

CV

Personal details:

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Educational background:

2020-ongoing	Ph.D. studies in Earth Sciences , discipline: Earth and related Environmental Sciences AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Ph.D. thesis: <i>The application of functional mineral adsorbents to remove uranium from water</i> Supervisor: Tomasz Bajda, Full Professor
2019	M.Sc. title AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Field of study: Environmental Protection, specialization: Assessment of the environmental conditions M.Sc. thesis: <i>Synthesis and characterization of aerogels</i> Supervisor: Tomasz Bajda, Full Professor

Research interests:

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- Synthesis and functionalization of natural and synthetic mineral adsorbents
 - Determination of sorption properties of natural and modified minerals
 - Application of natural and synthetic mineral sorbents for sorption of heavy metals, radionuclides and VOCs (water & air)
 - Modification of minerals to obtain functional mineral materials applying bio-based compounds
 - Application of laboratory (XPS, μ -XRF), and synchrotron spectroscopies (XANES, EXAFS, HERFD-XANES) to elucidate electronic structure of actinides
 - Assessment of radionuclides concentrations ($^{226,228}\text{Ra}$, $^{234,238}\text{U}$ in environmental water matrixes (Upper Silesia Coal Basin, Pribram Deposit, spa waters in Kłodzko Valley)
 - Radiochemical analyses using LSC, α -spectrometry, and tandem mass spectrometry (ICP-MS/MS)
 - Radiochemical enrichment and ion-exchange chromatography
 - Industrial applications of zeolites, and their organo-functional derivatives
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Research grants

2025-2023	<p>Grant IDUB AGH UST - Application of functional zeolitic materials to separate selected Rare Earth Elements (REEs) from water solutions</p> <p>International co-operation with prof. Rosella Arletti and MSc. Francesco Colombo from the University Reggio-Emilia (UNIMORE), Modena (Italy)</p>
2023-2020	<p>Grant FNP TEAM-NET - Fly ash as the precursors of functionalized materials for applications in environmental engineering, civil engineering and agriculture (PhD student)</p> <p>Principal Investigator of Consortium: Prof. Wojciech Franus</p>

Scientific experience:*Conferences*

2023.10.19-22	<p><i>9th Meeting of the Mineralogical Society of Poland, 28th Meeting of the Petrology group of the Mineralogical Society of Poland</i></p> <p>Author of poster presentation:</p> <p>To modify or not to modify? Eco-designed bio-functional Na-P1 zeolite as an efficient U scavenger</p>
2023.08.20-25	<p><i>25th IUPAC CHAINS 2023: Connecting Chemical Worlds, The Hague (Netherlands)</i></p> <p>Co-author of poster presentation:</p> <p>Aqueous BTEX removal onto the fly-ash based zeolites</p>
2023.06.04-08	<p><i>WCCE11: 11th World Congress of Chemical Engineering, Buenos Aires (Argentina)</i></p> <p>Author of 1 oral presentation:</p> <p>Na-P1 zeolite/alginate composite and its uranium removal performance - batch, and spectroscopic investigations</p>
2023.03.09	<p><i>HERCULES 2023 Poster Session, Grenoble (France)</i></p> <p>Co-author of 1 poster:</p> <p><i>Investigation on U sorption by synthetic zeolites using XPS, and HERFD-XANES spectroscopies</i></p> <p>Award of the HERCULES 2023 scientific panel for the best poster</p>
2023.01.25	<p><i>ROBL Workshop 2023 - Rossendorf Beamline Workshop in Helmholtz Center Dresden-Rossendorf (HZDR), Dresden (Germany)</i></p> <p>Author of 1 oral presentation:</p> <p>Application of synthetic zeolites for uranium removal from waters - insights from batch, XPS and HERFD-XANES spectroscopies</p>
2022.10.06-07	<p><i>4th interdisciplinary FNP conference, Warsaw (Poland)</i></p> <p>Co-author of poster:</p> <p>The use of functionalized silica materials from fly ash to remove inorganic and organic contaminants from waters</p>

2022.07.20-22	<p><i>6th conference on Waste, Water and energy Management (WWEM), Rome (Italy)</i></p> <p>Author of 1 oral presentation:</p> <p>Sorption of uranium isotopes onto various zeolites as the fly-ashes derivatives</p>
2021.08.29 – 2021.09.02	<p><i>emc2020: 3rd European Mineralogical Conference, Cracow (Poland)</i></p> <p>Co-author of 1 oral presentation:</p> <p>Bio-modified fly-ash based synthetic zeolites for VOCs removal</p>
2021.05.15- 2021.05.20	<p><i>RadChem 2022, Mariańskie Łaźne (Czech Republic)</i></p> <p>Author of 1 oral presentation:</p> <p><i>Self-prepared standardized natural uranium isotopes solution and its use for the sorption experiments - practical approach</i></p>
2021.07.05-07	<p><i>AERoGELS COST Action 2021: Advanced technologies for the processing and characterization of nanostructured materials, Kraków (Poland)</i></p> <p>Author of 1 oral presentation:</p> <p>Removal of inorganic pollutants by alginate-based aerogel</p> <p><i>Conference award for the best PhD student presentation</i></p>
2020.11.17-19	<p><i>Industrial Water 2020 – DACHEMA (on-line)</i></p> <p>Co-author of 1 poster presentation:</p> <p>Wastewater contaminated with VOCs: the challenge for industry and the future for new functionalized materials</p>
2020.11.05-07	<p><i>21st International Conference of Young Geologists HERL'ANY 2020 (on-line)</i></p> <p>Author of 1 oral presentation:</p> <p>Temperature stability of chemically synthesized alginate-based aerogel during metal ions removal</p>
2020.06.21-26	<p><i>Goldschmidt 2020 Virtual (on-line)</i></p> <p>Co-author of 1 oral presentations:</p> <p>Stability of chromium compounds immobilized on organo-zeolites</p>
2019.12.06	<p><i>7th conference on Environmental Protection and Energy (EPAE), Gliwice (Poland)</i></p> <p>Author of 1 oral presentations:</p> <p>Heavy metal ions removal on aerogels</p>

2018.12.07	<p><i>6th conference on Environmental Protection and Energy (EPAE), Gliwice (Poland)</i></p> <p>Co-author of 1 oral presentations:</p> <p>Technical and economical assessment of small-scale renewable hydrogen production within Europe</p>
2018.06.11-14	<p>AGH ISC (International Student Conference) : knowledge, technology and society, Kraków (Poland)</p> <p>Co-author of 1 poster presentation:</p> <p>Determination of chloride ion concentration accumulated in snow around AGH UST campus in Cracow</p>

Summer Schools

2023.02.27-2023.03.31	<p><i>HERCULES 2023: European School on Neutron & Synchrotron radiation for Science</i></p> <p><i>Session A: Application to physics and chemistry of condensed matter, Grenoble (France) & Villigen (Switzerland)</i></p> <p>Comprehensive applied research course with over 155h of lectures, practices, tutorials, group works, and visits.</p> <p>Practical experience at ID-31, ID-32, BM20, BM05, and BM23 beamlines of the ESRF, and WASP, IN1-Lagrange neutron spectrometers at the ILL</p> <p>One-week outside the ESRF in the PSI - Paul Sherrer Institute, Villigen (Switzerland)</p> <p>Practical experience at PEARL, VUV, super-XAS beamlines of the Swiss Light Source (SLS)</p> <p>Visit in SINQ (CAMEA) and Swiss-FEL facilities</p>
2023.08.20-25	<p><i>MINEWA 2022: “Minerals and waste, an Anthropocene tale”</i></p> <p>Waste and minerals in symbiosis, how to manage wastes, thermodynamics and kinetics of HT processes, mineralogy of industrial high temperature processes, low-temperature geochemistry, the geological significance of novel anthropogenic materials - deposits of industrial waste and by-products, bio-mineral interactions, bottom ash from incineration plants - how to manage it, urban metabolism, metals recycling, metallurgical slags, construction and demolition waste</p>

	description and recovery, waste recycling in silicate ceramics: feasibility and effects, mineral tailings management, waste incineration, environment and sanitary issues: are really at odds? a global strategy for waste management
2021.09.20-2021.09.26	<i>2nd edition of International School on Project Management (ISPM) 2021, Catania (Italy)</i> Application of different management methodologies in scientific projects, waterfall methodology, Agile methodology, SCRUM, Kanban, Scrumban methodology, CPM (Critical Path Method)
2021.07.06-2021.10.15	<i>Application of synchrotron radiation in nanoscience (on-line)</i> Summer school held by Aarhus University (Denmark), and University of Hamburg (Germany). Interactions of hard X-rays with matter, synchrotron facility layout, components of the beamline, experimental hutch. Getting acquainted in detail with three synchrotron techniques - PXRD, TS and SAXS and acquired data analysis using various programs

Certified Trainings

2023.09.20-22	PMBOK® Fundamentals
2023.09.13-15	DTMethod® Foundation
2023.08.08-09	P3O® Foundation
2023.05.24-25	INTARG 2023 - 16 th International Trade Fairs of Inventions and Innovations
2023.04.21-22	Assessment of uncertainty in chemical analyses, methods to estimate uncertainty, impact of various parameters on obtained result's quality
2023.04.13-14	The problems of water pollution in Poland and EU
2023.02.22-23	Carrying out the chemical analyses and production processes in the Clean Room according to the GMP and ISO 14644
2023.02.07-08	Auditing step by step - how to become a competent auditor of internal Quality Assessment in the Laboratory according to the PN-EN ISO/IEC 17025:2018-02. Practical Internal Auditor Training
2022.12.14-15	How to quantify the ²²² Rn in gaseous samples - insights from Liquid Scintillation Counting (LSC) spectrometer by HIDEX®
2022.12.05	The basics and practical aspects of the ICP-MS method

2022.10.28	Combined TGA/FT-IR analysis in the chemical laboratory - practical perspective from industrially-relevant solid-state samples
2022.09.19	Spectroscopic methods in the infra-red (IR) region: FT-IR, DRIFT, ATR-FT-IR techniques
2022.08.26-28	Good Manufacturing Practice - GMP®
2022.07.25-27	PRINCE 6 th edition - Foundation
2022.04.21-22	Assessment of uncertainty in chemical analyses, methods to estimate uncertainty, impact of various parameters on obtained result's quality
2022.04.12-22	Scrum Master Certified - SMC®
2022.03.10-11	Analytical symposium on spectroscopic methods and processes to disintegrate solid-state samples
2022.02.17-18	Application of the Inductive Coupled Plasma - Optical Emission Spectroscopy (ICP-OES) in the analysis of trace elements in water samples
2022.02.04	Headspace GC-MS analysis of BTEX after the sorption process to measure sorption capacity with large quantities of samples
2021.12.14-16	Assessment and calculation of the VOCs emissions in industrial facilities, calculation of the VOCs emissions from various industrial streams
2021.11.16	Removal of surface-active agents (surfactants) from water solutions and industrial wastewaters
2021.11.05	Quality assurance in chemical laboratory
2021.09.29	Application of the PHREEQC program to model water solutions
2021.07.01-02	Metrological traceability in testing laboratory - requirements of ISO 17025
2021.07.01-02	Use and theoretical aspects of AAS - types of ionization, strengths and limitations of the method, samples preparation
2021.05.22-23	Agile BA® Foundation
2021.04.16	Implementation of XRF method in a chemical laboratory - principles, experimental setup, LOD, LOQ, interferences
2021.03.11-12	ICP-MS as an exact chemical analysis method
2021.03.01-02	Basic functions and elements of Statistica software to process data that stem from working in a chemical laboratory
2021.02.26-28	Introduction and practical training on using HPLC with different

	detectors in chemical laboratory
2020-02.04	Validation of laboratory procedures
2020.12.12-13	Gas chromatography - theory and practice in dealing with gas chromatography with different detectors (FID, TCD, MS, MS/MS) in chemical laboratory
2020.09.19-20	Agile PM [®] Foundation
2022.09.12-15	Good Laboratory Practice - terms and practical approach for general requirements for the competence in testing laboratories

Teaching experience

- **Basics of Industrial Technologies (Lecture on Technologies in Nuclear Energy)**
In Polish: Podstawy Technologii Przemysłowych - Technologie w sektorze Energetyki Jądrowej (1st degree, 3rd year, IŚ) (2023-2024)
- **Environmental Geochemistry**
In Polish: Geochemia środowiska (1st degree, 3rd year, IŚ) (2023)
- **Advanced Mineralogy**
In Polish: Mineralogia Zaawansowana (1st degree, 3rd year, IŚ) 2023)

Achievements / awards

2019	Polish Student's Parliament Award - 3 rd place for the best MSc thesis in the field of "Practices applied to the economy" AGH Rector Award for the best students - 5 th year of study (Master)
2018	AGH Rector Award for the best students - 4 th year of study (Master)
2017	AGH Rector Award for the best students - 3 rd year of study (Engineering)
2016	AGH Rector Award for the best students - 2 nd year of study (Engineering)
2015	AGH Rector Award for the best students - 1 st year of study (Engineering)

Parametric summary of the scientific output

Citations (*Web of Science*): 49, without auto-citations: **46**

Hirsch index (*Web of Science*): **3**

Membership:

- Mineralogical Society of Poland: 2019-ongoing
- Geochemical Society: 2019-2024

Kraków, 4th of February 2024