- 3 G. Gochev, D. Exerowa, B. Braunschweig, E. Schneck, R. Miller "Predicting the stability of protein foams: a case study on β -lactoglobulin", 9th Bubble and Drop Conference, 11-16 June 2023, Lublin, Poland
- 4 M. Guzik, "Polyhydroxyalkanoate – polymers from bacteria – synthesis and applications", 8th International Seminar on Modern Polymeric Materials for Environmental Applications (MPM2023) 17-19.05.2023, Krakow, Polska
- 5 M. Guzik, „Przekształcając Przemysł: Potencjał i Przyszłość Polihydroksyalkanianów (PHA)” III Naukowa Konferencja Tematyczna PKN ORLEN: "Kataliza - terażniejszość i przyszłość" 19-20.10.2023, Płock, Poland
- 6 B. Jachimska, "Structure and function of protein corona at the nanoparticles interface" Konferencję „Copernicus Dialogues”, series titled -The Focus of Polish-Italian cooperation in the area of biomedicine, 27.10.2023, Rome, Italy
- 7 D. Jantas, A. Roman, M. Szczęch, K. Szczepanowicz, P. Warszyński, W. Lasoń "Biosafety and neuroprotective potency of polymer-based theranostic nanoparticles containing carnosic acid", 5th Central European Biomedical Congress, Future trends in health interventions, 29.05-1.06.2023, Kraków, Poland
- 8 V. Kaipanchery, A. Drzewiecka-Matuszek, R. Tokarz-Sobieraj, M. Witko, D. Rutkowska-Zbik „Badania aktywacji wiązań C-H w alkanach metodą DFT”, 65. Zjazd PTChem, 18-21.09.2023, Toruń, Poland

- 9 A. Kluza, Z. Wojdyła, T. Borowski "Experimental and Computational Studies on a Bifunctional Enzyme Hyoscyamine 6beta-hydroxylase", Modeling Interactions in Biomolecules IX, 10-14.09.2023, Prague-Pruhonice, Czech Republic
- 10 Ł. Kuterasiński "On the application of zeolites in the manufacture of ANFO-based explosives" Bioref Winter School, Cracow University of Technology, 27.02.-3.03.2023, Kraków, Poland
- 11 D. Rutkowska-Zbik „Eksperymentalne i teoretyczne badania transformacji alkanów – możliwości badawcze i aparaturowe w Instytucie Katalizy i Fizykochemii Powierzchni im. Jerzego Habera PAN”, Konferencja ORLEN „Kataliza – terażniejszość i przyszłość” 19-20.10.2023, Płock, Poland
- 12 M. Strojceki "Principles of Acoustic Emission" Changing Climate Management Strategies Sustainable Collection Environments and Monitoring Object Response, National Gallery of Victoria, 7-10.08.2023, Melbourne, Australia
- 13 M. Szaleniec, M. Glanowski, A. Wojtkiewicz, A. Winiarska, „Eksperyment bez teorii jest ślepy, teoria bez eksperymentu jest jedynie intelektualną zabawą”, Zjazd PTChem, 18-21.09.2023, Toruń, Poland
- 14 M. Szaleniec, M. Glanowski, P. Wójcik, A. Wojtkiewicz, „Dehydrogenazy 3-ketosteroidowe – czyli jak wyjaśniliśmy 50-letnią naukową zagadkę”, XIV Międzynarodowa Konferencja Naukowa „Horyzonty Nauki” 12-13.06.2023
- 15 K. Szczepanowicz, M. Szczęch, P. Warszyński, "Teranostyczne nośniki leków - wyzwania fizykochemiczne", FGF 2023, 16-20.04.2023, Lublin, Poland
- 16 M. Szczęch, T. Kruk, N. Łopuszyńska, K. Stachurski, K. Jasiński, W.P. Węglarz, P. Warszyński, K. Szczepanowicz, "Synthesis and characterization of polymer-based theranostic nanoparticles containing carnosic acid", 5th Central European Biomedical Congress, Future trends in health interventions, 29.05 -1.06.2023, Kraków, Poland
- 17 R. Tokarz-Sobieraj, V. Kaipanchery, P. Niemiec, D. Rutkowska-Zbik, „Theoretical Studies on Catalytic Systems for Light-driven Processes for Energy Applications”, 1st SUNCOCAT Workshop on Solar-driven Chemistry, 15.06.2023, Warszawa, Poland
- 18 R. Tokarz-Sobieraj, P. Niemiec, D. Rutkowska-Zbik, „DFT Studies on Interactions Between Heteropolyacids, Noble Metal Ions, and TiO₂ support”, 244th ECS Meeting, 8-12.10.2023 Geteborg, Sweden
- 19 P. Warszyński, "Various aspects of surface charge and zeta potential relationship in the area of nanocrystals, colloids, emulsions and foams", 36th European Conference on Surface Science, 28.08 – 1.09.2023, Lodz, Poland
- 20 P. Warszyński, „Nowe metody dostarczania leków do terapii chorób neurodegeneracyjnych – nanokapsułki teranostyczne” IV Kongres PTSF, 14-19.09.2023, Kraków, Poland
- 21 A. Winiarska, G. Oleksy, I. Aleksic, K. Kräme, D. Hege, Y. Gemmecker, G. Hochberg, S. Prinz, J. M. Schuller, P. Kalimuthu, J. Cotelesage, G. N. George, P. V. Bernhardt, J. Heider, M. Szaleniec "Mining anaerobic bacteria for unusual enzymes – experiment and modelling", 5th International meeting on Trends in Enzyme Catalysis, Merging theory and experiment TrEnCa, 30.11-1.12.2023 Benicassim, Spain
- 22 A.M. Wojtkiewicz, P. Wójcik, M. Tataruch, T. Janeczko, M. Szaleniec „Bakteryjne oksydoreduktazy do zastosowania w produkcji farmaceutyków”, II Ogólnopolska Konferencja Naukowa Bioaktywne związki pochodzenia naturalnego, 9-10.10.2023 Trzebnica, Poland

Oral presentations

1. G. Antczak, T. Wagner, D. Wilgocka-Ślęzak, B. Gołyszny, N. Spiridis "Bi-molecular layers of CoPc and F₁₆CuPc on Ag(100): how the structure factor can be used to identify chiral domains", XII Workshop on Applications of Scanning Probe Microscopy – STM/AFM 2023, Zakopane, Poland, 29.11-03.12.2023
2. S. Antropov, L. Bratasz, R. Kozłowski, "Trójwymiarowa higro- mechaniczna symulacja obrazu na desce z rozwinięta siatka spękań", AChwOZ'23, Warszawa, Poland, 01.12.2023
3. S. Antropov, L. Bratasz, K. Poznańska, M. Bury, "3D model of a panel painting with a developed craquelure pattern", Wood Science and Technology III, Maastricht, Netherlands, 19.10.2023
4. J. Barbasz, "Coordinated health care and artificial Intelligence" Life Science Open Space, 2023
5. A. Biessikirski, M. Dworzak, S. Gotovac-Atlagić, S. Sukur, M. Pytlik, Ł. Kuterasiński „Potencjalne zastosowanie mikroporowatych dodatków węgla drzewnego w produkcji nieidealnych materiałów wybuchowych” XIII konferencja naukowo-techniczna, Ustroń, Poland, 4-6.10.2023
6. B. Blyzniuk, A. Dziwoki, K. Freindl, A. Kozioł-Rachwał, E. Madej, E. Młyńczak, M. Szpytma, D. Wilgocka-Ślęzak, J. Korecki, and N. Spiridis, "Magnetization reversal in Fe(001) films grown on MgO(001) by magnetic field assisted molecular beam epitaxy", 36th European Conference Physics of Magnetism 2023 (PM'23), Poznań, Poland, 26-30.06.2023
7. S. Bujok, A. Bridarolli, M. Łukomski, Ł. Bratasz "Wpływ szybkich i wolnych zmian wilgotności względnej na obiekty wrażliwe", XXIII Analiza Chemiczna w Ochronie Zabytków 2023, Centrum Nauk Biologiczno-Chemicznych UW, Warszawa, Poland, 2023
8. M. Bury, S. Antropov, Ł. Bratasz, "Komputerowy model obrazów na płótnie", Future of the Past - Conference on Innovative Research and Preservation of Cultural Heritage, Toruń, Poland, 14-15.06.2023
9. M. Borkowski, D. Lupa, B. Braunschweig, G. Gochev, J. Zawała, "Synergistic foaming systems based on surface-modified magnetic nanoparticles and amino acid surfactants in destabilization of real foams in a magnetic field", 9th Bubble and Drop Conference, Lublin, Poland, 11-16.05.2023
10. J. Dedecek, S. Sklenak, E. Tabor, K. Mlekodaj, A. Kornas, H. Jirglova, M. Lemishka, D. Rutkowska-Zbik, "Low temperature activation of molecular oxygen for selective oxidation reactions" 5th Euro Asia Zeolite Conference, Busan, Korea, 5-8.02.2023
11. A. Drzewiecka-Matuszek, J. Dedecek, D. Rutkowska-Zbik, "Dioxygen Activation over Binuclear Transition Metal Centres", Modeling Interactions in Biomolecules 2023, Pruhonice, Czech Rep., 10-14.09.2023
12. A. Drzewiecka-Matuszek, D. Rutkowska-Zbik „Aktywacja tlenu cząsteczkowego na centrach bimetalicznych: badania DFT” 65. Zjazd PTChem, Toruń, Poland, 18-21.09.2023
13. D. Gawęł, G. Gochev, G.G. Fuller, J Zawała "Differences in coalescence of surface bubbles in solutions of simple surfactant and protein"; 9th Bubble and Drop Conference, Lublin, Poland, 11-16.06.2023
14. P. Gnacek, A. Barbasz, D. Ungor, A. Czyżowska, E. Csapó, J. Maciejewska-Prończuk, P. Żeliszewska, M. Oćwieja "Comparative studies on cytotoxicity of gold nanoparticles and protein-stabilized fluorescence gold nanoclusters", 8th World Congress on Recent Advances in Nanotechnology (RAN'23), Lisbon, Portugal, 23–25.03.2023

15. A. Gorczyca, S. W. Przemieniecki, M. Niemiec, S. Bednarz, M. Guzik. "Utilization of PHA production waste streams to plants fertilization and stimulation." 8th International Seminar on Modern Polymeric Materials for Environmental Applications (MPM2023), Krakow, Poland, 17-19.05.2023
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92. R. Szostecki, T. Kruk, K. Szczepanowicz, „Synteza i charakterystyka nanocząstek miedzi", XV Interdyscyplinarna Konferencja Naukowa TYGIEL 2023 „Interdyscyplinarność kluczem do rozwoju”, Lublin, Poland, 23-26.03.2023
93. R. Tokarz-Sobieraj, D. Rutkowska-Żbik, "Właściwości Pt/Pd wbudowanych w strukturę heteropolikwasów o strukturze Keggina – obliczenia DFT", 65. Zjazd Polskiego Towarzystwa Chemicznego, PTChem 2023, Toruń, Poland, 18-22.09.2023
94. R. Tokarz-Sobieraj, D. Rutkowska-Żbik, P. Niemiec, "Kompleksy Keggin-metal przejściowy jako jednoatomowe katalizatory w reakcjach fotokatalitycznych - Obliczenia DFT", 65. Zjazd Polskiego Towarzystwa Chemicznego, PTChem 2023, Toruń, Poland, 18-22.09.2023
95. R. Tokarz-Sobieraj, M. Witko, D. Rutkowska-Zbik, “DFT Studies of Vanadium-based systems for electro- and photochemistry”, COST CA 18234 Conference "Designing the Future: Electro-, Photo- and Thermo-Chemical Water splitting", Brussels, Belgium, 20-22.02.2023
96. M. Wasilewska, A. Michna, A. Pomorska, K. Wolski, Sz. Zapotoczny, T. Gerecsei, E. Farkas, I. Szekacs, R. Horvath „Tracking of cell adhesion on macroion layers”, 37th Conference of the European Colloid and Interface Society (ECIS 2023), Naples , Italy, 3-8.09. 2023
97. A. Wiertel-Pochopień, M. Borkowski, P. Batys, P.B. Kowalczyk, J. Zawąła, "Właściwości pniące mieszanych roztworów kationowych i niejonowych surfaktantów o różnej aktywności powierzchniowej", „Fizykochemia granic faz – metody instrumentalne”, Lublin, Poland, 16–20.04.2023
98. A. Wiertel-Pochopień, J. Zawąła "Dynamiczna warstwa adsorpcyjna, a stabilność filmów zwilżających", Fizykochemia granic faz – metody instrumentalne, Lublin, Poland, 16-20.04.2023
99. A. Winiarska, D. Hege, J. M. Schuller, J. Heider, M. Szaleniec “H₂-dependent recycling of NADH and reduction of carboxylic acid by tungsten aldehyde oxidoreductase”, 1st European Society of Applied Biocatalysis E-Congress, 27-29.11.2023
100. M. Zaleski, A. Pajor-Świerzy, P. Warszyński "Copper@Silver nanowires for conductive inks and pastes" NanoPaint’s Training School on Rheology of Complex Systems, Madrid, Spain, 27-31.03.2023
101. M. Zaleski, A. Pajor-Świerzy, P. Warszyński, K. Szczepanowicz "Core@shell Nanowires for Conductive Inks and Pastes", 9th Bubble and Drop Conference, Lublin, Poland, 11-16.06.2023

102. M. Zimowska, M. Śliwa, H. Pálková, R. P. Socha, P. Niemiec, E. Scholtzova “ Functionalized hybrid materials based on clay minerals for CO₂ sorption”, EUROCLAY 2023 International Conference of European Clay Groups Association, Bari, Italy, 24-27.07.2023
103. S. Zimowski, M. Zimowska, J. Krupa, “Badania odporności na zużycie twardych powłok zwiększających trwałość ostrzy narzędzi skrawających”, [Wear resistance of hard coatings increasing durability of cutting tool blades], XLI Ogólnopolska Konferencja, Jesienna Szkoła Tribologiczna 2023, Łańcut, Poland, 05-08.09.2023

Conferences and scientific events organized by the Institute

2020

1. LII Ogólnopolskie Kolokwium Katalityczne (LII Polish Annual Conference on Catalysis), 25-27.11.2020, Kraków
2. 33rd Marian Smoluchowski Symposium on Statistical Physics, 3-4.12.2020 Zakopane
3. Life Science Open Space Online Week 2020, 23-27.11.2020, on-line - organization of one session

2021

1. LIII Ogólnopolskie Kolokwium Katalityczne (LIII Polish Annual Conference on Catalysis), Kraków 22-24.09.2021 (M. Witko, D. Rutkowska-Żbik)-online
2. 6th International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface 6-9.06.2021, Kraków (G. Mordarski) online
3. 34th Marian Smoluchowski Symposium on Statistical Physics Zakopane 27-29.11.2021 (J. Barbasz-IKiFP PAN, Wydział Fizyki UJ, Mark Kac Complex System Research Center)-online
4. Life Science Open Space Online Week 2021, Kraków 23-26.11.2021 (Klaster LifeScience Kraków, M. Guzik-IKiFP PAN (*organization of one session*))

2022

1. LIV Ogólnopolskie Kolokwium Katalityczne (LIV Polish Annual Conference on Catalysis), 01-03.06. 2022, Kraków (M. Witko, D. Rutkowska-Żbik)
2. EUFoam Conference 3-6.07.2022, Kraków ("Nanostructures of soft matter" group from ICSC PAS, University of Agriculture in Krakow)
3. Warsztaty dla Przedsiębiorców „Rozwiązania katalityczne w instalacjach przemysłowych”, 28.09.2022 Kraków (Katalizator sp. z o.o., Uni-Eko s.c, IKiFP PAN, ICh PAN)
4. 4th ISFMS-Biochemistry, Molecular Biology and Druggability of Proteins, Multidisciplinary Digital Publishing Institute, University of Florence, Florence, Italy, 06-09.09 2022 (prof. B. Jachimska - *participation in the organizing committee*)
5. 64 Zjazd Naukowy PTChem, 11-16.09.2022, Lublin (dr hab. R. Tokarz-Sobieraj, prof. IKiFP PAN (*Organization of the Catalytic Section*))

2023

1. LV Ogólnopolskie Kolokwium Katalityczne (LIV Polish Annual Conference on Catalysis), 22-24.03.2023, Kraków (P. Warszyński, D. Rutkowska-Żbik)
2. 15th European Congress of Catalysis) EuropaCat-15 „A Pillar for Modern Chemistry”, 27.08-01.09.2023, Prague. Organizing Committee selected by EFCATS (European Federation of Catalysis Societies): Polish Catalysis Club (dr hab. R. Tokarz-Sobieraj, prof. IKiFP PAN, dr hab. D. Rutkowska-Żbik, prof. IKiFP PAN), Czech Catalysis Group of the Czech Chemical Societies, Slovak Catalysis Society, Hungarian Catalysis Society.

Career Advancement

2020

Professor

1. Barbara Jachimska
2. Nika Spiridis

Doctor of Philosophy (PhD)

1. Aleksandra Kirpsza "Kinetics and mechanism of isopropanol dehydration on supported heteropolyacid catalysts." (supervisor A. Micek-Ilnicka)

2021

Professor

1. Łukasz Bratasz
2. Wojciech Płaziński

Doctorate of Science (DSc)

1. Anna Bratek-Skicki "Protein Adsorption on Polymeric Carriers for Biomedical Applications"
2. Maciej Guzik "Polyhydroxyalkanoates, bacterially synthesized polymers, as a source of chemical compounds for the synthesis of bioactive molecules and advanced materials"
3. Piotr Batys "Determining the mechanisms of formation and properties of polyelectrolyte complexes at the molecular level"

Doctor of Philosophy (PhD)

1. Karolina Golianek "Application of quantum-mechanical methods for studying the structure, conformation and stereoelectronic effects in saccharides" (supervisor W. Płaziński)
2. Karina Nester "Development and application of molecular dynamics methods for studying the conformation of mono-, di- and oligosaccharides" (supervisor W. Płaziński)
3. Beata Mrugała "Structural studies and biochemical characterization of the KanJ enzyme involved in kanamycin biosynthesis" (supervisors T. Borowski, W. Minor)
4. Dawid Lupa "Plasmonic microcomposites with nonmetallic cores - preparation, properties and applications" (supervisor M. Oćwieja)
5. Joanna Wojas "CO adsorption on metal modified Fe₃O₄ (111) surfaces" (supervisor N. Spiridis)
6. Małgorzata Smoliło-Utrata "BEA and FAU zeolites with introduced vanadium as catalysts for oxidative dehydrogenation of light alkanes" (supervisor D. Rutkowska-Żbik)
7. Zuzanna Wojdyła "Computational biochemistry studies on the mechanisms of reactions catalysed by 2-oxoglutarate dependent dioxygenases" (supervisor T. Borowski)
8. Anna Kluza "Hyoscyamine 6β-hydroxylase from *Datura metel* - structural and biochemical studies" (supervisor T. Borowski)
9. Marta Szczęch "Polymeric nanoparticles as nanocarriers of active agents" (supervisor K. Szczepanowicz)

2022

Doctorate of Science (DSc)

1. Georgi Gochev "A comprehensive, theoretical and experimental description of the influence of physicochemical conditions on the stability of protein foams"

Doctor of Philosophy (PhD)

1. Paulina Komorek "Self-assembling of globular proteins at gold surface – structural and conformational aspects" (supervisors B. Jachimska, M. Lekka)
2. Adrianna Sławińska "Peroxomolybdates as new pharmacological and catalytic materials" (supervisor W. Łasocha)
3. Patrycja Wójcik "Bacterial 3-ketosteroid Δ 1-dehydrogenases – structure, reaction mechanism and application for biocatalytic dehydrogenation of steroid drugs" (supervisors M. Szaleniec, A. Bojarski)

2023

Doctorate of Science (DSc)

1. Małgorzata Zimowska "Functionalized porous hybrid materials based on layered silicates for catalytic processes of sustainable development"

Doctor of Philosophy (PhD)

1. Agnieszka Czajak "Liquid foams stabilised by cellulose nanocrystals" (supervisor P. Warszyński, auxiliary supervisor M. Krzan)
2. Michał Głanowski "Modelling the reaction mechanism of bacterial ketosteroid dehydrogenases - catalysts for modifying steroid drugs" (supervisors: M. Szaleniec, A. Bojarski)
3. Katarzyna Haraźna "Physicochemical and biological characterisation of poly(3-hydroxyoctanoate) modified with diclofenac - application in bone tissue and skin regeneration" (supervisors: M. Guzik, A. Bojarski)
4. Joanna Kaim "Hydrogenation and decarbonylation of furfural on oxide-based catalysts containing Cu i Ni" (supervisor D. Rutkowska-Żbik, auxiliary supervisor M. Śliwa)
5. Patrycja Obara "Study of the interaction of non-canonical forms of telomeric DNA fragments with carbon nanotubes using molecular dynamics methods" (supervisor T. Pańczyk, auxiliary supervisor P. Wolski)
6. Natalia Ogrodowicz "Dehydration of alcohols over supported catalysts containing Keggin and Wells-Dawson type heteropolyacids" (supervisor A. Micek-Ilnicka)
7. Justyna Prajsnar "Development of chemical and enzymatic pathways for modification of the amino group of 6-aminopenicillanic acid by introducing 3-hydroxy acids of bacterial origin" (supervisors: M. Guzik, A. Bojarski)
8. Wojciech Snoch "New esters of sugars and (R)-3-hydroxyalkanoic acids-synthesis, physicochemical characterization and evaluation of biological potential" (supervisors: M. Guzik, A. Bojarski, auxiliary supervisor J. Staroń)
9. Anna Walczyk "Solid base materials derived from sepolite and talc by dry milling and alkali activation" (supervisors: E. Serwicka-Bahranowska, M. Sitarz)
10. Agata Wiertel-Pochopień "Influence of the dynamic adsorption layer on wetting film stability in one- and two-component solutions of surface-active substances" (supervisor J. Zawąła)
11. Agnieszka Winiarska "Tungsten aldehyde oxidoreductase from *Aromatoleum aromaticum* - biocatalyst for alcohol production" (supervisors: M. Szaleniec, A. Bodzoń-Kuślakowska)

Awards

2020

1. Ł. Bratasz – membership of the Council of the Museum of Photography in Krakow
2. Z. Adamczyk , E. Serwicka-Bahranowska - distinction: presence on the list of the 2% most influential scientists in the world prepared by Stanford University
3. Ł. Bratasz - Committee expert of the "Strengthening Cultural Heritage Resilience for Climate Change", European Commission,
4. B. Jachimska - distinction of poster presentaiton; M. Szota, J. Mooney, B. Jachimska, "Optimal conditions for efficient formation of PAMAM dendrimers complexes with 5-fluorouracil", 4th International Wroclaw Scientific Meeting, Wroclaw (online), Poland
5. P. Komorek - doctoral scholarship of the President of the Polish Academy of Sciences

2023

1. M. Witko – Congress Chair of the 15th European Congress of Catalysis - EuropaCat-15 „A Pillar for Modern Chemistry” 27.08-01.09.2023, Prague, Czechia
2. M. Witko – award of the Minister of Education and Science for all scientific, teaching, organizational and popularization achievements
3. W. Łasocha – membership of the Crystallography Committee of the Polish Academy of Sciences
4. M. Szaleniec – membership of the Committee of Chemistry of the Polish Academy of Sciences
5. M. Witko – membership (Titular member) of IUPAC
6. B. Jachimska – membership of the American Chemical Society (ACS)
7. B. Jachimska – membership from the nomination "TOP500 Innovators Association" patronage of the Ministry of Science and Higher Education, The Association of TOP 500 Innovators since 2015
8. B. Jachimska – membership of the Bioelectrochemical Society (BES) since 2005
9. B. Jachimska – membership of the International Society of Electrochemistry (ISE)
10. M. Szaleniec – membership of the Sectoral Council for Competences of the Chemical Sector
11. M. Szaleniec – membership of the Program Council of the Life Science Cluster
12. D. Kharytonau - distinction “2022 RSC Advances outstanding peer reviewer” by RSC Advances. <https://www.rsc.org/journals-books-databases/author-and-reviewer-hub/reviewer-information/outstanding-peer-reviewers/2022/rsc-advances/>
13. M. Zimowska, M. Śliwa, J. Gurgul, R.P. Socha - nomination in the Best Researcher Award category announced by the Science platform for the publication; M. Zimowska*, M. Śliwa, H. Palkova, J. Gurgul, R. P. Socha „Microwave treatment effect on the enhanced basicity of porous clay heterostructured composites derived from Laponite”, Applied Surface Science 619 (2023) 156768, <https://doi.org/10.1016/j.apsusc.2023.156768>
14. B. Jachimska - distinction of oral presentaiton, B. Jachimska, P. Komorek, K. Rakowski, M. Szota “Conformational Stability of Bovine Serum Albumin as a Result of Interactions with Gold Surface” ACS Fall 2023, American Chemical Society National Meeting, San Francisco 2023

15. M. Szota - distinction of oral presentaion M. Szota, B. Jachimska „Dendrymer G4.0PAMAM jako efektywny nanonośnik leków przeciwnowotworowych” V Interdyscyplinarna Konferencja Nano(&)BioMateriały - od teorii do aplikacji, Uniwersytet Mikołaja Kopernika w Toruniu, Toruń, 2023
16. K. Rakowski – distinction of oral presentaion K. Rakowski, P. Mulheran, K. Kubiak-Ossowska, B. Jachimska "Effect of Tau protein phosphorylation on the process of its adsorption on the neuronal membrane", Book of Abstracts, 5th International Wroclaw Scientific Meeting, Wrocław, Polska 2023