

# CV

## Personal details:

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| <b>Surname:</b>          | Rybka   |
| <b>Name:</b>             | Karolina  |
| <b>Address (Office):</b> | Department of Mineralogy, Petrography and Geochemistry<br>Faculty of Geology, Geophysics and Environmental Protection<br><b>AGH University of Science and Technology</b><br>al. Mickiewicza 30, 30-059 Kraków, Poland |
| <b>Mobile:</b>           | (+48) 798 684 540   |
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## Educational background:

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| <b>at present</b> | <b>Ph.D. in Natural Sciences</b> , discipline: Earth and related environmental sciences<br>AGH University of Science and Technology in Kraków,<br>Faculty of Geology, Geophysics and Environmental Protection.<br>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><br>Supervisor: Jakub Matusik, Ph.D. |
| <b>2017</b>       | <b>Postgraduate certificate</b><br><i>Database and Network Systems + Quality Management.</i><br>Cracow University of Technology<br>Centrum Szkolenia i Organizacji Systemów Jakości   |
| <b>2017</b>       | <b>M.Sc. title</b><br>AGH University of Science and Technology in Kraków,<br>Faculty of Geology, Geophysics and Environmental Protection.<br>Branch: Environmental Engineering, specialization: Mineral Engineering.<br>M.Sc. thesis: <i>Efficiency of selected anions removal from aqueous solutions by nanocomposites derived from Maria III kaolinite..</i><br>Supervisor: Jakub Matusik, Ph.D.  |
| <b>2016</b>       | <b>B.Sc. title</b><br>AGH University of Science and Technology in Kraków,<br>Faculty of Geology, Geophysics and Environmental Protection.<br>Branch: Environmental Engineering.<br>B.Sc. thesis: <i>Causes of air pollution and their influence on the air quality in malopolska.</i><br>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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| 2021.07.15-17    | <i>International Conference on Water Pollution and Treatment (online)</i><br><b>Oral presentation:</b><br>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><br><b>Oral presentation:</b><br>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.   |
| 2021.01.22-02.19 | <i>Science Communication workshop for students and ECRs in the mineral sciences, Mineralogical Society of Great Britain &amp; Ireland (online)</i>  |
| 2020.11.05-06    | <i>XXI International Conference of Young Geologists (online)</i><br><b>Oral presentation:</b><br>Efficiency of selected anions removal by Mg/Al and Mg/Fe LDH obtained with different sources of Mg.<br><b>Co-author of oral presentation:</b><br>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><br><b>Oral presentation:</b><br>Mg/Al LDH obtained via transformation of minerals for the removal of selected elements from acidic and alkaline wastewaters<br><b>Poster:</b><br>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>4<sup>th</sup> Mineral-based sorbents conference, Jerzmanowice, Poland</i><br><b>Oral presentation:</b><br>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><br><b>Oral presentation:</b><br>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  |

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|                  | XPS.   |
| 2019.09.09-10    | <i>The 37th Ad-hoc workshop on Jana2006, Prague, Czech Republic</i><br>Solution refinement and interpretation of crystallographic structures   |
| 2019.07.01-05    | <i>International Conference on Clay Science and Technology EUROCLAY2019, Paris, France</i><br><b>Poster presentation:</b><br>Physico-chemical studies of Mg/Fe and Mg/Al Layered Double Hydroxides obtained via transformation of minerals<br><b>Co-author of poster:</b><br>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><br><b>Oral presentation:</b><br>Mg/Al LDH synthesis via transformation of minerals through AlCl <sub>3</sub> hydrolysis  |
| 2018.10.25-28    | <i>XXVth Meeting of the Petrology Group of the Mineralogical Society of Poland, Brunów, Poland</i><br><b>Co-author of poster:</b><br>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><br><b>Co-author of poster:</b><br>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><br><b>Oral presentation:</b><br>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><br><b>Poster presentation:</b><br>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><br><b>Poster presentation:</b><br>The quality of Mg-Fe Layered Double Hydroxide derived from magnesite and hematite<br><b>Co-author of the oral presentation:</b><br>Halloysite-based hybrid composites with synthetic LDH and their affinity to remove anions  |
| 2018.04.04-07    | <i>XIX International Conference of Young Geologists, Herlany, Slovakia</i><br><b>Oral presentation:</b><br>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>  |

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|                              | <b>Oral presentation:</b><br>Efficiency of Pb(II) and Mo(VI) removal by kaolinite impregnated with zero-valent iron particles.   |
| <b>2017.03.29-2017.04.02</b> | <i>XVII International Conference of Young Geologist, Dobczyce, Poland.</i><br><b>Oral presentation:</b><br>Efficiency of selected anions removal by kaolinite impregnated with iron-bearing nanoparticles. |

### Teaching experience

- **Experimental mineralogy**  
*In Polish: Mineralogia eksperymentalna*  
(2<sup>nd</sup> degree, 2<sup>nd</sup> year, specialization Applied Mineralogy and Gemmology, GiG) (2018,2019)
- **Mineral engineering**  
*In Polish: Inżynieria mineralna*  
(2<sup>nd</sup> degree, 2<sup>nd</sup> year, specialization Waste Management, IŚ) (2018)
- **Mineral sorbents in environmental protection**  
*In Polish: Sorbenty mineralne w ochronie środowiska*  
(2<sup>nd</sup> degree, 2<sup>nd</sup> year, specialization Environmental Assessment, OŚ) (2017,2018,2019)
- **Soil pollution and remediation**  
*In Polish: Skażenia i rekultywacja gleb*  
(2<sup>nd</sup> degree, 1<sup>st</sup> year, specialization Environmental Assessment, OŚ) (2018)
- **Mineral engineering in environmental protection**  
*In Polish: Inżynieria mineralna w ochronie środowiska*  
(2<sup>nd</sup> degree, 2<sup>nd</sup> year, specialization Techniques of Environment Remediation, OŚ) (2017,2018)

### Achievements / awards

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| <b>2021</b> | Best Presentation Award at 6 <sup>th</sup> International Conference on Water Pollution and Treatment (online)   |
| <b>2018</b> | Clay Minerals Group (Mineralogical Society of Great Britain & Ireland) bursary for the conference: 9 <sup>th</sup> Mid-European Clay Conference (MECC), Zagreb, Croatia |
| <b>2018</b> | 1 <sup>st</sup> prize for the best poster presentation at 55 <sup>th</sup> Annual Meeting of the Clay Minerals Society, Urbana-Champaign, USA                           |
| <b>2018</b> | The MMS Organising Committee grant for the conference: Minerals & Materials Sciences (MMS)2018, Bari, 24-26.07.2018   |
| <b>2018</b> | Discintion for presentation at XIX International Conference of Young Geologists, Herlany, Slovakia  |
| <b>2018</b> | Blair Jones/Jane Flynn award for the highest ranked abstract in CMS Student Travel Award 2018 competition   |
| <b>2018</b> | The Clay Minerals Society Student Travel Award for the Conference: 55 <sup>th</sup> Annual Meeting of the Clay Minerals Society 2018, Urbana-Champaign, USA             |
| <b>2017</b> | Discintion for presentation at XVIII International Conference of Young Geologists, Dobczyce, Poland   |

### *Parametric summary of the scientific output*

Citations (*Scopus*): **27**, without auto-citations: **24**

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

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Citations (*Web of Knowledge*): **21**, without auto-citations: **21**

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

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### *Supervisor*

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| <b>2019</b> | <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 puszkę i mączki wapiennej i ocena jego zdolności sorpcyjnych względem Cr(VI)) ( <b>student project</b> ) |
| <b>2018</b> | <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) ( <b>student project</b> )  |

### 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

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

Kraków, 22.07.2021