

CV

Personal details:

Surname:	Bajda
Name:	Tomasz
Address (Office):	Department of Mineralogy, Petrography and Geochemistry Faculty of Geology, Geophysics and Environmental Protection AGH University of Science and Technology al. Mickiewicza 30, 30-059 Kraków, Poland
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Educational background:

2020	Professor AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection <i>Natural sciences</i>
2016	Associate professor AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection.
2012	Habilitation in Earth Sciences , discipline: geology. AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Title of achievement: <i>Formation, stability, and transformations of lead arsenates and phosphates in an environment.</i>
2004	Ph.D. in Earth Sciences , discipline: mineralogy, petrography, geochemistry. AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Ph.D. thesis: <i>The geochemistry of chromium in soils contaminated with its compounds and contamination prevention by mineral sorbent application.</i> Supervisor: prof. Andrzej Manecki
1997	M.Sc. title AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Branch: Mining and Geology, specialization: Environmental Protection. M.Sc. thesis: <i>Location and attempt to neutralize the sources of chromium contamination of soils and groundwater in Zabierzów.</i> Supervisor: Jan Tarkowski, Ph.D.

Research interest:

- Determination of sorption properties of natural and modified minerals.
- Application of natural and synthetic mineral sorbents for sorption of inorganic and organic contaminants from solutions and gases.
- Modification of minerals in order to obtain functional mineral materials.
- Production of functionalized materials based on fly ashes.
- Modified clays as controlled remove vehicles for pesticides.
- Determination of soils contaminations and their remediation using functionalized materials
- Efficiency and mechanisms of heavy metals immobilization using phosphates (in situ phosphate induced metal stabilization).
- Chemistry, mineralogy and thermodynamic stability of heavy metal phosphates.
- Mineralogy and geochemistry of rocks and soils.

Research grants

2023-2020	Grant FNP TEAM-NET - Fly ash as the precursors of functionalized materials for applications in environmental engineering, civil engineering and agriculture (Principal Investigator at AGH)
2020-2017	Grant NCN/NCBR TANGO 2 - Remediation technology of aquatic environments polluted with anionic forms of elements with the use of functionalized kaolinite sorbents (Co-investigator).
2018-2017	Innovation Incubator+ - Production and application of a filter containing functionalized sorbent for the removal of volatile organic compounds (Principal Investigator) (WPP/1/14/2017)
2017-2014	Grant NCBiR INNOTECH (3/IN3/54/227695/NCBR/14) – An innovative and ecological process of metallurgical refining of cast iron in a casting reactor (Principal Investigator at AGH) Principal Investigator of Consortium: Ing. Zbigniew Stefański
2014-2011	Grant NCN SONATA (2011/01/D/ST10/06814) - Sorption properties of hybrid mineral nanomaterials derived from kaolin group minerals (Co-investigator) Principal Investigator: Dr. Jakub Matusik.
2014-2011	Grant NCBiR I PBS - The preparation and utilization of zeolite-based sorbents of petroleum compounds (Principal Investigator at AGH) Principal Investigator of Consortium: Prof. Wojciech Franus
2014-2011	Grant NCN HARMONIA - Precise determination of solubility constants in 5 - 65°C temperature range and DH_f , DG_f , DS for apatites in of Ca-Pb-P-As-OH-Cl type (Co-investigator) Principal Investigator: Prof. Maciej Manecki
2013-2010	Grant MNiSW (N N307 473638) - Mechanisms and dynamics of mineral transformations in young polar soils, Spitsbergen (Co-investigator) Principal Investigator: Prof. Andrzej Manecki
2012-2009	Grant MNiSW (N N525 461236) - The effect of remediation on the mobility of Pb, Zn, Cd, and As in silos polluted by Pb-Zn mining and

	smelting in Upper Silesia (Principal Investigator).
2011-2009	Grant MNiSW (N N507 316536) - Structure and properties of zeolites and smectites and their application for new ceramic materials (Co-investigator). Principal Investigator: Prof. Włodzimierz Mozgawa.
2011-2008	Grant MNiSW (N N307 101535) - Remobilization of Pb in the environment by bacteria mediated dissolution of pyromorphite $Pb_5(PO_4)_3Cl$ (Co-investigator) Principal Investigator: Prof. Maciej Manecki
2008-2005	Grant MNiI (2 P04D 01329) - Crystallochemistry of anionic substitutions and their effect on properties of isostructural minerals from pyromorphite-mimetite-vanadinite solid solution (Co-investigator) Principal Investigator: Prof. Maciej Manecki
2007-2004	Grant KBN (3 T08D 039 26) - Ceramic materials based on zeolites (Co-investigator). Principal Investigator: Prof. Włodzimierz Mozgawa.
2004-2002	Grant NFOŚiGW (296 2002/Wn-06/FG-90-tx/D) - An assessment of the usefulness bog iron ores as natural sorbents of toxic compounds in some technologies of environment protection. (Co-investigator). Principal Investigator: Prof. Tadeusz Ratajczak.
2002-1999	Grant KBN (7 T08D 039 17) - Structure of zeolites and their new applications in ceramics (Co-investigator). Principal Investigator: Prof. Włodzimierz Mozgawa.
2001-2000	Grant KBN (3 T09C 088 19) - Adsorption of chromium compounds by natural and waste mineral materials (Principal Investigator).

Scientific experience:*Conferences / lectures / workshops*

2020.06.21-26	<i>Goldschmidt Virtual 2020</i> Co-author of 3 oral presentations: Methods for optimization of hard coal fly ash quality : chances and risks in Central and Eastern Europe Stability of chromium compounds immobilized on organo-zeolites The influence of zeolites' surface modification on sorption, structural and textural features
2019.09.16-17	<i>4th Mineral-based Sorbents conference, Kraków, Poland</i> Co-author of 3 oral presentations: Functionalized materials based on fly ash activated by wastewater from commercial power engineering Waste materials as alternative sorbents of heavy metals – review Atrazine sorption on clay minerals modified with organic surfactants – review Co-author of 1 poster presentations: Two-stage granulation of composite sorbents for reducing sulfur content in cast iron
2019.07.01-05	<i>EUROCLAY 2019: international conference on clay science and technology, Paris, France</i> Lecture: Sorption of molybdates and tungstates on modified smectites Co-author of 2 poster presentations: Characterization of aluminum-based drinking water treatment residuals Modification of bentonite with mixed cationic-nonionic surfactants
2018.10.25-28	<i>Petrology in Narrow and Wide Perspective: 25 Years of Sessions of the Petrology Group of the Mineralogical Society of Poland, Brunów, Poland</i> Co-author of 3 poster presentations: Batch and column sorption of As(V) onto bog iron ores Effectiveness of water treatment residuals in removing heavy metals and metalloids from aqueous solutions How to Quantify Asbestos combining Point Counting and combined X-ray Diffraction, Infrared Spectroscopy and Thermal Analysis Session chairman
2018.10.16-18	<i>XXV International Conference Fly Ashes from the Power Engineering – Krynica Zdrój, Poland</i>
2018.06.24-29	<i>10th International Conference on the Occurrence, Properties, and Utilization of Natural Zeolites – Zeolite 2018, Krakow, Poland</i> Co-author of oral presentation: Hybrid sorption properties of zeolites: Adsorption of As(V), P(V) and Cl - by clinoptilolite exchanged with Pb, Zn and Cd
2018.06.11-14	<i>55th Annual Meeting The Clay Minerals Society, Urbana-Champaign, Illinois, USA</i> Lecture: Oxyanions sorption by organo-smectite
2018.04.05-06	<i>5th National Scientific Conference "Innovation in practice", Lublin,</i>

	<p><i>Poland.</i></p> <p>Invited lecture: Functional geomaterials as hybrid sorbents in engineering environment.</p>
2017.09.18-19	<p><i>3rd Mineral-based Sorbents conference, Kraków, Poland</i></p> <p>Co-author of 3 oral presentations: Current stage of knowledge relating to the use ferruginous sludge from water treatment plants – a preliminary review of the literature. Sorption of Pb²⁺ ions on mesoporous BEA zeolite. The removal of organic compounds by natural and synthetic surface-functionalized zeolites: a mini-review.</p> <p>Chair of the Conference</p>
2017.04.23-26	<p><i>1st Conference "Physical Chemistry of Phase Border - Instrumental Methods", Lublin, Poland.</i></p> <p>Invited lecture: Comparison of sorption capacity of mineral sorbents to anionic forms of elements</p> <p>Session chairman</p>
2017.03.30	<p>Invited lecture during the meeting of Institute of Geological Sciences; Geological Society of Poland; Mineralogical Society of Poland Committee of Mineralogical Sciences, Wrocław, Poland: What are organo-silicates and how can these synthetic minerals be used as sorbents? (in Polish).</p>
2016.06.07-09	<p><i>9th National Symposium "Science and industry - spectroscopic methods in practice, new challenges and opportunities", Lublin, Poland</i></p> <p>Invited lecture: Application of spectroscopic methods to identify sorption mechanisms of anionic forms of elements on organic silicate minerals</p>
2015.08.16-21	<p><i>Goldschmidt2015. Prague, Czech Republic</i></p> <p>Co-author of 2 oral presentations: Solubility of mimetite-vanadinite solid solution series – preliminary results The removal of tungstates from aqueous solution by organo-smectites</p> <p>Poster: Molybdates sorption on smectite modified by long-chain quaternary ammonium salts</p>
2015.06.7-12	<p><i>AMAM 2015: International Conference on Applied Mineralogy & Advanced Materials. Taranto, Italy.</i></p> <p>Co-author of 2 oral presentations: BTX sorption on Na-P1 organo-zeolites as a process controlled by the type of surfactant Removal of vanadium(VI) from aqueous solution by HDTMA-modified clinoptilolite</p>
2015.02.26-27	<p><i>International Scientific Conference: Zeolites in Agriculture, Environmental Protection and Building, Lublin, Poland</i></p> <p>Invited lecture: Organo-zeolite as sorbents of organic and inorganic compounds</p>
2015.09.21-23	<p><i>2nd Mineral-based Sorbents Conference, Kraków</i></p> <p>Co-author of oral presentation: Heat-induced phase and textural changes of limestone sorbent from Kopalnia Wapienia "Czatkowice" Sp. z o.o. enriched with mineral additives and evaluation of its sorption possibilities towards mercury vapors</p>

2014.09.08-11	<p><i>6th FEZA Conference, Leipzig, Germany</i></p> <p>2 Posters:</p> <p>Sorption of benzene, toluene and p-xylene on HDTMA-modified synthetic zeolite Na-P1</p> <p>Quantitative determination of quaternary ammonium salts in organo-zeolites by FTIR</p>
2014.05.8-10	<p><i>XV International Conference of Young Geologists, Międzybrodzie Żywieckie, Poland</i></p> <p>Co-author of 4 oral presentations:</p> <p>Changes in physical structure during calcination of carbonate rocks</p> <p>Optimization of synthesis conditions of pyromorphite-vanadinite and mimetite-vanadinite solid solution series</p> <p>Structural and Raman spectroscopy studies of schultenite – phosphoschultenite isomorphous series</p> <p>Quantitative determination of ammonium salts in organo-zeolites by infrared spectroscopy</p>
2013.09.16-18	<p><i>1st Mineral-based Sorbents Conference, Kraków, Poland</i></p> <p>Co-author of oral presentation:</p> <p>Application of organo-smectite to neutralization of phosphorous and lead compounds</p>
2013.04.04-06	<p><i>XIV International Conference of Young Geologists, Svätý Jur, Slovakia -</i></p> <p>Co-author of 4 oral presentations:</p> <p>Dissolution of mimetite $Pb_5(AsO_4)_3Cl$ in malic acid solutions</p> <p>Low temperature synthesis and thermodynamic stability of fluoropyromorphite $Pb_5(PO_4)_3F$ at 5-65°C.</p> <p>Sorption of selected organic compounds of organo-zeolites</p> <p>The results of multistage liming and lacustrine chalk application in AMD water reservoir in the Muskau Arch near Łęknica, W Poland</p>
2012.09.02-06	<p><i>EMC 2012: 1st European Mineralogical Conference</i></p> <p>Oral presentation: Effects of phosphate on the solubility of schultenite $PbHAsO_4$ and mimetite $Pb_5(AsO_4)_3Cl$</p> <p>Co-author of oral presentations:</p> <p>Carbonate substitution in hydroxypyromorphite $Pb_5(PO_4)_3OH$</p> <p>The effect of gluconic acid on solubility of pyromorphite $Pb_5(PO_4)_3Cl$</p>
2012.04.26-28	<p><i>XIII International Conference of Young Geologists. Herl'any, Slovak Republic</i></p> <p>Co-author of 3 oral presentations:</p> <p>Characterization of CO_3^{2-} substitution in hydroxylmimetite $Pb_5(AsO_4)_3OH$</p> <p>Experimental and computer modeling of cerrusite $PbCO_3$ dissolution in the presence of arsenates and phosphates at pH from 3 to 11</p> <p>Neutralization of AMD waters from Africa reservoir in the Muskau Arch near Łęknica, W Poland</p>
2011.10.21-23	<p><i>VIII Meeting of the Mineralogical Society of Poland</i></p> <p>Co-author of 9 posters:</p> <p>Adsorption of phosphate by clinoptilolite exchanged with Pb</p> <p>Carbonate substitutions in hydroxymimetite $Pb_5(AsO_4)_3OH$</p> <p>High temperature synthesis of chlorapatite and manganese chlorapatite</p> <p>Low temperature synthesis of libethenite Cu_2PO_4OH and olivenite Cu_2AsO_4OH solid solutions.</p> <p>Mineral suspension and hydrochemical stratification in AMD reservoirs</p>

	<p>of the Muskau Arch near Łęknica, W Poland</p> <p>Modeling of ettringite reaction with CO₂ in mineral carbonatization</p> <p>Thermodynamic stability of fluorpyromorphite Pb₅(PO₄)₃F at 5, 25, 45, and 65°C.</p> <p>Thermodynamic stability of hydroxylpyromorphite Pb₅(PO₄)₃OH at 5, 25, 45, and 65°C</p> <p>Transformation of cerussite into lead phosphates and arsenates at various pH</p>
2011.09.14-19	<p><i>Goldschmidt 2011, Prague, Czech Republic</i></p> <p>Poster: Pyromorphite formation from natural and surfactant-modified montmorillonite adsorbed lead</p>
2010.10.27-30	<p><i>The 1st International Conference: "Contemporary Problems of Geochemistry". Kielce, Poland</i></p> <p>Poster: Dissolution of lead arsenate promoted by organic acids</p>
2010.04.29-2010.05.01	<p><i>11th International Conference of Young Geologists. Svätý Jur, Slovak Republic</i></p> <p>Co-author of 3 oral presentations:</p> <p>Formation of brom-pyromorphite on surfactant-modified smectite</p> <p>Immobilization of Zn, Pb and Cd in soils by phosphate fertilizers</p> <p>Limitations of cerussite as a mineral controlling lead pollution</p>
2009.06.21-26	<p><i>The 19th Annual V.M. Goldschmidt Conference. Davos, Switzerland</i></p> <p>2 Posters:</p> <p>Effects of phosphate on the solubility of lead arsenates</p> <p>Formation and transformation of pyromorphite nanocrystals in the environment: Review</p>
2008.10.09-14	<p><i>2nd Central-European Mineralogical Conference 2008 (CEMC)</i></p> <p>Co-author of 2 oral presentations:</p> <p>Application of the sequential extraction procedure for speciation of selected heavy metals in airborne particulate matter</p> <p>Dissolution of vanadinite at pH= 2.0–6.0 and 25°C</p> <p>Co-author of 3 posters:</p> <p>Alterations on the apatite and calcite surface buried in arctic soil (Spitsbergen): an AFM and SEM study</p> <p>Micromorphology of quartz grain surfaces from mineral-organic soils and sediments from the Unislaw Basin (Poland)</p> <p>Mimetite formation from lead adsorbed on surface of Bacillus Subtilis</p>
2006.05.04-06	<p><i>1st Central European Mineralogical Conference. Vyšná Boca, Slovak Republic</i></p> <p>Poster: Thermodynamic stability of mimetite Pb₅(AsO₄)₃Cl at 5-35°C</p>
2006.05.11-12	<p><i>Trace Elements in the Environment IX, Symposium, Sarnówek</i></p> <p>Oral presentation: Chromium compounds in the soil polluted with electroplating effluents</p> <p>Co-author of poster: The concentration and speciation of the trace elements in ferruginous rocks and soils in Poland</p>
2005.09.29-2005.10.02	<p><i>VI Meeting of the Mineralogical Society of Poland. Krościenko</i></p> <p>Oral presentation:</p> <p>Spectroscopic study of metals sorption on Carpathian zeolites</p> <p>Co-author of 3 oral presentations:</p> <p>Pyromorphite formation from goethite-adsorbed phosphate ions</p> <p>Removal of Pb from aqueous solutions by phosphorous fertilizers</p> <p>Synthesis of pyromorphite-mimetite solid solutions from aqueous</p>

	<p>solutions – preliminary results</p> <p>Posters:</p> <p>Mineralogy of ferruginous precipitates from Kokino Nero (Greece) and their relation to those from the polish Carpathians</p> <p>Solubility of mimetite $Pb_5(AsO_4)_3Cl$ at 20°C and pH from 2.0 to 12.0</p>
2005.09.04-07	<p><i>II Congress of Environmental Engineering, Lublin, Poland</i></p> <p>Oral presentation:</p> <p>Removal of As(V) from solutions by precipitations of mimetite $Pb_5(AsO_4)_3Cl$</p> <p>Co-author of oral presentation:</p> <p>Use of bog ores as sorbents of heavy metals</p> <p>Co-author of poster: Sorption properties of bog ore and reducing the problems of gaseous air pollution</p>
2004.09.17-18	<p><i>Conference on “Environment Protection and Engineering – Sustainable Development”, Kraków</i></p> <p>Oral presentation: Sorption of heavy metals on natural zeolite and smectite-zeolite shale from the Polish Flysch Carpathians</p>
2002.09.27-29	<p><i>Czech-Slovakia-Poland Mineralogical-Petrographical-Ore Days, Herlany (Slovakia)</i></p> <p>Poster: Mineral composition of ferruginous precipitates from Kokino Nero (Greece) – preliminary results</p>
2001.09.11-15	<p><i>15th International Symposium on Environmental Biogeochemistry, Wroclaw, Poland</i></p> <p>Poster:</p> <p>Adsorption of chromium compounds on various mineral raw materials</p>
2001.04.23-24	<p><i>International Geological Conference of Ph. D. Students and Young Scientists, Herlany (Slovakia)</i></p> <p>Posters:</p> <p>Adsorption of chromate on various geological materials</p> <p>Geochemical, mineralogical and petrological diversification of Upper Jurassic limestones of the Zakrzówek horst, Kraków region, southern Poland</p>
2000.10.13-15	<p><i>7th Meeting of the Petrology Group of the Mineralogical Society of Poland, Osieczany</i></p> <p>Poster: Mineralogy and geochemistry of chromium compounds of the weathering zone of serpentinites from the Szklary massif (Lower Silesia)</p>
2000.05.18-19	<p><i>EMU School Meeting: Environmental Mineralogy, Budapest, Hungary</i></p> <p>Poster:</p> <p>Potential use of clinoptilolite-smectite claystones from the Outer Flysch Carpathians (Poland) for remediation</p>
2000.03.09-10	<p><i>International Conference Minerals of the Carpathians, Miskolc, Hungary</i></p> <p>Poster:</p> <p>Sorption of selected heavy metals (Cr(III), Cu(II), Pb(II)) on smectite-clinoptilolite shales of the Outer Flysch Carpathians (Poland)</p>
1999.09.05-09	<p><i>Conference European Clay Groups Association, Euroclay'99, Kraków</i></p> <p>Poster: Sorption properties of smectite-clinoptilolite shales of the Outer Flysch Carpathians (Poland)</p>

Teaching experience

- **Analytical Chemistry**
In Polish: Chemia analityczna (1st degree, 1st year, GG) (1997-1998)
- **Chemistry**
In Polish: Chemia (1st degree, 1st year, GG, IŚ, OŚ) (1998 – 2009)
- **Geochemistry**
In Polish: Geochemia (1st degree, 3rd year, GG, OŚ) (1999 – 2016)
- **Agromineralogy, Soil Contamination and Remediation**
In Polish: Agromineralogia, skażenia i rekultywacja gleb (1st degree, 3rd year, OŚ) (2000 – 2001)
- **Mineralogy and Petrography**
In Polish: Mineralogia i Petrografia (1st degree, 1st year, GG) (2000 – 2015)
- **Agromineralogy and Pedology**
In Polish: Agromineralogia i podstawy gleboznawstwa (2nd degree, 1st year, specialization Applied mineralogy and geochemistry, GG) (2001 – 2008)
- **Environmental Geochemistry**
In Polish: Geochemia środowiska (1st degree, 3rd year, OŚ) (2001 – 2011)
- **Mineralogy and Gemmology**
In Polish: Mineralogia i gemmologia (1st degree, 3rd year, field training, OŚ) (2001 – 2003)
- **Geology and Petrography**
In Polish: Geologia i petrografia (1st degree, 1st year, GG) (2002 – 2004)
- **Pedology and Soil Protection**
In Polish: Gleboznawstwo i ochrona gleb (1st degree, 3rd year, OŚ) (2002 – 2009)
- **Environmental Engineering**
In Polish: Inżynieria środowiska (1st degree, 3rd year, field training, OŚ) (2002 – 2004)
- **Geochemical Mapping**
In Polish: Kartowanie geochemiczne (2nd degree, 1st year, specialization Applied mineralogy and geochemistry, field training, GG) (2002 – 2010)
- **Electron Microscopy**
In Polish: Mikroskopia elektronowa (2nd degree, 1st year, specialization Applied mineralogy and geochemistry, GG) (2002 – 2007)
- **Geochemistry Advanced**
In Polish: Geochemia szczegółowa (2nd degree, 1st year, specialization Applied mineralogy and geochemistry, GG) (2004 – 2005)
- **Pedology**
In Polish: Gleboznawstwo (1st degree, 2nd year, OS) (2005 – 2008)
- **Instrumental Analysis of Rocks and Minerals**
In Polish: Metody badań minerałów i skał (2nd degree, 1st year, specialization Applied mineralogy and geochemistry, GG) (2007 – 2008)
- **Environmental Mineralogy and Geochemistry**
In Polish: Mineralogia i geochemia środowiska (2nd degree, 2nd year, specialization Applied mineralogy and geochemistry, GG) (2008 – 2009)
- **Pedology and Soil Remediation**
In Polish: Gleboznawstwo i rekultywacja gleb (2nd degree, 1st year, specialization Environmental Geochemistry, OŚ) (2009 – 2014)
- **Soil Pollution and Remediation**
In Polish: Skażenia i rekultywacja gleb (2nd degree, 2nd year, specialization Evaluation of environmental status, OŚ) (2010 – now)

- **Agromineralogy**
In Polish: Agromineralogia (2nd degree, 2nd year, specialization Applied mineralogy and geochemistry, GG) (2012 – 2013)
- **Phase and chemical analysis in environmental protection**
In Polish: Badania fazowe i chemiczne w ochronie środowiska (1st degree, 3rd year, OŚ) (2012 – 2015)
- **Diploma seminar**
In Polish: Seminarium dyplomowe (2nd degree, 2nd year, specialization Mineral engineering, IŚ) (2012 – now)
- **Evaluation of Environmental Status**
In Polish: Ocena stanu środowiska (2nd degree, 1st year, specialization Evaluation of environmental status, field training, OŚ) (2012 – 2015)
- **Environmental chemistry**
In Polish: Chemia środowiska (1st degree, 2nd year, IŚ) (2013 – now)
- **Experimental Mineralogy**
In Polish: Mineralogia eksperymentalna (2nd degree, 2nd year, specialization Applied mineralogy and gemmology, GG) (2013 – 2015)
- **Mineral Engineering**
In Polish: Inżynieria Mineralna (2nd degree, 1st year, IŚ, OŚ) (2013 – now)
- **Mineral sorbents in environmental engineering**
In Polish: Sorbenty mineralne w inżynierii środowiska (2nd degree, 2nd year, specialization Mineral engineering, IŚ) (2015 – now)
- **Soils and Claystones in Environmental Protection**
In Polish: Grunty i surowce ilaste w ochronie środowiska (2nd degree, 1st year, specialization Evaluation of environmental status, field training, OŚ) (2017 – now)
- **Mineral Waste Raw Materials**
In Polish: Mineralne surowce odpadowe (2nd degree, 1st year, specialization Evaluation of environmental status, field training, OŚ) (2018 – now)

Achievements / awards

2019	AGH Rector Award for individual scientific achievements
2018	AGH Rector Award for individual scientific achievements
2017	AGH Rector Award for individual scientific achievements
2016	AGH Rector Award for individual scientific achievements
2015	AGH Rector Award for individual scientific achievements
2014	AGH Rector Award for individual scientific achievements
2013	AGH Rector Award for individual scientific achievements
2010	AGH Rector Award for individual scientific achievements
2009	AGH Rector Award for individual scientific achievements
2007	AGH Rector Award for individual scientific achievements
2006	AGH Rector Award for individual scientific achievements
2005	AGH Rector Award for individual scientific achievements
2004	AGH Rector Award for PhD thesis

*Parametric summary of the scientific output*Citations (*Web of Science*): 716, without auto-citations: **583**Hirsch index (*Web of Science*): **17**PhD, Msc and Bsc thesis*Supervisor (in Polish)*

2019/2020	<i>Anna Szreter. Dehydroxylation, rehydroxylation, and isotope exchange in the smectite structure, tested by infrared spectroscopy (Dehydroksylacja, rehydroksylacja i wymiana izotopowa w strukturach smektytów w obrazie spektroskopii podczerwieni) (Msc thesis)</i>
2018/2019	<i>Karolina Bałaga. The application of industrial wastes as sorbents (Zastosowanie odpadów przemysłowych jako sorbentów) (Msc thesis)</i>
	<i>Magdalena Matelowska. Soil-quality assessment around „Czatkowice” Limestone Mine (Ocena stanu środowiska glebowego na terenie Kopalni Wapienia „Czatkowice”) (Msc thesis)</i>
	<i>Krzysztof Pluciński. Application of fly ashes for sorption of petroleum compounds (Zastosowanie popiołów lotnych do sorpcji związków ropopochodnych) (Msc thesis)</i>
	<i>Kornelia Pytko. Assessment of the soil environment around the Orlen Południe – Zakład Jedlicze (Ocena stanu środowiska gruntowego wokół terenu zakładu Orlen Południe – Zakład Jedlicze) (Msc thesis)</i>
	<i>Maciej Sobczyk. Synthesis and characteristics of aerogels (Synteza i charakterystyka aerożeli) (Msc thesis)</i>
	<i>Urszula Solecka. Variation of thermodynamic properties of pyromorphite-vanadinite and mimetitevanadinite solid solution series (Zmienność właściwości termodynamicznych roztworów stałych minerałów z szeregów piromorfit-wanadynit oraz mimetyt-wanadynit) (PhD thesis)</i>
2017/18	<i>Edyta Waluś. The use of fly ash for the sorption of petroleum compounds. (Zastosowanie popiołów lotnych do sorpcji związków ropopochodnych) (Msc thesis)</i>
	<i>Monika Rojewska. Modification of the properties of mineral sorbents to sorption of petroleum compounds (Modyfikacja właściwości sorbentów mineralnych w celu ich zastosowania do sorpcji związków ropopochodnych) (Msc thesis).</i>
	<i>Agnieszka Schneider. Stability of chromium sorbed on organic derivatives of silicate minerals. (Stabilność połączeń związków chromu z pochodnymi organicznymi minerałów krzemianowych) (Msc thesis).</i>
2016/17	<i>Agnieszka Solińska. Organo-silicates as hybrid sorption materials (Organo-krzemiany jako hybrydowe materiały sorpcyjne) (Msc thesis).</i>
	<i>Barbara Muir. The production and utilization of organo-zeolites as sorbents of petroleum compounds (Wytwarzanie i utylizacja organo-zeolitów jako sorbentów związków ropopochodnych) (PhD thesis)</i>
	<i>Anita Kościelniak. Sorption of the anionic species of arsenic onto organo-vermiculites. (Sorpcja anionowych form arsenu na organo-wermikulitach) (Msc thesis).</i>
	<i>Magdalena Dorosz. Sorption properties of soils from the area of the urban area of Rzeszow (Właściwości sorpcyjne gleb z terenu aglomeracji miejskiej Rzeszowa) (Msc thesis).</i>
	<i>Mariola Kowalik. Characteristic of organo-smectite with adsorbed of molybdenum (VI) and tungsten (VI) ions (Charakterystyka organo-smektytów z zaadsorbowanymi</i>

	<p><i>jonami molibdenu (VI) i wolframu (VI) (Msc thesis).</i></p> <p><i>Konrad Kieroński. Sorption of molybdenum(VI) on organo-attapulgitite (Sorpcja molibdenu(VI) na organo-attapulgitach) (Msc thesis)</i></p>
	<p><i>Agata Nawrocka. Sorption of vanadium compounds on organo-zeolites (Sorpcja związków wanadu na organo-zeolitach). (Msc thesis).</i></p> <p><i>Damian Andrunik. Molybdates and tungstates sorption on organo-smectites (Sorpcja Mo(VI) i W(VI) na smektycie modyfikowanym związkami organicznymi) (Msc thesis).</i></p> <p><i>Dominika Filip. Mineralogical and chemical composition studies of clays used in contemporary fine art painting (Skład mineralny i chemiczny glin wykorzystywanych we współczesnej sztuce malarstwa artystycznego) (Msc thesis).</i></p> <p><i>Jakub Bobek. Using mineral sorbents in tanning waste treatment (Wykorzystanie sorbentów mineralnych do oczyszczania ścieków garbarskich) (Msc thesis).</i></p> <p><i>Magdalena Tuchowska. Sorption of As(III) compounds on bog iron ores (Sorpcja związków As(III) na rudach darniowych) (Msc thesis).</i></p> <p><i>Magdalena Wołowicz. Sorption of organic-compounds by organo-zeolites (Sorpcja wybranych związków organicznych na organo-zeolitach) (Msc thesis).</i></p>
2015/16	<p><i>Paulina Kudła. Synthesis and characterization of sorption properties of metal-organic frameworks. (Synteza i charakterystyka właściwości sorpcyjnych wybranych związków metaloorganicznych) (Msc thesis).</i></p> <p><i>Anita Kościelniak. The influence of chemical and mineral composition on the colour of some of the clays used in modern art painting (Wpływ składu chemicznego i mineralnego na zabarwienie niektórych glin używanych we współczesnym malarstwie artystycznym) (Bsc thesis).</i></p> <p><i>Jakub Hyla. Sorption kinetics of molybdates and tungstates on organo-smectite (Kinetyka sorpcji molibdenianów i wolframianów na organo-smektycie) (Bsc thesis).</i></p> <p><i>Mariola Kowalik. Sorption of naphthalene on zeolites modified with organic Compounds (Sorpcja naftalenu na zeolitach modyfikowanych związkami organicznymi) (Bsc thesis).</i></p> <p><i>Rafał Buczyński. Analysys of the phase composition of mineral addons used in foundry casting (Analiza składu fazowego dodatków mineralnych stosowanych w odlewnictwie) (Bsc thesis).</i></p>
2014/15	<p><i>Agnieszka Hadała. Laboratory analisys of limestone from „Kujawy” company as a sorbents for flue gas desulfurization technology (Badania laboratoryjne wapienia z zakładu „Kujawy” jako sorbentu do odsiarczania spalin) (Msc thesis).</i></p> <p><i>Klaudia Witek. The possibilities of using limestone from plant “Sitkówka” as a sorbent of air pollutants. (Możliwości wykorzystania kamienia wapiennego z zakładu sitkówka jako sorbentu zanieczyszczeń gazowych) (Msc thesis).</i></p> <p><i>Iga Hasiór. Metal sorption on different types of soils. (Sorpcja metali na różnych typach gleb) (Msc thesis).</i></p> <p><i>Katarzyna Szymczyk. Geochemical studies of soils in Częstochowa area. (Badania geochemiczne gleb w rejonie Częstochowy) (Msc thesis).</i></p> <p><i>Natalia Golba. Comparison of sorption capacity of mineral sorbents in relation to arsenic compounds. (Porównanie zdolności sorpcyjnych sorbentów mineralnych względem związków arsenu). (Msc thesis).</i></p> <p><i>Anna Bala, Olga Zwijacz. Organo-zeolites as the sorbents of petroleum compounds (Ocena możliwości wykorzystania organozeolitów jako sorbentów związków ropopochodnych) (Msc thesis).</i></p> <p><i>Agata Nawrocka. Sorption of vanadium on organo-zeolites (Sorpcja związków wanadu na organo-zeolitach) (Bsc thesis).</i></p> <p><i>Damian Andrunik. The soil contamination by mobile forms of metals in the parks in Cracow (Ocena stopnia zanieczyszczenia metalami mobilnymi gleb w parkach</i></p>

	<i>krakowskich</i>) (Bsc thesis).
	<i>Dominika Filip</i> . The immobilization of heavy metals in the structure of the vanadinite $Pb_5(VO_4)_3Cl$ (<i>Możliwość uruchamiania jonów metali ciężkich w strukturze wanadynitu $Pb_5(VO_4)_3Cl$</i>) (Bsc thesis).
	<i>Maciej Jasiński</i> . Environmental assessment of soil in the industrial zone of Stomil Sanok S.A. (<i>Ocena stanu środowiska glebowego wokół zakładu przemysłowego Stomil Sanok S.A.</i>) (Bsc thesis)
	<i>Magdalena Tuchowska</i> . Sorption of As(V) compounds on natural and modified mineral sorbents (<i>Sorpcja związków As(V) na sorbentach mineralnych naturalnych i modyfikowanych</i>) (Bsc thesis)
	<i>Magdalena Wołowicz</i> . Synthesis of hydrotalcite from coal fly ashes (<i>Synteza hydrotalkitu z popiołów lotnych ze spalania węgla kamiennego</i>) (Bsc thesis)
	<i>Paulina Kudła</i> . Synthesis and characterization of cadmium chlorapatite (<i>Synteza i charakterystyka kadmowej odmiany apatyty chlorowego</i>) (Bsc thesis)
	<i>Krzysztof Staworowski</i> . Sorption of arsenic on bog iron ores. (<i>Sorpcja arsenu na rudach darniowych</i>) (Msc thesis).
	<i>Magdalena Kapuśniak</i> . Geochemical research of soils in the Zawiercie area. (<i>Badania geochemiczne gleb w rejonie Zawiercia</i>) (Msc thesis).
	<i>Renata Kowalczyk</i> . Synthesis and sorption properties of organo-zeolites (<i>Synteza i właściwości sorpcyjne organo-zeolitów</i>) (Msc thesis)
	<i>Tomasz Piątek</i> . The immobilization of anion forms of elements within apatite structure (<i>Unieruchamianie anionowych form pierwiastków w strukturze apatytów</i>) (Msc thesis)
	<i>Agnieszka Filipiak</i> . Application of phosphorus compounds to Zn, Cd, Pb immobilization in flotation waste after zinc-lead ores enrichment. (<i>Zastosowanie związków fosforu do immobilizacji Zn, Cd, Pb w odpadach poflotacyjnych po wzbogacaniu rud cynkowo-ołowiowych</i>) (Bsc thesis).
2013/14	<i>Iga Hasior</i> . Lead compounds behavior in the soils around the main highway in Kraków (<i>Zanieczyszczenia gleb związkami ołowiu wokół głównych arterii Krakowa</i>) (Bsc thesis).
	<i>Katarzyna Biel</i> . The estimation of contamination's degree of soils with chromium compounds around Chemical Plants „Alwernia” (<i>Ocena stopnia zanieczyszczenia związkami chromu gleb wokół Zakładów Chemicznych „Alwernia”</i>) (Bsc thesis).
	<i>Krzysztof Foltyn</i> . Synthesis and characterisation of a cadmium mimetite $Cd_5(AsO_4)_3Cl$ (<i>Synteza i charakterystyka kadmowej odmiany mimetytu $Cd_5(AsO_4)_3Cl$</i>) (Bsc thesis).
	<i>Monika Dróżdż</i> . Sorption of chromium compounds on zeolite synthesized from fly ash (<i>Sorpcja związków chromu na syntetyzowanym zeolicie z popiołów lotnych</i>) (Bsc thesis).
	<i>Monika Gatlik</i> . Synthesis and sorption properties of zeolites modified by organic compounds (<i>Synteza i właściwości sorpcyjne zeolitów modyfikowanych związkami organicznymi</i>) (Bsc thesis).
	<i>Anna Jeleń</i> . Sorption of Cr(VI) by organo-zeolites. (<i>Sorpcja związków Cr(VI) na organo-zeolitach</i>) (Msc thesis)
2012/13	<i>Gabriela Cieślik</i> . The use of Portland cement in the remediation of soils contaminated with heavy metals. (<i>Zastosowanie cementu portlandzkiego w rekultywacji gleb zanieczyszczonych metalami ciężkimi</i>) (Msc thesis)
	<i>Joanna Korczak</i> . Immobilization of heavy metals from Zn-Pb wastes (<i>Immobilizacja</i>

metali ciężkich z odpadów przemysłu cynkowo-ołowiowego) (Msc thesis)

Piotr Turek. BTX sorption on the synthetic zeolites modified with organic compounds. (Sorpceja BTX na syntetycznych zeolitach modyfikowanych związkami organicznymi) (Msc thesis)

Renata Buczek. Effect of organic acids on the efficiency of immobilization of lead in the form of pyromorphite. (Wpływ kwasów organicznych na efektywność unieruchamiania ołowiu w postaci piromorfitu) (Msc thesis)

Bernadeta Nicpoń. Determination of product solubility of hydrocynkite $Zn_5(CO_3)_2(OH)_6$ (Wyznaczenie współczynnika rozpuszczalności hydrocynkitu $Zn_5(CO_3)_2(OH)_6$) (Bsc thesis).

Joanna Plesińska. Determination of chemical composition of solid solutions pyromorphite $Pb_5(PO_4)Cl$ – vanadinite $Pb_5(VO_4)Cl$ (Oznaczenie składu chemicznego ważnych środowiskowo roztworów stałych piromorfit $Pb_5(PO_4)Cl$ – wanadynit $Pb_5(VO_4)Cl$) (Bsc thesis).

Marcin Mazurkiewicz. Determination of chemical composition of solid solutions mimetite $Pb_5(AsO_4)Cl$ – vanadinite $Pb_5(VO_4)Cl$ (Oznaczenie składu chemicznego ważnych środowiskowo roztworów stałych mimetyt $Pb_5(AsO_4)Cl$ – wanadynit $Pb_5(VO_4)Cl$) (Bsc thesis).

Adrianna Zemanek. Stability of hydrozincite in the presence of aqueous solutions containing phosphate ions. (Stabilność hydrocynkitu w roztworach wodnych zawierających jony fosforanowe) (Msc thesis)

Izabela Zembal. Characteristics of schultenite $PbHAsO_4$ – $PbHPO_4$ solid solutions. (Charakterystyka roztworów stałych szultenitu $PbHAsO_4$ – $PbHPO_4$) (Msc thesis)

Karolina Rula. Geochemical modeling of soils contaminated with wastes from zinc-lead metallurgy (Modelowanie równowagi geochemicznej w glebach zanieczyszczonych odpadami z hutnictwa cynkowo-ołowiowego) (Msc thesis)

Alicja Krzemień. Effect of tartaric acid on the stability of mimetite (Wpływ kwasu winowego na stabilność mimetytu) (Bsc thesis).

2011/12

Anna Korczak. Use of phosphosilicate glass to immobilization of Pb, Zn, Cd in soils polluted by Zn-Pb mining and smelting near Bukowno (Ocena skuteczności szkła nawozowego fosforanowego w neutralizacji Pb, Zn, Cd występujących w glebach zanieczyszczonych przez górnictwo i hutnictwo cynkowo-ołowiowe w rejonie Bukowna) (Bsc thesis).

Anna Światłoń. Effect of citric acid on the release of cadmium, zinc, and lead from soils contaminated with metallurgy wastes (Wpływ kwasu cytrynowego na wymywalność kadmu cynku i ołowiu z gleb zanieczyszczonych odpadami z przemysłu hutniczego) (Bsc thesis).

Izabela Kędroń. Immobilization of chromium(VI) by pyromorphite $Pb_5(PO_4)_3Cl$ (Ocena możliwości unieruchamiania związków chromu(VI) w strukturze piromorfitu $Pb_5(PO_4)_3Cl$) (Bsc thesis).

Melania Rogowska. Determination of solubility product of hopeite $Zn_3(PO_4)_2 \cdot 4H_2O$ (Wyznaczenie współczynnika rozpuszczalności hopeitu $Zn_3(PO_4)_2 \cdot 4H_2O$) (Bsc thesis).

Paweł Borowicz. An infrared spectroscopy study of the for the analysis of lead apatites (Zastosowanie spektroskopii w podczerwieni do analizy apatytów ołowiowych) (Bsc thesis).

	<i>Piotr Turek</i> . Dissolution of mimetite $Pb_5(AsO_4)_3Cl$ in malic acid solutions (<i>Rozpuszczalność mimetytu $Pb_5(AsO_4)Cl$ w roztworach kwasu jabłkowego</i>) (Bsc thesis).
	<i>Sara Domoń</i> . Synthesis and characterization of PO_4 -schulzenite $PbHPO_4$ (<i>Synteza i charakterystyka szulzenitu fosforanowego $PbHPO_4$</i>) (Bsc thesis)
	<i>Anna Figuła</i> . Dynamic sorption of metals on surfactant modified smectite and zeolite. (<i>Sorpcja dynamiczna metali na organo-smektytach i organo-zeolitach</i>) (Msc thesis)
	<i>Michalina Bernacka</i> . Solubility of mimetite in EDTA. (<i>Rozpuszczalność mimetytu w EDTA</i>) (Bsc thesis).
2010/11	<i>Urszula Janicka</i> . Synthesis and mineralogical and chemical characterization of brompyromorphite $Pb_5(PO_4)_3Br$ (<i>Synteza oraz charakterystyka mineralogiczna i chemiczna piromorfitu bromowego $Pb_5(PO_4)_3Br$</i>) (Bsc thesis).
	<i>Adriana Zemanek</i> . Solubility of schulzenite in citric acid (<i>Rozpuszczalność szulzenitu w kwasie cytrynowym</i>) (Bsc thesis).
	<i>Izabela Zembal</i> . The effect of phosphate on the stability of schulzenite (<i>Wpływ związków fosforu na trwałość szulzenitu $PbHAsO_4$</i>) (Bsc thesis).
	<i>Teresa Zgłobica</i> . Effectiveness of phosphorus additions on zinc, lead and cadmium immobilization in contaminated soils (<i>Porównanie efektywności związków fosforu w neutralizacji Zn, Pb i Cd w zanieczyszczonych glebach</i>) (Bsc thesis).
2009/10	<i>Anna Figuła</i> . Formation of brom-pyromorphite on surfactant-modified smectite (<i>Formacja piromorfitu bromowego na organo-smektycie</i>) (student project).
	<i>Katarzyna Drygała</i> . Pedology characterization and the physicochemical properties of soils at the exploitation area of Zn-Pb ore in Olkusz area (<i>Charakterystyka gleboznawcza i właściwości fizykochemiczne gleb na obszarze eksploatacji rud Zn-Pb w rejonie olkuskim</i>) (Msc thesis)
	<i>Eliza Kaltenberg</i> . Assaying arsenate and phosphate concentrations using the blue molybdate method. (<i>Spektrofotometryczna metoda równoczesnego oznaczania jonów fosforanowych, arsenianowych i wanadanowych dla celów środowiskowych</i>) (Msc thesis)
2008/09	<i>Ewelina Głaz</i> . Sorption of phosphate and lead by organo-smectite. (<i>Sorpcja fosforanów i ołowiu na organo-smektycie</i>) (Msc thesis)
	<i>Jolanta Klasa</i> . Variation of unit cell parameters within pyromorphite – vanadinite and mimetite – vanadinite solid solutions. (<i>Przyczyny zmienności parametrów komórki elementarnej w szeregu piromorfit-wanadynit i mimetyt-wanadynit</i>) (Msc thesis)
	<i>Anna Figuła</i> . Immobilization of Pb^{2+} and Zn^{2+} using new generation glass fertilizers (<i>Zastosowanie nawozów szklanych do immobilizacji skażeń ołowiem i cynkiem z roztworów glebowych</i>) (student project).
	<i>Teresa Zgłobica</i> . Synthesis and characterization of Pb-As jarosite (<i>Synteza i charakterystyka jarosytu ołowiowo-arsenowego</i>) (student project).
2007/08	<i>Daniel Wojnarski</i> . Experimental research of lead, zinc and cadmium minerals transformation with the use of phosphates (<i>Eksperymentalne badania przemian minerałów ołowiu, cynku i kadmu pod wpływem związków fosforu</i>) (Msc thesis)
	<i>Martyna Galas</i> . Sorption of anions on organic modified silicate minerals. (<i>Sorpcja anionów na pochodnych organicznych wybranych minerałów krzemianowych</i>) (Msc)

	<p>thesis)</p> <p><i>Bolesław Buczkowski.</i> Sorption of arsenic compounds on selected types of soils. (<i>Sorpcja związków arsenu na wybranych typach gleb</i>) (Msc thesis)</p> <p><i>Małgorzata Gil.</i> Solubility of Pb, Zn, Cd phosphate minerals in organic solvents and acids (<i>Rozpuszczalność minerałów fosforanowych Pb(II), Zn(II), Cd(II) w kwasach i rozpuszczalnikach organicznych</i>) (Msc thesis)</p> <p><i>Dorota Handzlik, Krystyna Jarosińska.</i> Synthesis and mineralogical characterization of Zn and Pb phosphates (<i>Synteza oraz charakterystyka mineralogiczna fosforanów cynku i ołowiu</i>) (student project).</p>
	<p><i>Anna Motyka.</i> Phosphate remediation of soils polluted by Zn-Pb mining and smelting (<i>Użycie związków fosforu do rekultywacji gleb zdegradowanych przez górnictwo i hutnictwo cynkowo-ołowiowe</i>) (Msc thesis)</p> <p><i>Dominik Szrek.</i> The selection of optimal conditions for zinc, lead and cadmium immobilization in soils near industrial plants in Upper Silesia (<i>Dobór optymalnych warunków immobilizacji cynku, ołowiu i kadmu w glebach wokół zakładów przemysłowych na Górnym Śląsku</i>) (Msc thesis)</p>
2006/07	<p><i>Maciej Dwornik.</i> The use of automated image analysis to determine the fractal dimensions of pore shapes of sandstone (<i>Zastosowanie automatycznej analizy obrazu do wyznaczenia wymiarów fraktalnych kształtów porów piaskowców</i>) (student project).</p> <p><i>Maciej Dwornik.</i> Relationships between different methods of correlational studies of the pore space (<i>Związki korelacyjne pomiędzy różnymi metodami badań przestrzeni porowej</i>) (student project).</p> <p><i>Daniel Wojnarski.</i> Sorption of phosphate and lead by organo-zeolite (<i>Organo-zeolit jako sorbent związków fosforu i ołowiu</i>) (student project).</p>
	<p><i>Tomasz Marchlewski.</i> Pyromorphite formation from soil minerals adsorbed lead (<i>Formacja piromorfitu na minerałach glebowych zawierających zaadsorbowany ołów</i>) (Msc thesis)</p> <p><i>Jakub Matusik.</i> Efficiency of crystallization of cadmium phosphates depending on the form of phosphates. (<i>Efektywność krystalizacji fosforanów kadmu w zależności od formy występowania fosforanów</i>) (Msc thesis)</p> <p><i>Artur Cieśla.</i> Thermodynamic stability of the lead arsenates and lead phosphates in different pH. (<i>Stabilność termodynamiczna współwystępujących arsenianów i fosforanów ołowiu w różnych warunkach pH</i>) (Msc thesis)</p>
2005/06	<p><i>Michał Lelonek.</i> Fractal modeling of correlation between dendrite's morphology and its forming conditions. (<i>Modelowanie fraktalne zależności morfologii dendrytów od warunków ich powstania</i>) (Msc thesis)</p> <p><i>Katarzyna Adamaszek.</i> The evaluation of effectiveness of sewage treatment in sewage treatment in Nowy Targ (<i>Ocena efektywności oczyszczania ścieków w OŚ w Nowym Targu</i>) (Msc thesis)</p> <p><i>Tomasz Torba.</i> Toxicity and phytoavailability of metals in the soil around the Chemical Plants „Nowa Sarzyna”. (<i>Toksyczność i fitoprzyswajalność metali w glebach wokół Zakładów Chemicznych „Nowa Sarzyna”</i>) (Msc thesis)</p> <p><i>Tomasz Cieślik.</i> Stability of metals and their forms in the soil around the</p>

	"Ostrowiec" steelworks facility (<i>Formy występowania i stabilność chemiczna metali w glebach wokół Huty w Ostrowcu Świętokrzyskim</i>) (Msc thesis)
	Maciej Dwornik. Pore space of sandstones (<i>Przestrzeń porowa piaskowców godulskich</i>) (student project).
	Daniel Wojnarski. Synthesis of Cd-pyromorphite $(Pb_{5-x}Cd_x)(PO_4)_3Cl$ (<i>Synteza piromorfitu kadmowego $(Pb_{5-x}Cd_x)(PO_4)_3Cl$</i>) (student project).
2004/05	Ewelina Szmit. Removal of As(V) from solutions by precipitations of mimetite $Pb_5(AsO_4)_3Cl$. (<i>Usuwanie jonów arsenu z roztworów przez wytrącanie w postaci mimetytu $Pb_5(AsO_4)_3Cl$</i>) (Msc thesis)
	Artur Cieśla. Effects of phosphate on the solubility of lead arsenates (<i>Wpływ jonów fosforanowych na stabilność chemiczną arsenianu ołowiu</i>) (student project).
	Maciej Dwornik, Michał Lelonek. Fractal structure of the pore space on the example of selected sedimentary rocks (<i>Struktura fraktalna przestrzeni porowej na przykładzie wybranych skał osadowych</i>) (student project).
	Tomasz Marchlewski. Pyromorphite formation from smectite sorbed lead (<i>Formacja piromorfitu na smektycie zawierającym zaadsorbowany ołów</i>) (student project).
	Jakub Matusik. Synthesis and characterization of Ca-, Pb-, Zn-, Cu-chlorapatite (<i>Próba syntezy i charakterystyka fazowa chlorapatytów wapnia, ołowiu, cynku i miedzi</i>) (student project).

Membership:

- Experimental Results journal - editorial board member 2019-present
- Mineralogical Society of Poland (**President**, 2017-2020)
- Committee for Development and Promotion of Achievements of Young Scientists at the Polish Academy of Sciences Branch in Lublin (member) 2017-present
- Committee of Mineralogical Sciences, Polish Academy of Science (secretary, member) 2005-present
- Materials journal – guest editor 2019, 2021
- Geological Quarterly journal – associate editor 2018-present
- Mineralogia journal – associate editor 2017, 2019
- Geology, Geophysics & Environment journal - editorial board member 2014-present
- Construction and Architecture journal - scientific board member 2012-present
- Geochemical Society (member) 2009-present

Conference organization

- 2021 - 3rd European Mineralogical Conference emc2020, Kraków - Chair of Organizing Committee
- 2019 - 4th Mineral Sorbents Conference, Kraków - Chair of Organizing and Scientific Committee
- 2018 - 9th International Conference on the Occurrence, Properties, and Utilization of Natural Zeolites - Zeolite 2018, Kraków – Vice-Chair of Organizing Committee
- 2018 – 5th Conference Innovation in Practice, Lublin – member of Scientific Committee

- 2017 – *1st Conference Physicochemistry of the Border Phases - instrumental methods, Lublin* - member of Scientific Committee
- 2017 - *3rd Mineral Sorbents Conference, Kraków* - Chair of Organizing and Scientific Committee
- 2015 - *2nd Mineral Sorbents Conference, Kraków* - Chair of Organizing Committee
- 2015 - *International Scientific Conference Zeolites in agriculture, environmental protection and building, Lublin* - member of Scientific Committee
- 2013 - *1st Mineral Sorbents Conference, Kraków* - Chair of Organizing Committee
- 1999 - *Conference European Clay Groups Association, Euroclay'99, Kraków* - member of Organizing Committee
- 1997 – *4th Conference Geochemical, Hydrochemical and Biochemical Changes in Natural Environment in Areas Anthropopressure, Kraków* - member of Organizing Committee

Kraków, 07.11.2020