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Personal details:

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| Surname: | Rybka |
| Name: | Karolina |
| 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:

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| at present | Ph.D. in Natural Sciences , discipline: Earth and related environmental sciences AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Ph.D. thesis: <i>Hydrotalcite-like mineral composites obtained by transformation of selected minerals hybrid sorbents for the removal of anions from multi-element aqueous solutions.</i> Supervisor: Jakub Matusik, Ph.D. |
| 2017 | Postgraduate certificate <i>Database and Network Systems + Quality Management.</i> Cracow University of Technology Centrum Szkolenia i Organizacji Systemów Jakości |
| 2017 | M.Sc. title AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Branch: Environmental Engineering, specialization: Mineral Engineering. M.Sc. thesis: <i>Efficiency of selected anions removal from aqueous solutions by nanocomposites derived from Maria III kaolinite..</i> Supervisor: Jakub Matusik, Ph.D. |
| 2016 | B.Sc. title AGH University of Science and Technology in Kraków, Faculty of Geology, Geophysics and Environmental Protection. Branch: Environmental Engineering. B.Sc. thesis: <i>Causes of air pollution and their influence on the air quality in malopolska.</i> Supervisor: Marzenna Schejbal - Chwastek, Ph.D. |

Research interest:

- Chemical and mineralogical characterization of layered minerals (clay minerals, LDH).
- Modification of minerals in order to obtain functional mineral materials e.g. sorbents.
- Determination of sorption properties of mineral-based materials derived mainly from layered minerals.

Scientific experience:*Conferences / lectures / workshops*

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| 2021.09.13-17 | <i>9th DTTG Workshop "Qualitative and Quantitative Analysis of Clays and Clay Minerals, Höhr-Grenzhausen, Germany</i> |
| 2021.07.15-17 | <i>International Conference on Water Pollution and Treatment (online)</i> Oral presentation: The efficiency and stability of Mg/Al and Mg/Fe as mineral-based adsorbents for the removal of Cr and Se from wastewaters. |
| 2021.06.24-26 | <i>Sustainable Minerals '21 (online)</i> Oral presentation: 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. |
| 2021.07.04-09 | <i>Goldschmidt 2021</i> Co-author of poster: Phosphate substitution in synthetic schultenite PbHAsO ₄ : vibrational spectroscopic study. |
| 2021.01.22-02.19 | <i>Science Communication workshop for students and ECRs in the mineral sciences, Mineralogical Society of Great Britain & Ireland (online)</i> |
| 2020.11.05-06 | <i>XXI International Conference of Young Geologists (online)</i> Oral presentation: Efficiency of selected anions removal by Mg/Al and Mg/Fe LDH obtained with different sources of Mg. Co-author of oral presentation: Ca-Al LDH obtained via transformation of limestone powder and aluminium can for Cr(VI) removal in single-element system and in the presence of competitive anion. |
| 2020.10.18-23 | <i>57th Annual Meeting of the Clay Minerals Society (online)</i> Oral presentation: Mg/Al LDH obtained via transformation of minerals for the removal of selected elements from acidic and alkaline wastewaters Poster: Different approaches to transformation of selected minerals into layered double hydroxides |
| 2020.06.01-12 | <i>Rigaku School for Practical Crystallography (online)</i> |
| 2019.09.16-17 | <i>4th Mineral-based sorbents conference, Jerzmanowice, Poland</i> Oral presentation: |

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| | Characterization of hydrotalcite/pyroaurite-like anion adsorbents derived from magnesite and dolomite. |
| 2019.09.11-13 | <i>9th European Conference on Mineralogy and Spectroscopy</i> Oral presentation: 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. |
| 2019.09.09-10 | <i>The 37th Ad-hoc workshop on Jana2006, Prague, Czech Republic</i> Solution refinement and interpretation of crystallographic structures |
| 2019.07.01-05 | <i>International Conference on Clay Science and Technology EUROCLAY2019, Paris, France</i> Poster presentation: Physico-chemical studies of Mg/Fe and Mg/Al Layered Double Hydroxides obtained via transformation of minerals Co-author of poster: Halloysite-LDH heterostructured materials: performance in removal of selected anions from aqueous solutions |
| 2019.04.23-05.09 | 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. |
| 2019.04.03-05 | <i>XX International Conference of Young Geologists, Herlany, Slovakia</i> Oral presentation: Mg/Al LDH synthesis via transformation of minerals through AlCl ₃ hydrolysis |
| 2018.10.25-28 | <i>XXVth Meeting of the Petrology Group of the Mineralogical Society of Poland, Brunów, Poland</i> Co-author of poster: One-pot synthesis of magnetic composites based on synthetic Layered Double Hydroxides |
| 2018.10.11-14 | <i>5th Meeting of students' geological research circles, Różanka, Poland</i> Co-author of poster: In Polish: Otrzymywanie magnetycznych kompozytów na bazie syntetycznych struktur hydrotalkitowych w procesie jednoetapowego współstrącania (One-pot synthesis of magnetic composites based on synthetic hydrotalcite). |
| 2018.09.17-21 | <i>9th Mid-European Clay Conference (MECC), Zagreb, Croatia</i> Oral presentation: Mg-Fe LDH derived from magnesite and hematite and its affinity towards sulphates |
| 2018.07.24-26 | <i>3rd International Conference on Applied Mineralogy and Advanced Materials (MMS), Bari, Italy</i> Poster presentation: Synthesis of Mg-Fe Layered Double Hydroxides and their sorption affinity towards Cr(VI) |
| 2018.06.11-14 | <i>55th Annual Meeting of the Clay Minerals Society, Urbana-Champaign, USA</i> Poster presentation: The quality of Mg-Fe Layered Double Hydroxide derived from magnesite and hematite Co-author of the oral presentation: Halloysite-based hybrid composites with synthetic LDH and their |

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| | affinity to remove anions |
| 2018.04.04-07 | <i>XIX International Conference of Young Geologists, Herlany, Slovakia</i> Oral presentation: Acid Mine Drainage treatment by zerovalent iron particles: the effect of kaolinite support on ions removal efficiency |
| 2017.09.18-19 | <i>3rd Mineral-based sorbents conference, Kraków.</i> Oral presentation: Efficiency of Pb(II) and Mo(VI) removal by kaolinite impregnated with zero-valent iron particles. |
| 2017.03.29-2017.04.02 | <i>XVII International Conference of Young Geologist, Dobczyce, Poland.</i> Oral presentation: Efficiency of selected anions removal by kaolinite impregnated with iron-bearing nanoparticles. |

Teaching experience

- **Synthesis of mineral functional materials**
In Polish: Synteza mineralnych materiałów funkcjonalnych (II cycle, I year, specialization Functional Mineral Materials, IOŚ) (2021)
- **Experimental mineralogy**
In Polish: Mineralogia eksperymentalna (II cycle, II year, specialization Applied Mineralogy and Gemmology, GiG) (2018,2019)
- **Mineral engineering**
In Polish: Inżynieria mineralna (II cycle, II year., specialization Waste Management, IŚ) (2018)
- **Mineral sorbents in environmental protection**
In Polish: Sorbenty mineralne w ochronie środowiska (II cycle, II year., specialization Environmental Assessment, OŚ) (2017,2018,2019)
- **Soil pollution and remediation**
In Polish: Skażenia i rekultywacja gleb (II cycle, I year., specialization Environmental Assessment, OŚ) (2018)
- **Mineral engineering in environmental protection**
In Polish: Inżynieria mineralna w ochronie środowiska (II cycle, II year., specialization Techniques of Environment Remediation, OŚ) (2017,2018)

Achievements / awards

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| 2021 | Best Presentation Award at <i>6th International Conference on Water Pollution and Treatment (online)</i> |
| 2018 | Clay Minerals Group (Mineralogical Society of Great Britain & Ireland) bursary for the conference: <i>9th Mid-European Clay Conference (MECC), Zagreb, Croatia</i> |
| 2018 | 1 st prize for the best poster presentation at <i>55th Annual Meeting of the Clay Minerals Society, Urbana-Champaign, USA</i> |
| 2018 | The MMS Organising Committee grant for the conference: <i>Minerals & Materials Sciences (MMS)2018, Bari, 24-26.07.2018</i> |
| 2018 | Discintion for presentation at <i>XIX International Conference of Young Geologists, Herlany, Slovakia</i> |
| 2018 | Blair Jones/Jane Flynn award for the highest ranked abstract in CMS Student Travel Award 2018 competition |

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| 2018 | The Clay Minerals Society Student Travel Award for the Conference: 55th Annual Meeting of the Clay Minerals Society 2018, Urbana-Champaign, USA |
| 2017 | Discintion for presentation at <i>XVIII International Conference of Young Geologists, Dobczyce, Poland</i> |

Parametric summary of the scientific output

Citations (*Scopus*): **36**, without auto-ciatations: **29**

Hirsch index (*Scopus*): **3**

Citations (*Web of Knowledge*): **28**

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

Supervisor

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| 2021 | <i>Patrycja Rogala</i> . Synthesis of F-containing hydroxyapatites and determination of the quantitative analysis method for the determination of F content in hydroxyapatites. (Synteza hydroksyapatytów zawierających F i opracowanie metody analizy ilościowej dla określenia zawartości F w hydroksyapatytach.) (student project) |
| 2021 | <i>Klaudia Dziewiątka, Anna Jędras, Mateusz Skalny</i> . The influence of Sm presence on fluorescence of the Pb-apatite – pyromorphite. (Wpływ obecności Sm na fluorescencję apatyty ołowiowego – piromorfitu.) (student project) |
| 2021 | <i>Kacper Staszcz, Kamil Urbański, Adam Tomczak</i> . Synthesis and identification of Pb ₂ La-PO ₄ phase. (Synteza i identyfikacja fazy Pb ₂ La-PO ₄) (student project) |
| 2019 | <i>Justyna Hałabuza</i> . Synthesis of a synthetic hydrocalumite via transformation of an aluminium can and a limestone powder and its' affinity towards Cr(VI). (Otrzymywanie syntetycznego analogu hydrokalumitu poprzez transformację aluminiowej puszki i mączki wapiennej i ocena jego zdolności sorpcyjnych względem Cr(VI)) (student project) |
| 2018 | <i>Karolina Bałaga</i> . The synthesis of easily-separable magnetic composites based on LDH: potential application in water treatment. (Synteza łatwo separowalnych kompozytów magnetycznych na bazie LDH: potencjalne zastosowanie w oczyszczaniu roztworów wodnych) (student project) |

Membership:

- Mineralogical Society of Poland (member) 2017 - present
- Clay Minerals Society (member) 2017-present
- Association Internationale pour l'Etude des Argiles AIPEA (member) 2017-present
- Society of Chemical Industry (member) 2021-present

Certificates:

- Assistant of Quality Management PN-EN ISO 9001:2015; Polskie Centrum Badań i Certyfikacji, 2017
- Internal Auditor of Quality Management PN-EN ISO 9001:2015; Polskie Centrum Badań i Certyfikacji, 2017
- Certificate of finishing the Projecting, programming and database optimisation course based on Oracle 10g server, intermediate; Institute of Applied IT, Cracow University of Technology, 2017
- Certified Allied Telesis Technician (CAT), Institute of Applied IT, Cracow University of Technology, 2017

Conference organization:

2020 – XXIst International Conference of Young Geologists, Niedzica - member of Organizing Committee

2019 - 4th Mineral Sorbents Conference, Jerzmanowice - member of Organizing Committee

Non-academic experience:

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| 2017 | Intern at Quality & Environment Department, EDF Polska S.A. |
| 2016 | Sales and technical advisor on household water treatment systems, FHU Impet |
| 2014 | Intern at Field Research Department of Environmental Protection Inspectorate in Cracow |

Kraków, 27.12.2021