# Mineralogical Society of Poland

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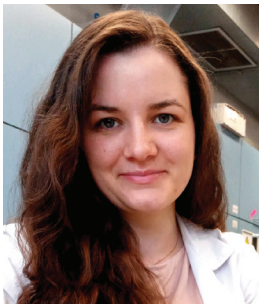
## YOUNG SCIENTISTS AWARDED

The Best Master's and Best PhD Thesis Awards are given annually by the Mineralogical Society of Poland and recognize outstanding and original contributions in the area of mineralogy, petrology, and geochemistry. As always, numerous excellent contributions were submitted in 2023 and the jury decided to award two doctoral and two master's dissertations. Congratulations to the winners! We wish them good luck on their scientific paths.



The Award for the Best Doctoral Thesis of 2023 was received by **Karolina Rybka**. The thesis "Hydrotalcite-like adsorbents derived via transformation of selected minerals for the removal of anions from aqueous solutions" was supervised by Jakub Matusik and the research was carried out at the Faculty of Geology, Geophysics and Environmental Protection, AGH University of Krakow. This work was conducted at the border of mineralogy and materials engineering, and aimed to develop a facile and cost-effective method for synthesis of layered double hydroxides (LDH, hydrotalcite-like materials) via transformation of abundant minerals, i.e., magnesite, dolomite, halloysite, and hematite. The obtained LDH materials demonstrated high efficiency in removing anionic pollutants, which shows their potential applicability in the industrial wastewater treatment sector. These materials are an alternative to conventionally obtained LDH from chemical reagents. The use of various methods of structural analysis has revealed similar features and comparable affinity towards anionic pollutants. Currently, Karolina is continuing her research on layered minerals at the Institute of Geological Sciences, Polish Academy of Sciences, with a focus on clay minerals.

The Award for the Best Doctoral Thesis also went to **Tomasz Powolny**, who completed his research at the same institution as Karolina, the Faculty of Geology, Geophysics and Environmental Protection, AGH University of Krakow. His PhD thesis, entitled "Petrogenesis of Permian volcanics from the Intra-Sudetic Basin (Lower Silesia, Poland) and their alteration products," was chiefly aimed at the origin of continental non-marine spilitization of volcanogenic rocks from the Intra-Sudetic, the timing of this process concerning other regional-scale (tectono-magmatic) events recognized in SW Poland, as well as the mobility of trace elements during the formation of spilitic assemblages. His work also deciphered the magma evolution in the study area and put constraints on the relationships between spilitization and the development of coexisting moss and vein-type agate mineralization in amygdaloidal varieties of volcanic rocks. Tomasz is now a post-doctoral researcher at the Faculty of Natural Sciences (University of Silesia in Katowice, Poland), where he deals with dedolomitization processes recognized in the cave system from the Rovte area (central Slovenia). His area of interest also covers chalcedony-forming mechanisms in agate deposits worldwide, as well as the petrology of alkaline rocks from NE Vietnam.

The Best Master's Thesis of 2023 was realized by **Jacek Futrzyński**. The awarded work under the title "Uvarovite from reduced native Fe-bearing paralava, Hatrurim Complex, Israel" was carried out at the Institute of Earth Sciences, University of Silesia under the supervision of Evgeny Galuskin and Rafał Juroszek, and published as an article in *Lithosphere* (Futrzyński et al. 2023). Results of an investigation of a new genetic type of uvarovite, $Ca_3(Cr,Al,Ti^{4+}V^{3+})_2(Si,Al)_3O_{12}$, detected in unusual wollastonite-gehlenite paralava within the Hatrurim Complex in Israel, are presented in the article. This paralava contains nodules and grain aggregates of native Fe. The article presents the results of compositional, structural, and Raman spectroscopic investigations of the uvarovite. Associate minerals are also described, including rare minerals zoharite, djerfischerite, schreibersite, wüstite, tetrataenite, and Fe3N. The crystallization of uvarovite occurs in the narrow interval of oxygen fugacity, a little above the iron-wüstite buffer $fO_2 \geq \Delta IW$. The study published by Futrzyński et al. suggests the finding of "meteoritic" garnet, such as rubinite ($Ca_3Ti^{3+}2Si_3O_{12}$) in super-reduced, phosphide-bearing pirometamorphic rocks of the Hatrurim Complex.

**Mateusz Wolszczak** was also honored with the award for the Best Master's Thesis. The awarded work, entitled "The influence of variation in maceral composition on microorganism activity in the copper bearing shale" was carried out at the Institute of Geological Sciences of the University of Wrocław under the guidance of Anna Potysz and Grzegorz Lis. Mateusz's master's thesis delved into the exploration of microbially induced bioleaching as a potential process to extract metals from copper-bearing black shales. The experimental approach involved incubating both autotrophic and heterotrophic bacterial strains, with a focus on quantifying the amounts of metals released into the incubation solution. One of the conclusions reached through the studies indicated that heterotrophic bacteria can effectively utilize rock-contained organic matter as a carbon source, thereby stimulating bioleaching of metals. These groundbreaking conclusions contribute significantly to our understanding of the potential applications of microbially induced bioleaching in metal recovery processes. Mateusz's dedication to advancing our knowledge on bioleaching continues as he pursues his PhD at the University of Wrocław.