

Scientific CV (short)

Personal details

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Education – diplomas and degrees

2021	Professor – field: natural sciences; discipline: Earth and related environmental sciences (The Council of Scientific Excellence)
2015	Habilitation in Earth Sciences (post-doctoral degree) , discipline: geology. AGH University of Science and Technology in Kraków, Poland (AGH) Faculty of Geology, Geophysics and Environmental Protection (WGGiOŚ) Title of achievement: <i>Synthesis, characterization and sorption properties of hybrid mineral nanomaterials derived from kaolin group minerals</i>
2010	PhD in Earth Sciences , discipline: geology. AGH, WGGiOŚ PhD thesis title: <i>Minerals from kaolin group as precursors of mineral nanotubes.</i> Supervisor: prof. Krzysztof Bahranowski
2008	Postgraduate certificate <i>Analytical chemistry in industry and environmental protection.</i> AGH University of Science and Technology in Kraków, Poland Faculty of Materials Science and Ceramics (WIMiC)
2006	MSc title AGH, WGGiOŚ Branch: Mining and Geology, specialization: Applied Mineralogy and Geochemistry MSc thesis: <i>Efficiency of cadmium phosphates crystallization depending on the form of phosphates.</i> Supervisor: Prof. Tomasz Bajda

Employment and career history in scientific institutions

2021 – now	<p>Professor AGH University of Science and Technology in Kraków, Poland Faculty of Geology, Geophysics and Environmental Protection (WGGiOŚ) Department of Mineralogy, Petrography and Geochemistry (KMPiG) Adress: al. A. Mickiewicza 30, 30-059 Kraków, Poland</p>
2018 – 2021	<p>Associate professor AGH University of Science and Technology in Kraków, Poland WGGiOŚ, KMPiG</p>
2011 – 2018	<p>Assistant professor (adjunct) AGH University of Science and Technology in Kraków, Poland WGGiOŚ, KMPiG</p>
2010 – 2011	<p>Assistant AGH University of Science and Technology in Kraków, Poland WGGiOŚ, KMPiG</p>

Research interest

- Chemical and mineralogical characterization of layered (clay minerals, LDH) and framework minerals (zeolites).
- Modification of minerals in order to obtain functional mineral materials e.g. adsorbents, catalysts, photocatalysts and polymer-composites.
- The influence of intercalation and grafting processes on the structure, textural parameters and morphology of minerals.
- Determination of adsorption properties of mineral-based materials derived mainly from layered minerals and zeolites.
- Synthesis, structural and mechanical properties of clay-polymer nanocomposites.
- Pillared clays - synthesis, characterization and catalytic applications.
- Photoactive nanomaterials based on clay minerals.
- Efficiency and mechanisms of heavy metals immobilization using phosphates (in situ phosphate induced metal stabilization) as an alternative technique for soil remediation.
- Chemistry, mineralogy and thermodynamic stability of heavy metal phosphates.

Research grants

2025-2028	<p>Grant NCN OPUS 26/LAP (2023/51/I/ST11/00368), 1 222 562 PLN Unlocking lithium's potential: Dynamic flow-through lithium extraction from challenging aqueous environments with engineered 3D-shaped layered double hydroxide adsorbents (Principal Investigator) – in progress.</p>
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2024-2025	<p>Grant IDUB AGH (Action 4, no. 9793), 750 000 PLN University grant system for research projects carried out with the participation of doctoral students - Excellence Initiative – Research University</p> <p>Development of effective and selective mineral adsorbents for immobilization of emerging mycotoxins - towards detoxification of feed and food (Principal Investigator) – in progress.</p>
2024-2025	<p>Minigrant IDUB AGH (Action 4, no. 10473), 13 898 PLN University grant system for research projects carried out by the doctoral students - Excellence Initiative – Research University</p> <p>Modification of LDH/GCN heterostructure to enhance the efficiency of estrogens photodegradation from aqueous solutions: towards a technology for efficient purification (Supervisor) – in progress. Principal Investigator: Msc. Anna Jędras</p>
2022-2025	<p>Grant NCN OPUS 22 (2021/43/B/ST10/00868), 838 140 PLN Nanotubular materials based on kaolin group minerals for the photodegradation of selected mycotoxins in aqueous environment (Principal Investigator) – in progress.</p>
2020-2024	<p>Grant FNP TEAM-NET (POIR.04.04.00-00-14E6/18), 20 998 200 PLN The use of fly ashes as precursors of functionalized materials for applications in environmental engineering, civil engineering and agriculture (Co-investigator) – in progress. Principal Investigator: prof. Wojciech Franus.</p>
2018-2021	<p>Grant NCN OPUS 14 (2017/27/B/ST10/00898), 558 360 PLN Hydrotalcite-like mineral composites obtained by transformation of selected minerals as hybrid sorbents for the removal of anions from multi-element aqueous solutions (Principal Investigator) – project completed.</p>
2017-2020	<p>Grant NCN PRELUDIUM 11 (2016/21/N/ST10/00390), 138 360 PLN Layered minerals doped with iron nanoparticles showing reductive and magnetic properties for the removal and separation of selected inorganic ions (Supervisor) – project completed. Principal Investigator: Msc. Paulina Maziarz</p>
2017-2018	<p>Innovation Incubator+ (WPP/1/14/2017), 100 000 PLN Production and application of a filter containing functionalized sorbent for the removal of volatile organic compounds (Co-investigator) – project completed. Principal Investigator: Dr. Tomasz Bajda</p>
2017-2020	<p>Grant NCN/NCBR TANGO 2 (340790/NCBR/2017), 1 012 750 PLN Remediation technology of aquatic environments polluted with anionic forms of elements with the use of functionalized kaolinite sorbents (Principal Investigator) – project completed.</p>
2016-2017	<p>Grant GEOVANA, Removal of vanadium from mining wastewaters and contaminated natural waters using geological materials, K.H. Renlund Foundation, Finlandia (Co-investigator). Principal investigator: Dr Tiina</p>

	Leiviskä (Oulu University, Finland) – project completed.
2016-2017	Grant MVTT Foundation , Optimization of peat pretreatment and use for metal removal from water, Finland (Principal investigator). Principal investigator: Dr. Tiina Leiviskä (Oulu University, Finland) – project completed.
2015-2018	Grant NCN OPUS (2014/13/B/ST10/01326) , 305 700 PLN Photoactive hybrid nanomaterials derived from layered minerals (Principal Investigator) – project completed.
2011-2014	Grant NCN SONATA (2011/01/D/ST10/06814) , 212 250 PLN Sorption properties of hybrid mineral nanomaterials derived from kaolin group minerals (Principal Investigator) – project completed.
2011-2014	Grant NCBiR I PBS (PBS1/A2/7/2012) , 2 640 000 PLN The preparation and utilization of zeolite-based sorbents of petroleum compounds (Co-investigator) – project completed. Principal Investigator: prof. Wojciech Franus.
2011-2014	Grant NCN HARMONIA (2011/01/M/ST10/06999) , 355 000 PLN Precise determination of solubility constants in 5 - 65°C temperature range and DH_f , DG_f , DS for apatites of Ca-Pb-P-As-OH-Cl type (Co-investigator) – project completed. Principal Investigator: Dr. Maciej Manecki
2010-2011	Grant MEiN (IP2010 025070) , 200 000 PLN Minerals from the kaolin group as precursors of hybrid organo-mineral materials (Principal Investigator) – project completed.
2009-2012	Grant MEiN (N N307 315336) , 200 000 PLN Layered minerals as precursors of mesoporous nanostructures (Co-investigator) – project completed. Principal Investigator: prof. Krzysztof Bahranowski.

Conferences

Invited lectures

2023.06.12-15	SCANDEM 2023, 73 rd Annual Meeting, Uppsala, Sweden Title: Unraveling the structure-property relationship of adsorbents and photocatalysts derived from 2D layered materials of natural and synthetic origin (invited lecture).
2022.09.11-15	10 th Mid-European Clay Conference, Kliczków, Poland Title: Kaolinite madness - 1:1 layered structure which reveals its potential for synthesis of next generation materials (invited lecture).
2019.10.28	<i>Department of Soil and Crop Sciences, Texas A&M University</i> (College Station, TX, USA) Title: Organo-functionalized kaolin group minerals: Synthesis, structure and adsorption properties (invited lecture).

2019.09.04	<i>Department of Soil and Crop Sciences, Texas A&M University</i> (College Station, TX, USA) Title: Functional Mineral-based Structures: Towards Applications in Industry and Environmental Protection (invited lecture).
2019.08.19	<i>Soil Critique Meeting</i> (College Station, TX, USA) Title: Mineral-based Architectures Group: Towards Materials for the Environment and Industry (invited lecture).
2017.01.27	<i>Meeting of Committee of Mineralogical Sciences, Institute of Geological Sciences, Kraków, Poland.</i> Title: Funkcjonalne materiały krystaliczne w nanotechnologiach (<i>eng. Functional mineral-based materials in nanotechnology</i>) (invited lecture).
2016.10.05	Inaugural lecture during opening of the 2016/17 academic year of WGGiOŚ AGH, Kraków, Poland. Title: Naturalne i syntetyczne minerały w nanotechnologiach (<i>eng. Natural and synthetic minerals in nanotechnologies</i>) (invited lecture).
2015.10.09	<i>Faculty of Physics, Warsaw University</i> (Warsaw, Poland) Title: Minerały warstwowe jako prekursorzy nanomateriałów o właściwościach fotoaktywnych (<i>eng. Layered minerals as precursors of photoactive materials</i>) (invited lecture).
2014.05.17-21	<i>51th Annual Meeting of the Clay Minerals Society, College Station, Texas, USA.</i> Title: Organo-functionalized kaolin group minerals - synthesis, structure and properties (invited lecture).
2012.11.23	<i>Meeting of Polish Clay Group, Kraków, Poland.</i> Tytuł: Immobilizacja i redukcja Cr(VI) w przestrzeni międzypakietowej minerałów kaolinitowych (<i>eng. Immobilization and reduction of Cr(VI) in the interlayer of kaolin group minerals</i>) (invited lecture).
2011.11.09	<i>Seminar in the Institute of Geological Sciences of Polish Academy of Sciences, Kraków, Poland.</i> Tytuł: Interkalaty kaolinitu z chlorkami benzyloalkiloamoniowymi (<i>eng. Kaolinite intercalates with benzylalkylammonium chlorides</i>) (invited lecture).
2009.09.18-19	<i>Meeting of Polish Clay Group, Kraków, Poland.</i> Minerały z grupy kaolinitu jako prekursorzy nanorurek mineralnych (<i>eng. Aluminosilicate nanotubes derived from kaolin group minerals</i>) (invited lecture).

Other presentations

2024.09.15-20	<i>11th Mid-European Clay Conference, Pilzno, Czechy.</i> Poster: Nanotubular photocatalysts based on kaolin group minerals for zearalenone degradation
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2024.08.18-22	<p><i>ACS Fall 2024: Elevating Chemistry</i>, Denver, CO, USA.</p> <p>Poster: Sustainable kaolinite-supported photoactive materials for enhanced photodegradation of zearalenone: in-depth assessment of physical and electrochemical properties</p>
2023.07.24-27	<p><i>EUROCLAY 2023 International Conference of European Clay Groups Association</i>, Bari, Italy</p> <p>Lecture: Kaolinite-based nanotubes - current state of knowledge on synthesis, properties and applications</p> <p>Poster: Highly efficient styrene removal by smectites impregnated with Ni, Cu and Ag transition metals</p>
2023.05.20-25	<p><i>60th Annual Meeting of the Clay Minerals Society</i>, Austin, TX, USA.</p> <p>Poster: The effect of synthesis conditions on formation and properties of kaolinite-based nanotubes</p>
2022.07.25-29	<p><i>XVII International Clay Conference</i>, Istanbul, Turcja</p> <p>Lecture: Surfactant intercalated smectite group minerals: the effect of host mineral and surfactant type on the styrene adsorption/desorption.</p>
2022.07.11-15	<p><i>Goldschmidt Conference</i>, Hawaii, USA.</p> <p>Poster: As(V) scavenging from artificial and real wastewaters by mineral-derived Mg/Al and Mg/Fe LDH materials.</p>
2020.10.18-23 (virtual)	<p><i>57th Annual Meeting of the Clay Minerals Society</i>, Richland, WA, USA.</p> <p>Lecture: Fumonisin B1 interaction with Mg–Al and Mg–Fe layered double hydroxides: removal efficiency and mechanisms.</p>
2019.06.30 – 2019.07.06	<p><i>EuroClay 2019 – European Conference on Clay Science and Technology</i>, Paris, France.</p> <p>Poster: Halloysite-LDH heterostructured materials: performance in removal of selected anions from aqueous solutions</p>
2018.09.17-21	<p><i>9th Mid-European Clay Conference</i>, Zagreb, Croatia.</p> <p>Lecture: Removal of chromates and arsenates by halloysite-LDH composites</p>
2018.06.11-14	<p><i>55th annual meeting The Clay Minerals Society, University of Illinois at Urbana-Champaign</i>, USA.</p> <p>Lecture: Halloysite-based hybrid composites with synthetic LDH and their affinity to remove anions</p>
2017.07.17-21	<p><i>XVI International Clay Conference</i>, Grenada, Spain.</p> <p>Poster: Insight into the structure of kaolinite and layered zirconium phosphate intercalated with photoactive molecules</p>

2017.06.2-7	<p>54th Annual Meeting of the Clay Minerals Society (Living Clays), Edmonton, Canada.</p> <p>Lecture: The Synthesis Approach for the Intercalation of Photoactive Molecules into Kaolinite and Layered Zirconium Phosphate</p>
2016.06.5-8	<p>53rd Annual Meeting of the Clay Minerals Society (Resurgent Clays), Atlanta, USA.</p> <p>Poster: Kaolinite co-intercalated with benzylalkylammonium salts and azobenzene: structural features and photoswitching effect</p>
2015.07.5-10	<p>EuroClay 2015 – European Conference on Clay Science and Technology, Edinburgh, Scotland.</p> <p>Lecture: Organo-kaolinite: 50 Å intercalation compound with azobenzene</p> <p>Poster: Raw, acid activated and calcined halloysite for metals and metalloids adsorption: sorption capacity and mechanisms</p>
2014.09.16-19	<p>7th Mid-European Clay Conference, Dresden, Germany.</p> <p>Poster: Removal of chromate, arsenate and phosphate oxyanions by halloysite from Dunino deposit, Poland</p>
2013.10.6-10	<p>50th Anniversary Annual Meeting of the Clay Minerals Society, University of Illinois at Urbana-Champaign, USA.</p> <p>Lecture: Equilibrium and kinetic study of heavy metals sorption on grafted halloysite</p> <p>Poster: Chromate and arsenate removal by kaolinite intercalated with ammonium salts</p>
2013.09.16-18	<p>1st Mineral-based Sorbents Conference, Kraków, Poland</p> <p>Lecture: Kinetyka sorpcji Cr(VI) na surowych i modyfikowanych minerałach kaolinitowych (eng. Kinetics of Cr(VI) sorption on raw and modified kaolin minerals)</p>
2013.07.7-11	<p>XV International Clay Conference, Rio de Janeiro, Brazil.</p> <p>Lecture: Sorption of arsenate and phosphate on positively charged kaolinites</p> <p>Poster: Lead sorption on halloysite grafted with aminoalcohols</p>
2012.09.24-26	<p>2nd International Conference on Contemporary Problems of Geochemistry, Kielce, Poland.</p> <p>Lecture: Kaolinite-based sorbent of hexavalent chromium: sorption mechanism, pH effect and desorption behavior</p>

2012.09.4-9	<p>6th Mid-European Clay Conference, Pruhonice, Czech Republic</p> <p>Lecture: Modified kaolinites and halloysite with anion sorption properties</p> <p>Poster: Methoxy-kaolinite: A precursor for the intercalation of methylene blue and benzoic acid</p>
2012.07.7-11	<p>49th Annual Meeting of the Clay Minerals Society, Golden, CO, USA.</p> <p>Lecture: Chromate sorption by functionalized kaolin group minerals</p>
2012.04.26-28	<p>XIII International Conference of Young Geologists, Herlany, Slovakia.</p> <p>Lecture: Organic synthesis of positively charged kaolinites</p>
2011.09.24-29	<p>48th Annual Meeting of the Clay Minerals Society, South Lake Tahoe, NV, USA.</p> <p>Lecture: Kaolinite intercalates with benzylalkylammonium chlorides</p>
2011.06.26-2011.07.01	<p>EuroClay 2011 – European Conference on Clay Science and Technology, Antalya, Turkey.</p> <p>Poster: Influence of synthesis conditions on the formation of kaolinite-methanol complex</p>
2010.08.25-29	<p>5th Mid-European Clay Conference, Budapest, Hungary.</p> <p>Lecture: Nanotubular particles derived from kaolin group minerals – structural and textural examination</p>
2010.06.8-10	<p>Trilateral Meeting on Clays (SEA-CSSJ-CMS) TMC, Seville, Spain.</p> <p>Lecture: Nanotubular kaolinite as an additive for preparation of polylactide/clay composites</p>
2009.04.2-4	<p>X International Conference of Young Geologists, Herlany, Slovakia.</p> <p>Lecture: Nanotubes derived from kaolinites of different structural order</p>
2008.09.22-27	<p>4th Mid-European Clay Conference, Zakopane, Poland.</p> <p>Poster: Aluminosilicate nanotubes derived from kaolin group minerals</p>
2008.04.3-6	<p>IX International Conference of PhD Students and Young scientists, Zawoja, Poland.</p> <p>Lecture: Removal of aqueous cadmium by hydroxylapatite and fluoroapatites</p>
2007.08.12-17	<p>Nanosopic Approaches in Earth and Planetary Sciences - 9th EMU School organized by European Mineralogical Union and Ludwig Maximilians University, Munich, Germany.</p> <p>Poster: Immobilization of aqueous cadmium by addition of phosphates</p>
2007.06.1-3	<p>Student's Geological Conference, Miękinia, Poland.</p> <p>Lecture: Iloczyn rozpuszczalności fosforanu kadmu $Cd_5H_2(PO_4)_4 \cdot 4H_2O$ dla 20°C (eng. Solubility constant of cadmium phosphate $Cd_5H_2(PO_4)_4 \cdot 4H_2O$ for 20°C)</p>

2007.03.2-4	<p><i>VIII International Conference of PhD Students and Young scientists</i>, Herlany, Slovakia.</p> <p>Lecture: Immobilization of aqueous cadmium by addition of phosphates</p>
2006.04.26-28	<p><i>International Forum of Young Researchers: Topical issues of rational use of natural resources</i>, Saint Petersburg, Russian Federation.</p> <p>Lecture: Synthesis and characterization of Ca, Pb, Zn, Cu and Cd chlorapatites and Pb-Cd chlorapatites solid solutions</p>
2005.04.7-8	<p><i>VI International Conference of PhD Students and Young scientists</i>, Miękinia, Poland.</p> <p>Lecture: Próba syntezy i charakterystyka fazowa chlorapatytów wapnia, ołowiu, cynku i miedzi (<i>eng. Synthesis and characterization of Ca, Pb, Zn, Cu and Cd chlorapatites</i>)</p>
2004.12.09	<p><i>XLV Session of Student's Scientific Groups at AGH University in Krakow</i>, Poland.</p> <p>Lecture: Synteza i charakterystyka mineralogiczna chlorapatytów wapnia, ołowiu, cynku i miedzi (<i>eng. Synthesis and characterization of Ca, Pb, Zn, Cu and Cd chlorapatites</i>)</p>

Other presentations given by the co-authors

2024.09.15-20	<p><i>11th Mid-European Clay Conference</i>, Pilsen, Czechia.</p> <p>Co-author of 2 lectures: Synthesis challenges of LDH/GCN heterostructures for the photodegradation of estrone Photodegradation of zearalenone with kaolinite nanotubes-based photocatalysts: mechanisms and pathways</p>
2024.08.18-22	<p><i>ACS Fall 2024: Elevating Chemistry</i>, Denver, CO, USA.</p> <p>Co-author of 2 posters: Exploring the mechanisms and pathways of zearalenone mycotoxin photodegradation by kaolinite nanotubes-based composites LDH/GCN heterostructures for enhanced photodegradation of estrone: exploring synthesis impact on the material properties</p>
2023.07.24-27	<p><i>EUROCLAY 2023 International Conference of European Clay Groups Association</i>, Bari, Italy</p> <p>Co-author of 2 lectures: Layered double hydroxides supported by clay minerals as photocatalysts for visible light-driven degradation of organic pollutants A comparative photocatalytic study of TiO₂-loaded nanotubes derived from kaolin group minerals: evaluation of degradation efficiency using dyes as model pollutants</p>

2023.05.20-25	<p>60th Annual Meeting of the Clay Minerals Society, Austin, TX, USA.</p> <p>Co-author of 2 lectures: Visible light-induced degradation of dyes by layered double hydroxides supported on clay minerals: the synergistic effect of adsorption-photocatalysis TiO₂-loaded nanotubular materials based on kaolin group minerals as spatially confined nanoreactors for photodegradation of deoxynivalenol</p>
2022.09.11-15	<p>10th Mid-European Clay Conference, Kliczków, Poland</p> <p>Co-author of lecture: The mechanisms of V(V) interactions with Mg/Al and Mg/Fe LDH with various interlayer anions</p> <p>Co-author of 2 posters: Heterocoagulated materials based on smectite and layered double hydroxides of different chemistry with dual adsorption properties Simultaneous removal of As(V) and safranin O dye by Mg/Al LDH-zeolite heterocoagulated materials in static and dynamic conditions</p>
2022.07.25-29	<p>XVII International Clay Conference, Istanbul, Turkey</p> <p>Co-author of 2 lectures: Modify smectites and layered double hydroxides for zearalenone detoxification LDH-containing materials derived from minerals: from technical aspects of synthesis to the application in As(V) removal</p> <p>Co-author of 3 posters: The characteristics of V(V) and P(V) adsorption by LDH derived from magnesite: kinetics, pH influence and competition with common anions. Impregnation of smectite with layered double hydroxides of different chemistry for simultaneous removal of Cr(III) and acid blue dye Hydrotalcite-zeolite hetero-coagulated materials: towards materials with dual adsorption properties</p>
2022.07.11-15	<p>Goldschmidt Conference, Hawaii, USA.</p> <p>Co-author of poster: Al- and Fe-bearing layered double hydroxides as effective adsorbents of aqueous V(V): the effect of brucite-like layer and interlayer chemistry.</p>
2021.07.14-16 (virtual)	<p>6th international conference on Water pollution and treatment, Frankfurt, Germany</p> <p>Co-author of lecture: The efficiency and stability of Mg/Al and Mg/Fe as mineral-based adsorbents for the removal of Cr(VI) and Se(VI) from wastewaters.</p>
2021.06.21-24 (virtual)	<p>Sustainable Minerals'21</p> <p>Co-author of lecture: Mineral-based adsorbents for wastewater treatment – the kinetics study of Cr(VI) and Se(VI) adsorption in the presence of sulphates and nitrates by Mg/Al and Mg/Fe layered double hydroxides.</p>
2020.11.17-19 (virtual)	<p>Industrial Water 2020, Frankfurt am Main, Germany.</p> <p>Co-author of lecture: Removal of anionic contaminants from wastewaters using functionalized mineral adsorbent in a fixed-bed column installation.</p>

<p>2020.11.5-7 (virtual)</p>	<p><i>XXIst International Conference of Young Geologists HERL'ANY 2020:</i> Niedzica, Poland. Co-author of lecture: Efficiency of selected anions removal by Mg/Al and Mg/Fe LDH obtained with different sources of Mg.</p>
<p>2020.10.18-23 (virtual)</p>	<p><i>57th Annual Meeting of the Clay Minerals Society,</i> Richland, WA, USA. Co-author of 2 lectures: Granulated and functionalized halloysite for anions adsorption Mg/Al LDH obtained via transformation of minerals for the removal of selected elements from acidic and alkaline wastewaters Co-author of 2 posters: Kaolin particles coated with zero-valent iron – competitive adsorption of Pb/Cd, regeneration and reuse possibilities Different approaches to transformation of selected minerals into layered double hydroxides</p>
<p>2019.09.16-17</p>	<p><i>4th Mineral-based Sorbents Conference,</i> Jerzmanowice, Poland (not present). Co-author of 2 lectures: Characterization of hydrotalcite/pyroaurite-like anion adsorbents derived from magnesite and dolomite Enhanced sulphate removal by precipitation and adsorption using Ca(OH)₂ and synthetic layered double hydroxide: acid mine drainage case study</p>
<p>2019.09.11-13</p>	<p><i>9th European Conference on Mineralogy and Spectroscopy,</i> Praha, Czech Republic (not present). Co-author of 2 lectures: The effect of M(II)/M(III) molar ratio on the LDH structure derived from chemicals and minerals: a spectroscopic study using FTIR, Raman and XPS. Halloysite-supported iron oxide particles for As(V) removal: adsorption mechanism investigation by the XPS and Mössbauer spectroscopy</p>
<p>2019.06.30 – 2019.07.06</p>	<p><i>EuroClay 2019 – European Conference on Clay Science and Technology,</i> Paris, France. Co-author of 2 posters: Physico-chemical studies of Mg/Fe and Mg/Al layered double hydroxides obtained via transformation of minerals Effectiveness of As(V) removal from wastewaters by layered double hydroxides impregnated with Fe oxide</p>
<p>2019.04.03-05</p>	<p><i>XX International Conference of Young Geologist, Herlany, Slovakia.</i> Co-author of 3 lectures: Photoactive hybrid nanomaterials derived from layered minerals Mg/Al LDH formation via transformation of minerals through the AlCl₃ hydrolysis Enhanced removal of Pb(II) and Cd(II) by kaolin impregnated with zerovalent iron particles</p>
<p>2018.09.17-21</p>	<p><i>9th Mid-European Clay Conference,</i> Zagreb, Croatia. Co-author of 2 lectures: Mg–Fe LDH derived from magnesite and hematite and its affinity towards sulphates</p>

	<p>Application of halloysite impregnated with Fe⁰ particles for acid mine drainage water treatment</p> <p>Co-author of poster:</p> <p>Highly ordered α-zirconium phosphate intercalate with p-aminoazobenzene: structure refinement and interaction with UV radiation revealed by molecular modelling</p>
2018.07.24-26	<p><i>3rd International conference on Applied Mineralogy & Advanced Materials: MMS 2018 Minerals & Materials Sciences: bridging materials & minerals sciences</i>, Bari, Italy (not present)</p> <p>Co-author of 2 lectures:</p> <p>The structural stability of Mg–Al LDH impregnated with iron oxide particles used for As(V) removal</p> <p>Photoresponsive behavior of α-zirconium phosphate functionalized with azobenzenes</p> <p>Co-author of poster:</p> <p>Synthesis of Mg–Fe layered double hydroxides from minerals and their sorption affinity towards Cr(VI)</p>
2018.06.11-14	<p><i>55th annual meeting The Clay Minerals Society, University of Illinois at Urbana-Champaign</i>, USA.</p> <p>Co-author of 2 lectures:</p> <p>Maghemite particles supported on halloysite as magnetically responsive composites for efficient As(V) removal</p> <p>Monitoring the azobenzene isomerization in layered intercalation compounds using the infrared spectroscopy</p> <p>Co-author of poster:</p> <p>The quality of Mg–Fe layered double hydroxide derived from magnesite and hematite</p>
2017.09.18-19	<p><i>3rd Mineral-based sorbents conference</i>, Kraków, Poland.</p> <p>Co-author of 2 oral presentations:</p> <p>Efektywność usuwania Pb(II) i Mo(VI) przez kaolinit impregnowany cząstkami żelaza zerowartościowego (<i>eng. Efficiency of Pb(II) and Mo(VI) removal by kaolinite impregnated with zero-valent iron particles</i>)</p> <p>Kompozyty haloizytu z cząstkami Fe₃O₄: wpływ impregnacji na usuwanie Cd(II) i Pb(II) z roztworów wodnych (<i>eng. Halloysite composites with Fe₃O₄: the effect of impregnation on Cd(II) and Pb(II) removal from aqueous solutions</i>)</p>
2017.07.17-21	<p><i>XVI International Clay Conference</i>, Grenada, Spain.</p> <p>Co-author of poster:</p> <p>Kanemite as a precursor for the synthesis of photoactive layered materials</p> <p>Co-author of 2 lectures:</p> <p>UV triggered basal spacing shifts in smectite intercalates</p> <p>Layered minerals as supports for magnetite nanoparticles and their use for aqueous As(V) removal.</p>
2017.06.2-7	<p><i>54th Annual Meeting of the Clay Minerals Society (Living Clays)</i>, Edmonton, Canada.</p> <p>Co-author of 2 posters:</p> <p>Monitoring and understanding the UV induced structural changes</p>

	for functionalized smectites and kanemite. The LDH-based magnetic nanocomposites for the removal of As(V) and Mo(VI) anionic species.
2017.03.29-2017.04.02	<i>XVII International Conference of Young Geologist</i> , Dobczyce, Poland. Co-author of 3 lectures: Efficiency of selected anions removal by kaolinite impregnated with iron-bearing nanoparticles The novel magnetic adsorbents doped with Fe ₃ O ₄ nanoparticles for As(V) and Cr(VI) removal Photoactivity of organically modified layered minerals
2016.12.02	<i>Meeting of Polish Clay Group</i> , Kraków, Poland. Co-author of oral presentation: Fotoaktywne nanomateriały hybrydowe otrzymane na bazie minerałów o budowie warstwowej (<i>eng. Photoactive hybrid nanomaterials based of layered minerals</i>)
2016.07.4-8	<i>8th Mid-European Clay Conference</i> , Kosice, Slovakia. Co-author of 2 posters: Molecular dynamics simulations of azobenzene intercalates in smectites Structural differences of kaolinite and montmorillonite co-intercalated with ammonium salts and azobenzene The effect of experimental factors on alkali activation of halloysite
2016.06.5-8	<i>53rd Annual Meeting of the Clay Minerals Society (Resurgent Clays)</i> , Atlanta, USA. Co-author of lectures: Photoactivity of azobenzene intercalated in organo-smectites
2016.04.14-16	<i>XVII International Conference of Young Geologists</i> , Svaty Jur, Slovakia. Co-author of 2 lectures: Na-montmorillonite modified with ammonium salts and azobenzene as a photoactive nanomaterial The influence of alkali concentration and temperature on chemical activation of halloysite
2015.09.21-23	<i>2nd Mineral-based Sorbents Conference</i> , Kraków, Poland. Co-author of 2 lectures: Charakterystyka porównawcza zdolności sorpcyjnych haloizytu surowego, kalcynowanego i aktywowanego kwasowo względem Pb(II), Cd(II), Zn(II) oraz As(V) (<i>eng. A comparative study of raw, calcined and acid activated halloysite sorption capacity towards Pb(II), Cd(II), Zn(II) and As(V)</i>) Organo-kaolinit jako adsorbent jonów Cr(III) i Ni(II) (<i>eng. Organo-kaolinite as an adsorbent of Cr(III) and Ni(II) ions</i>) Co-author of poster: Charakterystyka strukturalna minerałów z grupy smektytu interkalowanych bromkiem heksadecylotrimetyloamoniowym (<i>eng. Structural characterization of smectite group minerals intercalated with hexadecyltrimethylammonium bromide</i>)
2015.07.5-10	<i>EuroClay 2015 – European Conference on Clay Science and Technology</i> , Edinburgh, Scotland. Co-author of lecture: Structure and photoresponse of azobenzene-smectite intercalation

	<p>compounds to UV radiation</p> <p>Co-author of poster: Co-remediation method of nickel contaminated soil by halloysite and Indian mustard (<i>Brassica juncea</i> L.)</p>
2015.05.7-9	<p><i>XVI International Conference of Young Geologists</i>, Herlany, Slovakia -</p> <p>Co-author of 2 lectures: Preparation and characterization of azobenzene–smectite photoactive mineral nanomaterials A comparative study on the removal of Pb(II), Zn(II), Cd(II) and As(V) by natural, acid activated and calcinated halloysite</p>
2014.09.16-19	<p><i>7th Mid-European Clay Conference</i>, Dresden, Germany.</p> <p>Co-author of lecture: Sorption efficiency of selected metals on kaolinites grafted with aminoalcohols</p> <p>Co-author of poster: Pillared montmorillonites as catalysts for removal of chlorinated volatile organic compounds from air - textural characterization</p>
2014.05.17-21	<p><i>51th Annual Meeting of the Clay Minerals Society</i>, College Station, Texas, USA.</p> <p>Co-author of poster: Efficiency and mechanism of heavy metals sorption on grafted kaolinites of different structural order</p>
2014.05.8-10	<p><i>XV International Conference of Young Geologists</i>, Międzybrodzie Żywieckie, Poland.</p> <p>Co-author of 4 lectures: Improved copper sorption on grafted kaolinites of different structural order The kinetics of heavy metals immobilization by modified halloysite Competitive sorption of selected anions on modified halloysite Quantitative determination of ammonium salts in organo zeolites by infrared spectroscopy</p>
2013.09.16-18	<p><i>1st Mineral-based Sorbents Conference</i>, Kraków, Poland.</p> <p>Co-author of lecture: Sorpcja BTX na organo-zeolicie (<i>eng. Sorption of BTX on organo-zeolite</i>)</p> <p>Co-author of 2 posters: Interkalaty kaolinitu z solami amoniowymi i ich zdolność do usuwania chromianów z roztworów wodnych (<i>eng. Intercalates of kaolinite with ammonium salts and their ability to remove chromates from aqueous solution</i>) Sorpcja kadmu na modyfikowanym haloizycie (<i>eng. Sorption of cadmium on modified halloysite</i>)</p>
2013.04.4-6	<p><i>XIV International Conference of Young Geologists</i>, Svätý Jur, Slovakia.</p> <p>Co-author of 2 lectures: Halloysite-based material with improved cation sorption properties Intercalates of kaolinite with ammonium salts and their interaction with aqueous Cr(VI) ions</p>

2012.09.4-9	<p><i>6th Mid-European Clay Conference, Pruhonice, Czech Republic</i> Co-author of lecture: Synthetic halloysite-type nanotubes as additives for polymer composites Co-author of poster: Pillared montmorillonites as catalysts for removal of chlorinated volatile organic compounds from air: structural characterization</p>
2012.04.26-28	<p><i>XIII International Conference of Young Geologists, Herlany, Slovakia.</i> Co-author of 3 lectures: Synthesis of kaolinite derivatives with aromatic chemical compounds Formation of kaolinite complex with methylene blue Characterization of CO₃²⁻ substitution in hydroxylmimetite Pb₅(AsO₄)₃OH</p>
2011.04.28-30	<p><i>XII International Conference of Young Geologists, Kamienica, Poland.</i> Co-author of 2 lectures: Intercalation of dodecylamine into kaolinites of high structural order Methanol complexes with kaolin minerals of low structural order-IR study</p>

Session organization and chairman

2023.07.24-27	<p><i>EUROCLAY 2023 International Conference of European Clay Groups Association, Bari, Italy</i> Session organizer and chairman: Kaolin group minerals: from traditional applications to advanced functional nanomaterials for industry and environmental protection (co-organizers: Prakash Malla, Gustave Kenne Dedzo).</p>
2020.10.18-23 (virtual)	<p><i>57th Annual Meeting of The Clay Minerals Society – Clays on the Columbia: Bridging Scales and Disciplines, Richland, WA, USA.</i> Session organization and chairman: Clays for antibacterial/medicinal applications (co-organizer: Dr. Youjun Deng – Texas A&M University, College Station, TX, USA)</p>
2017.09.18-19	<p><i>3rd Mineral-based Sorbents Conference, Kraków, Poland.</i> Session chairman: Sesja III</p>
2017.03.29- 2017.04.02	<p><i>XVII International Conference of Young Geologists, Dobczyce, Poland.</i> Session chairman: Session 1</p>
2016.07.4-8	<p><i>8th Mid-European Clay Conference, Kosice, Slovakia.</i> Session organization and chairman: Modifications and synthesis of clays</p>
2015.09.21-23	<p><i>2nd Mineral-based Sorbents Conference, Kraków, Poland.</i> Session chairman: Sorbenty ilaste i żelaziste (eng. Clay and iron sorbents)</p>
2015.07.5-10	<p><i>EuroClay 2015 – European Conference on Clay Science and Technology, Edinburgh, Scotland.</i> Session chairman: General Session</p>

Conference organization

- **2019** – *3rd European Mineralogical Conference, Kraków* – participation in the work of Organizing Committee (consultant)
- **2019** – *4th Mineral-based Sorbents Conference, Jerzmanowice, Poland* – member of Organizing Committee
- **2018** – *9th International Conference on the Occurrence, Properties, and Utilization of Natural Zeolites - Zeolite 2018, Kraków* - participation in the work of Organizing Committee (consultant)
- **2017** – *3rd Mineral-based Sorbents Conference, Kraków, Poland* – member of Organizing Committee
- **2015** – *2nd Mineral-based Sorbents Conference, Kraków, Poland* – member of Organizing Committee
- **2013** – *1st Mineral-based Sorbents Conference, Kraków, Poland* – member of Organizing Committee
- **2008** – *4th Mid-European Clay Conference, Zakopane, Poland* – member of Organizing Committee

Membership in international or national organizations and scientific societies

- **2024**: American Chemical Society (**member**)
- **2022**: Geochemical Society (**member**)
- **2021-now**: Polish Chemical Society (**member**)
- **2020-now**: Alumni Association U.S. State Department Exchange Programs (**member**)
- **2010-now**: Clay Minerals Society (**member**)
- **2016-2020**: Mineralogical Society of Poland (**vice-president**)
- **2015-2018**: Committee of Mineralogical Sciences PAS (**member**)

Internships completed in scientific institutions

2019.08.12 – 2020.02.12	Fulbright Senior Award – scholarship for research and teaching stay at the Texas A&M University, Department of Soil and Crop Sciences, Supervisor: Dr. Youjun Deng (College Station, TX, USA) Title of research project: Immobilization of mycotoxins by new mineral-based adsorbents. Teaching: Soil Mineralogy course
2019.12.11-14	<i>University of Kentucky, Lexington, KY, USA.</i> Fulbright Visiting Scholar Enrichment Seminar “Combating Addiction” Participant of the workshop as part of the Fulbright Senior Award scholarship.
2019.04.22-26	Research stay at the Faculty of Technology, Chemical Process Engineering Group, University of Oulu, Finland. Analyses and interpretation of results using X-ray photoelectron spectroscopy (XPS).

2017.11.20-24	Research stay at the Faculty of Technology, Chemical Process Engineering Group, University of Oulu, Finland. Analyses and interpretation of results using X-ray photoelectron spectroscopy (XPS) for characterization of LDH materials (layered double hydroxides).
2013.10.4-5	<i>Workshop on Advances Applications of Synchrotron Radiation in Clay Science</i> , Urbana-Champaign, IL, USA Participant of the workshop
2011.07.9-19	<i>EMU School: Layered materials and their applications in advanced technologies</i> , Rome, Italy. Participant of the workshop
2010.06.06	<i>Workshop on Materials & Clay Minerals</i> , Madrid, Spain. Participant of the workshop
2009.05.11-15	<i>Workshop focused on the use of software ArcGIS (distribution of heavy metals), FOCUS (geomonitoring)</i> , TU Bergakademie, Freiberg, Germany. Participant of the workshop
2008.09.10-11	<i>Powder Diffraction & Rietveld Refinement Methods Workshop</i> , Szklarska Poręba, Poland. Participant of the workshop
2008.01.21-23	<i>School on Synchrotron X-ray and IR Methods Focussing on Environmental Sciences – Forschungszentrum</i> , Karlsruhe, Germany. Participant of the workshop
2007.09.3-5	<i>Workshop and field trip to deposits of clay minerals and zeolites in Slovakia and Hungary (financed by Comenius University in Bratislava – UE funds)</i> . Participant of the workshop
2007.08.12-17	<i>Nanosopic Approaches in Earth and Planetary Sciences - 9th EMU School organized by European Mineralogical Union and Ludwig Maximilians University</i> , Munich, Germany. Participant of the workshop
2005.12	<i>Electron Backscatter Diffraction in Material Sciences – workshop organized by FEI company and AGH University</i> , Kraków, Poland. Participant of the workshop

Membership in editorial committees and scientific boards of journals

- **2023-now:** Editorial Board member - Applied Clay Science (Elsevier)
- **2021:** Guest co-editor of a special issue in Materials Journal MDPI. Title: Functionalized Mineral Materials in Environmental and Civil Engineering, Ceramics, Foundry and Metals (co-editor: prof. Tomasz Bajda).
- **2020-now:** Editorial Board member - Materials MDPI Journal.
- **2019-2020:** guest editor of a special issue in Materials Journal MDPI. Title: Layered Double Hydroxides (LDH) and LDH-based hybrid composites.
- **2014-2024:** editorial board member - Geology, Geophysics & Environment Journal

Reviews of manuscripts

Journal	No. reviews
ACS Omega	1
Acta Geologica Polonica	1
Applied Clay Science	40
Applied Geochemistry	1
Applied Surface Science	2
Catalysts	1
Chemical Engineering Journal	7
Chemical Record	1
Chemosphere	4
Clay Minerals	5
Clays and Clay Minerals	15
Colloids and Surfaces A: Physicochemical and Engineering Aspects	3
Crystals	2
Dalton Transactions	1
Desalination and Water Treatment	1
Dyes and Pigments	1
Environmental Technology	1
Fuel	1
Industrial & Engineering Chemistry Research	2
Journal of Applied Polymer Science	1
Journal of Colloid and Interface Science	7
Journal of Environmental Chemical Engineering	2
Journal of Environmental Management	1
Journal of Environmental Science and Health A	1
Journal of Environmental Sciences	1
Journal of Hazardous Materials	6
Journal of Molecular Structure	1
Journal of Physical Chemistry C	4
Journal of the Brazilian Chemical Society	1
Journal of Water Process Engineering	1
Langmuir	2
Macromolecules (ACS)	1
Materials (MDPI)	1
Materials Chemistry and Physics	1
Materials Science and Engineering B	1
Materials Science Poland	1
Mineralogia	1
Minerals (MDPI)	4
Polymer Bulletin	1

Polymer International	1
Powder Technology	1
RSC Advances	1
Science of the Total Environment	2
Soil Science Annual	1
Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy	1
Sustainability	2
Water	1
Water Resources and Industry	1
Total	140

Academic classes run for university students

- **Agromineralogy and elements of soil science**
In Polish: Agromineralogia i podstawy gleboznawstwa (*II cycle, I year, specialization: Mineralogy and Applied Geochemistry*) (2006–2007)
- **Phase and chemical analysis in environmental protection**
In Polish: Badania fazowe i chemiczne w ochronie środowiska (*I cycle, III year, OŚ*) (2014-2015)
- **Chemistry**
In Polish: **Chemia** (*I cycle, I year, OŚ, GF, GG, IŚ*) (2010–now)
- **Organic chemistry**
In Polish: Chemia organiczna (*II cycle, II year, specialization Mineral Engineering, IŚ and Functional Mineral Materials, IOŚ*) (2015-2023)
- **Environmental chemistry**
In Polish: **Chemia środowiska** (*I cycle, II year, IŚ*) (2014–now)
- **Geochemistry**
In Polish: **Geochemia** (*I cycle, III year, GG, IŚ*) (2006–now)
- **Graduate Seminar** (*II cycle, II year, specialization Earth and Extraterrestrial Materials, GS*) (2023–now)
- **Mineral-based materials in technologies** (*II cycle, II year, specialization Earth and Extraterrestrial Materials, GS*) (2023–now)
- **Mineral catalysts**
In Polish: Katalizatory Mineralne (*II cycle, II year, specialization Mineral Engineering, IŚ and Functional Mineral Materials, IOŚ*) (2015–now)
- **Geology, mineralogy and petrography**
In Polish: Geologia, mineralogia i petrografia (*part-time studies II and III year*) (2006–2010)
- **Geomaterials**
In Polish: Geomateriały (*I cycle, IOŚ*) (2020–now)
- **Instrumental analytical methods**
In Polish: Instrumentalne metody analityczne (*II cycle, II year, specialization Assessment of the State of Environment, OŚ, I cycle, IOŚ*) (2012, 2021–now)
- **Mineral Engineering**
In Polish: Inżynieria Mineralna (*II cycle, II year, IŚ, OŚ*) (2013–now)
- **Spectroscopic methods** (within courses: Analysis methods of minerals and rock and Phase analysis methods)

In Polish: Metody spektroskopowe (w ramach przedmiotów: Metody badań minerałów i skał oraz Metody badań fazowych) (*I cycle, III year, GG, IS*) (2014–now)

- **Clay minerals and clay raw materials**
In Polish: Minerale i surowce ilaste (*II cycle, I year, specialization Applied Mineralogy, GS*) (2020-now)
- **Minerals in nanotechnology**
In Polish: Minerale w nanotechnologiach (*II cycle, II year, specialization Mineral Engineering, IS and Functional Mineral Materials, IOS*) (2015-now)
- **Mineralogy**
In Polish: Mineralogia (*I cycle, II year, GG, IS*) (2010–2013)
- **Doctoral seminar** (*WGGiOŚ, AGH*) (2022-now)
- **Raw materials on Earth and from space** (*II cycle, II year, specialization Earth and Extraterrestrial Materials, GS*) (2023-now)
- **Soil Mineralogy** (*conducted during stay at Texas A&M University, Department of Soil and Crop Sciences, College Station, TX, USA*) (2019-2020)
- **Mineral and organic sorbents**
In Polish: Sorbenty mineralne i organiczne (*II cycle, II year, specialization Mineral Engineering, IS and Functional Mineral Materials, IOS*) (2015-now)
- **Synthesis of mineral functional materials**
In Polish: Synteza mineralnych materiałów funkcjonalnych (*II cycle, I year, specialization Functional Mineral Materials, IOS*) (2020-now)
- **Advanced methods for mineral analysis**
In Polish: Zaawansowane metody badań minerałów (*II cycle, I year, specialization Functional Mineral Materials, IOS*) (2020-now)

Branch of studies: *GG – mining and geology, IS – environmental engineering, GF – geophysics, OS – environmental protection, GS – applied geology, IOS – environmental protection and engineering*

Supervisor

Supervised master's theses

Academic year	Person
2021/22	<i>Msc. Klaudia Dziewiątka. Hydrotalkitowo-zeolitytowe kompozyty mineralne o dualnych właściwościach sorpcyjnych (eng. Hydrotalcite-zeolite mineral composites with dual adsorption properties)</i>
	<i>Msc. Anna Jędras. Impregnacja montmorillonitu materiałami typu LDH o różnym składzie chemicznym – w kierunku adsorbentów o dualnych właściwościach sorpcyjnych (eng. Impregnation of montmorillonite with LDH materials of different chemistry – towards adsorbents with dual adsorption properties)</i>
	<i>Msc. Agnieszka Giera. Sposoby i efektywność regeneracji sorbentów mineralnych stosowanych do usuwania cynku z roztworów wodnych (eng. Methods and efficiency of mineral sorbents' regeneration used for zinc removal from aqueous solutions)</i>
	<i>Msc. Kinga Lis. Synteza sorbentów mineralnych dotowanych metalami przejściowymi do usuwania styrenu.</i>

	<i>(eng. Synthesis of mineral sorbents doped with transition elements for the removal of styrene)</i>
2018/19	<i>Msc. Agnieszka Luber. Efektywność krystalizacji i charakterystyka mineralogiczna faz hydrotalkitowych powstających w procesach oczyszczania ścieków (eng. Efficiency of crystallization and mineralogical characterization of hydrotalcite phases which precipitate during wastewater treatment)</i>
	<i>Msc. Anna Kunecka. Surowe i modyfikowane minerały o budowie warstwowej jako sorbenty lotnych związków organicznych (eng. Raw and modified layered minerals as sorbents of volatile organic compounds)</i>
2017/18	<i>Msc. Bartosz Toboła. Synteza i charakterystyka nanokompozytów na bazie minerałów warstwowych oraz ich zdolność do usuwania anionów z systemów wieloskładnikowych (eng. Synthesis and characterization of nanocomposites based on layered minerals and their use for the removal of anions from multi-element solutions)</i>
	<i>Msc. Joanna Kuzdro. Efektywność oczyszczania wód typu AMD przez kalcynowane kompozyty mineralne (eng. Efficiency of AMD water clarification by calcined mineral composites)</i>
	<i>Msc. Monika Kuzko. Haloizyt impregnowany nanocząstkami żelaza: wpływ warunków syntezy na strukturę i właściwości sorpcyjne w warunkach symulujących rzeczywiste zanieczyszczenia (eng. Halloysite impregnated with iron nanoparticles: the effect of synthesis procedure on its structure and sorption properties in conditions simulating real pollution)</i>
2016/17	<i>Msc. Jakub Hyla. Nanokompozyty haloizytowe oraz ich właściwości sorpcyjne względem wybranych anionów (eng. Halloysite-based nanocomposites and their sorption properties towards selected anions)</i>
	<i>Msc. Karolina Rybka. Efektywność oczyszczania roztworów wodnych z wybranych anionów przez nanokompozyty otrzymane na bazie kaolinitu ze złoża Maria III (eng. Efficiency of aqueous solution remediation from selected anions by nanocomposites derived Maria III kaolinite)</i>
	<i>Msc. Katarzyna Suwała. Sorpcja wybranych kationów na kaolinicie modyfikowanym przez nanocząstki żelaza (eng. Sorption of selected cations on kaolinite modified with iron nanoparticles)</i>
	<i>Msc. Anna Łepko. Mineralne nanoczuJNIKI reagujące na promieniowanie UV na bazie fosforanu cyrkonu (eng. Mineral nanosensors responsive to UV radiation based on zirconium phosphate)</i>
2015/16	<i>Msc. Izabela Biskup. Mineralne nanomateriały fotoaktywne otrzymywane na bazie krystalicznego fosforanu cyrkonu (eng. Mineral photoactive nanomaterials obtained from crystalline zirconium phosphate)</i>
	<i>Msc. Mateusz Dyrek. Haloizyt kalcynowany oraz aktywowany kwasowo jako sorbenty wybranych zanieczyszczeń organicznych i nieorganicznych (eng. Calcined and acid activated halloysites as sorbents of selected organic and inorganic pollutants)</i>
	<i>Msc. Karolina Góra. Mineralne nanomateriały fotoaktywne otrzymywane na bazie syntetycznego kanemitu (eng. Mineral photoactive nanomaterials obtained from synthetic kanemite)</i>
	<i>Msc. Andrzej Kałkowski. Syntetyczne nanorurki kaolinitowe - modyfikacja</i>

	<p>i właściwości fotoaktywne (<i>eng. Synthetic kaolinite nanotubes – modification and photoactive properties</i>)</p> <p><i>Msc. Weronika Vanik. Skład mineralny i właściwości chemiczne suchej masy pofermentacyjnej pochodzącej z biogazowni rolniczej w Sobowinach koło Opoczna (eng. Chemical and mineralogical composition and sorption properties of dried, fermented biomass from agricultural biogas plant in Sobowiny near Opoczno (Poland))</i></p>
	<p><i>Msc. Anna Prokop. Możliwość wykorzystania haloizytu ze złoża Dunino oraz odpadowego łu smektytowego jako sorbentów szkodliwych jonów (eng. The possibility of using halloysite from Dunino deposit and smectite-bearing waste as sorbents of harmful ions)</i></p> <p><i>Msc. Paulina Maziarz. Charakterystyka porównawcza właściwości sorpcyjnych modyfikowanego na skalę przemysłową haloizytu i odpadowego łu smektytowego (eng. Comparative characteristics of adsorption properties for commercial halloysite and smectite-bearing waste)</i></p>
2014/15	<p><i>Msc. Barbara Kardyś. Wyznaczanie gęstości ładunku powierzchniowego i pojemności kationowymiennej dla wybranych minerałów (eng. Determination of surface charge density and cation exchange capacity for selected minerals)</i></p> <p><i>Msc. Anna Czerwonka. Interkalaty minerałów ilastych i ich reakcja na promieniowanie UV (eng. Intercalation compounds of clay minerals and their reaction to UV radiation)</i></p> <p><i>Msc. Justyna Naglik. Ocena efektywności desorpcji wybranych jonów toksycznych dla gleb (eng. The assessment of selected toxic ions desorption from soils)</i></p>
2013/14	<p><i>Msc. Anna Koteja. Efektywność i mechanizm sorpcji wybranych jonów na modyfikowanych kaolinitach o różnym stopniu uporządkowania struktury (eng. Sorption efficiency and mechanisms for selected ions on modified kaolinites of different structural order)</i></p> <p><i>Msc. Michał Białoń. Haloizyt podpierany polikationami metalohydroksylowymi - próba syntezy i właściwości (eng. Halloysite pillared with polycations – synthesis approach and properties)</i></p>
2012/13	<p><i>Msc. Lucyna Matykowska. Interkalaty kaolinitu z solami amoniowymi i ich interakcja z wybranymi anionami (eng. Kaolinite intercalation compounds with ammonium salts and their interaction with selected anions)</i></p> <p><i>Msc. Anna Wścisko. Sorpcja metali ciężkich na zmodyfikowanym haloizycie (eng. Sorption of heavy metals on modified halloysite)</i></p>

Supervised bachelor's theses

Academic year	Person
2024/25	<i>inż. Amelia Bartusiak. Badanie mechanizmów fotodegradacji zearalenonu przez fotokatalizatory na bazie syntetycznych nanorurek kaolinitowych (eng. Investigation of the zearalenone photodegradation mechanisms by photocatalysts based on synthetic kaolinite nanotubes)</i>

	<p><i>inż. Izabela Nosidlak. Efektywność i mechanizmy usuwania wybranych metali ciężkich przez geopolimery otrzymane z bentonitu (eng. Efficiency and mechanisms of selected heavy metals removal by geopolymers obtained from bentonite)</i></p> <p><i>inż. Nikola Rystwej. Efektywność fotodegradacji estronu w świetle widzialnym z użyciem materiałów hydrotalkitopodobnych zbudowanych z trzech metali (eng. Efficiency of estrone photodegradation under visible light using ternary hydrotalcite-like materials)</i></p> <p><i>inż. Tytus Zegadłowicz. Efektywność fotodegradacji atrazyny pod wpływem promieniowania UV w obecności nanorurkowego fotokatalizatora kaolinitowego (eng. Efficiency of atrazine photodegradation under UV radiation in the presence of nanotubular kaolinite-based photocatalyst)</i></p>
2023/24	<p><i>Eng. Agnieszka Węgrzyn. Ocena efektywności adsorpcji estronu z roztworów wodnych przez surowe i modyfikowane minerały ilaste hydrotalkitowe (eng. Assessment of estrone adsorption efficiency from aqueous solutions by raw and modified clay minerals).</i></p> <p><i>Eng. Krzysztof Siwek. Eksperymentalna ocena efektywności usuwania atrazyny z roztworów wodnych przez modyfikowany montmorillonit hydrotalkitowe (eng. Experimental evaluation of atrazine removal efficiency from aqueous solutions by modified montmorillonite).</i></p>
2020/21	<p><i>Eng. Klaudia Dziewiątka. Efektywność usuwania jonów wanadu z modelowych roztworów wodnych przez syntetyczne sorbenty hydrotalkitowe (eng. Efficiency of vanadium ions removal from model aqueous solutions by synthetic hydrotalcite-like adsorbents).</i></p> <p><i>Eng. Agnieszka Giera. Ocena możliwości wykorzystania minerałów hydrotalkitowych do usuwania jonów molibdenu z modelowych roztworów wodnych (eng. Assessment of the possibility of using hydrotalcite-like minerals for the removal of molybdenum ions from aqueous solutions).</i></p>
2016/17	<p><i>Eng. Dawid Koziń. Wpływ obecności minerałów ilastych na degradację wybranych polimerów biodegradowalnych (eng. The effect of clay minerals presence on the degradation of selected biodegradable polymers)</i></p> <p><i>Eng. Bartosz Toboła. Charakterystyka mineralogiczna wermikulitu oraz jego zdolność do usuwania jonów ołowiu i kadmu z roztworów wodnych (eng. Mineralogical characterization of vermiculite and its capability to remove lead and cadmium from aqueous solutions)</i></p>
2015/16	<p><i>Eng. Karolina Jaworska. Badania mechanizmu adsorpcji jonów P(V) na haloizycie naturalnym ze złoża Dunino (eng. The investigation of P(V) adsorption mechanisms on natural halloysite from Dunino deposit)</i></p> <p><i>Eng. Igor Keller. Spektroskopowa identyfikacja kationów wymiennych w strukturze minerałów smektytowych (eng. Spectroscopic identification of exchangeable cations in smectite structure)</i></p> <p><i>Eng. Konrad Kieroński. Zeolitowe struktury metaloorganiczne jako sita molekularne do oczyszczania gazów (eng. Metalloorganic zeolitic structures as molecular sieves for gas cleaning)</i></p> <p><i>Eng. Jakub Krejpcio. Kanemit - synteza i modyfikacja struktury z użyciem czwartorzędowych soli amoniowych (eng. Kanemite – synthesis and modification using quaternary ammonium salts)</i></p> <p><i>Eng. Anna Łepko. Struktura krystaliczna syntetycznego fosforanu cyrkonu</i></p>

	<p>i próba jej modyfikacji (<i>eng. Structure of synthetic zirconium phosphate and its modification possibilities</i>)</p>
	<p>Eng. Marlena Mączka. Badania mechanizmu adsorpcji jonów As(V) na haloizycie naturalnym ze złoża Dunino (<i>eng. The investigation of As(V) adsorption mechanisms on natural halloysite from Dunino deposit</i>)</p>
2014/15	<p>Eng. Izabela Biskup. Efektywność sorpcji jonów Ni(II) i Cr(III) na modyfikowanym kaolinicie ze złoża Maria III (<i>eng. The efficiency of Ni(II) and Cr(III) sorption by modified Maria III kaolinite</i>)</p>
	<p>Eng. Karolina Góra. Sorpcja Ni(II) i Cr(III) na modyfikowanym kaolinicie ze złoża Rusko-Jaroszów (<i>eng. Sorption of Ni(II) and Cr(III) by modified kaolinite from Rusko Jaroszów deposit</i>)</p>
	<p>Eng. Mateusz Dyrek. Wykorzystanie kwasów organicznych do syntezy sorbentu metali ciężkich na bazie kaolinitu (<i>eng. The use of organic acids for synthesis of heavy metal sorbents based on kaolin group minerals</i>)</p>
	<p>Eng. Karol Kopeć. Efektywność sorpcji barwników na kaolinicie metylowym (<i>eng. The efficiency of dyes sorption by methoxy-kaolinite</i>)</p>
	<p>Eng. Łukasz Karus. Technologie sekwestracji CO₂ - obecne rozwiązania i perspektywy na przyszłość (<i>eng. CO₂ sequestration technologies – current solutions and future perspectives</i>)</p>
	<p>Eng. Jan Wańczyk. Metale i metaloidy w glebach - biodostępność i wpływ na organizmy (<i>eng. Metals and metalloids in soils – bioavailability and their effect on organisms</i>)</p>
2013/14	<p>Eng. Barbara Długosz. Charakterystyka mineralogiczna sepiolitu oraz ocena jego zdolności do usuwania jonów ołowiu (<i>eng. Mineralogical characterization of sepiolite and its affinity to remove aqueous lead</i>)</p>
	<p>Eng. Paulina Maziarz. Kinetyka immobilizacji wybranych metali ciężkich na modyfikowanym haloizycie (<i>eng. Kinetics of selected heavy metals immobilization by modified halloysite</i>)</p>
	<p>Eng. Anna Prokop. Konkurencyjna sorpcja kationów i anionów na modyfikowanym haloizycie (<i>eng. Competitive cations and anions adsorption on modified halloysite</i>)</p>
	<p>Eng. Hubert Makula. Termodynamika procesu sorpcji na modyfikowanym haloizycie (<i>eng. Thermodynamics of sorption process on modified halloysite</i>)</p>
	<p>Eng. Agnieszka Perkun. Charakterystyka porównawcza właściwości sorpcyjnych wybranych zeolitów (<i>eng. Comparative characterization of sorption properties for selected zeolites</i>)</p>
	<p>Eng. Ewa Pstrucha. Zeolit syntetyczny - synteza i charakterystyka oraz możliwości wykorzystania (<i>eng. Synthetic zeolite – synthesis, characterization and application possibilities</i>)</p>
2012/13	<p>Eng. Alicja Pstrucha. Modyfikacja zeolitu syntetycznego w celu polepszenia jego właściwości kationowymiennych (<i>eng. Synthetic zeolite modification to improve its cation exchange properties</i>)</p>
	<p>Eng. Kornelia Sawińska. Modyfikacja kaolinitu przez jednoczesne wprowadzenie do przestrzeni międzypakietowej dwóch wybranych soli amoniowych (<i>eng. Kaolinite modification by simultaneous intercalation of two selected ammonium salts</i>)</p>
	<p>Eng. Anna Koteja. Analiza spektroskopowa gleb pod kątem składu mineralnego i zanieczyszczeń związkami organicznymi</p>

	<i>(eng. Spectroscopic analysis of soils for determination of mineral composition and content of organic substances)</i>
	<i>Eng. Łukasz Barwiński. Charakterystyka mineralogiczna minerałów ilastych z wybranych złóż w Nevadzie (USA) (eng. Mineralogical characterization of clay minerals from selected deposits in Nevada State, USA)</i>
2011/12	<i>Eng. Lucyna Matykowska. Wpływa warunków syntezy na tworzenie się kompleksu kaolinitu z sulfotlenkiem dimetylu (eng. The influence of synthesis conditions on formation of kaolinite intercalate with dimethyl sulphoxide)</i>
	<i>Eng. Anna Wścisko. Wpływ warunków syntezy na tworzenie się kompleksu kaolinitu z mocznikiem (eng. The influence of synthesis conditions on formation of kaolinite intercalate with urea)</i>
	<i>Eng. Paulina Metzler. Przemysłowe zastosowania minerałów smektytowych (eng. Industrial applications of smectite group minerals)</i>

Supervised PhD students

Academic year	Person
2022/23	<i>Msc. Klaudia Dziewiątka</i> Title: Nanotubular materials based on kaolin group minerals for the photodegradation of selected mycotoxins in aqueous environment (AGH Doctoral School)
	<i>Msc. Anna Jędras</i> Title: Mineral composites derived from layered crystal structures for the photodegradation of organic pollutants in a dynamic flow-through reactor (AGH Doctoral School)
2017/18	<i>Dr. Karolina Rybka</i> Title: Hydrotalcite-like adsorbents derived via transformation of selected minerals for the removal of anions from aqueous solutions PhD thesis – supervisor in accordance with the resolution of the Faculty Council dated 29.05.2017 (opened doctoral dissertation). PhD thesis defence on 03.10.2022. The doctoral degree was awarded and the distinction of the thesis was given in resolutions of Discipline Council (Earth and related environmental sciences) on 24.10.2022.
2016/17	<i>Dr. Paulina Maziarz</i> Tytuł: Minerale warstwowe dotowane nanocząstkami zawierającymi żelazo o właściwościach redukcyjnych i magnetycznych do usuwania i separacji wybranych jonów nieorganicznych <i>(eng. Layered minerals doped with nanoparticles containing iron showing reductive and magnetic properties for the removal and separation of selected inorganic ions)</i> PhD thesis – supervisor in accordance with the resolution of the Faculty Council dated 29.05.2017 (opened doctoral dissertation).

	<p>PhD thesis defence on 22.10.2020. The doctoral degree was awarded in resolutions of Discipline Council (Earth and related environmental sciences) on 07.12.2020.</p>
2015/16	<p><i>Dr. Anna Koteja</i> Tytuł: Photoactive hybrid nanomaterials derived from layered minerals PhD thesis – supervisor in accordance with the resolution of the Faculty Council dated 23.05.2016 (opened doctoral dissertation). PhD thesis defence on 22.07.2019. The doctoral degree was awarded and the distinction of the thesis was given in resolutions of Faculty Council on 30.09.2019.</p>
2013/14	<p><i>Dr. Barbara Szala</i> Tytuł: Wytwarzanie i użycie organo-zeolitów jako sorbentów związków ropopochodnych (<i>eng. Production and utilization of organo-zeolites as sorbents of petroleum compounds</i>) PhD thesis – co-supervisor in accordance with the resolution of the Faculty Council dated 9.12.2013 (opened doctoral dissertation). The doctoral degree was awarded and the distinction of the thesis was given in resolutions of Faculty Council on 24.10.2016.</p>

Awards and distinctions

Year	Description
2024	AGH Award for the top 10 publishing scientists in the discipline of Earth and related environmental sciences
2024	AGH Rector Team Award for didactic achievements (3 rd degree) – development and organization of new specialization: Earth and Extraterrestrial Materials (branch: Applied Geology, 2 nd cycle)
2023	AGH Award for the top 10 publishing scientists in the discipline of Earth and related environmental sciences
2022	AGH Rector Award for individual scientific achievements (3 rd degree)
2022	AGH Rector Team Award for didactic achievements (2 nd degree) – and organization (Preparation and presentation of GeoLesson)
2021	AGH Award for the top 10 publishing scientists in the discipline of Earth and related environmental sciences
2020	AGH Rector Award for individual scientific achievements (1 st degree)
2020	AGH Rector Team Award for didactic achievements (3 rd degree) – development and organization of new specialization: Functional Mineral Materials (branch: Environmental Protection and Engineering, 2 nd cycle)
2019	Fulbright Senior Award – scholarship for research and teaching stay at the A&M Texas University (College Station, TX, USA)
2018	AGH Rector Award for individual scientific achievements (2 nd degree)

2018	AGH Rector Team Award for didactic achievements (3 rd degree) - conducting didactic activities for high school and elementary school students.
2017	AGH Rector Award for individual scientific achievements (3 rd degree)
2016	AGH Rector Award for individual scientific achievements (2 nd degree)
2015	AGH Rector Award for individual scientific achievements (2 nd degree)
2014	AGH Rector Award for individual scientific achievements (2 nd degree)
2014	Gold award given by AGH Students' Geological Research Group (SKNG AGH) for contribution in the development of students' research
2013	START Scholarship awarded by the Foundation for Polish Science, Warsaw, Poland
2013	AGH Rector Award for individual scientific achievements (2 nd degree)
2012	AGH Rector Team Award for scientific achievements (2 nd degree)
2011	3-year Scholarship for outstanding young scientists awarded by the Ministry of Science and Higher Education, Warsaw, Poland
2011	AGH Rector Award for individual scientific achievements (3 rd degree)
2010	PhD Scholarship awarded by the President of Krakow City, Poland
2009	PhD Scholarship awarded by Voivode of Małopolska, Krakow, Poland
2007	Sapere Auso scholarship awarded for research devoted to environmental protection, Krakow, Poland
2006	1st prize awarded at the International Conference of Young Researchers, Mining Institute, Saint Petersburg, Russia
2004	3rd prize awarded at the XLV Student Scientific Conference, AGH University, Krakow, Poland

Kraków, 23rd December 2024