Mineralogical Society of Poland

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YOUNG SCIENTISTS AWARDED

The Best Master 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.

This year, just like in 2021, the jury decided to award three prizes: one for doctoral and two for master dissertations. Congratulations to the winners! It is the first, but certainly not the last award in their scientific careers.

Piotr Król during the fieldwork in Greenland.

The Best Doctoral Thesis of 2023 "Evolution of continental crust in the Archean Napier Complex, East Antarctica" was written by **Piotr Król** under the supervision of Prof. Monika A. Kusiak (Institute of Geophysics, Polish Academy of Sciences, IG PAS). It addresses the geological history of the Napier Complex in Enderby Land in East Antarctica. The complex contains ultra-high (>900 °C) temperature granulites and crusts that extend in age back to almost 4 billion years ago. The dissertation involved U-Pb isotope analysis of mineral zircon, along with chemical analysis of the whole rock geochemistry from samples collected by Australian expeditioners in the 1960s and 70s. These have greatly increased the known extent of Eoarchean (>3.6 billion years) crust (Krol et al. 2020; https://doi.org/10.1016/j.gr.2019.12.014). The project also revealed younger crustal domains in other areas, including the Scott and Raggatt Mountains, showing that the Complex was built 2.5 Ga from several crustal components before and after the 2.8-Ga event (Krol et al. 2022; https://doi.org/10.1016/j.precamres.2021.106530). Piotr continues his work with Archean rocks from granulitic terranes in Antarctica, India, and Greenland at the IG PAS in Warsaw, Poland.

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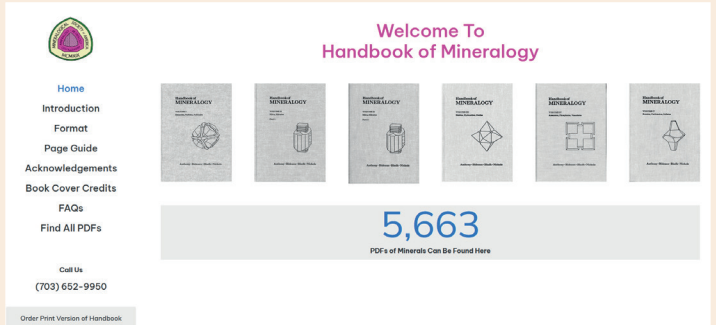
Dana Medal, the Roebling Medal; the websites; and the Distinguished Lecturer program. If you have not done so previously, please consider contributing at the next opportunity.

DID YOU KNOW?

The *Handbook of Mineralogy* has been re-designed as part of the new MSA website: https://handbookofmineralogy.org/. This open access publication contains pdfs of 5,663 minerals (as of this writing) and is constantly updated. The minerals are in alphabetical order and are easily searchable. Information about each mineral includes chemical formula, crystal data, physical and optical properties, cell data, X-ray diffraction pattern, and much more. A limited number of hard copies of the five-volume handbook are available for sale by contacting the MSA Business Office at business@minsocam.org.



Dominika Wicher-Jarząb.

One of the works awarded in the category Best Master Thesis of 2022 was written by **Dominika Wicher-Jarząb** under the supervision of Adam Szuszkiewicz at the Institute of Geological Sciences, University of Wrocław. The thesis "Mineralogical characteristics of tourmaline from selected occurrences of the mylonitized rocks of the Niemcza zone" is a mineralogical study of tourmalines from mylonites, quartz-graphite schists, and metapsammites in the Niemcza shear zone, SW Poland, at the northeastern periphery of the European Variscides. Dominika analyzed the tourmalines in terms of their appearance, mode of occurrence, solid inclusion assemblages, and chemical composition. The main aim of this research was to test the potential of these minerals in reconstructing metamorphic evolution of the Niemcza zone rocks. To achieve this goal, she used scanning electron microscopy, electron microprobe, and Raman microspectroscopy. The obtained results allowed her to identify principal substitution mechanisms in the crystals and to classify them as mostly oxy-dravite and dravite, rarely magnesio-foitite, with a small amount of schorl molecules. Dominika also demonstrated the metamorphic origin of the crystals and showed that their complex internal structure reflects variations of PT conditions during crystallization that can be correlated with the polyphase evolution of the Niemcza zone.

Alongside her geological education, Dominika also successfully pursued her great passion for music and received a master's degree at the Academy of Music in Wrocław.

Agnieszka Huć

The other award in the category of Best Master Thesis was received by **Agnieszka Huć**, supervised by Marcin Stachowicz (Department of Geochemistry, Mineralogy, and Petrology, Faculty of Geology, University of Warsaw). Agnieszka's thesis is focused on structural transformations of chevkinite group minerals. The subject of her work is part of a larger project on understanding the processes of mobilization and concentration of rare earth elements (REE) in the Earth's crust. The chevkinite-group minerals (CGM) are dominantly monoclinic REE-Ti-Fe sorosilicates, with REE_2O_3 contents up to ~50 wt%. Minerals of the group are known from hundreds of terrestrial localities and have also been recorded in lunar and Martian rocks. The studied crystals of chevkinite (Ce) originated from the pegmatite of Harramosh, Pakistan, and had an average formula of $(Ce_{1.8}La_{0.81}Nd_{0.65}Ca_{0.44})_4Fe^{2+}(Fe^{2+}_{1.02}Ti_{0.77}Mn_{0.14}Mg_{0.10})_{2.0}\ Ti_{2.0}(Si_2O_7)_2$. The main aim of Agnieszka's thesis was to examine the temperature and pressure conditions of crystal formation, as well as later alteration processes. This was done as hydrothermal alteration experiments, a series of experiments in the oven at temperatures ranging from 550 to 1000 °C and during high-pressure experiments in a diamond anvil cell (DAC) apparatus at pressures up to 5 GPa. The study shows that controlling the temperature, time, air or argon environment, and quenching mode during the experiments may lead to transformations of the crystal structure in both directions (from $P2_1/a$ to $C2/m$, from $C2/m$ to $P2_1/a$) depending on the conditions.

The hydrothermal experiments promoted transformation from $C2/m$ toward $P2_1/a$ symmetry, while applying high pressure in the DAC reversed the process.