

## **Mineralogical Society of Poland**

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## REPORT 2022: HOW MINERAL SCIENCES ARE EVOLVING IN POLAND

The International Mineralogical Association declared 2022 the Year of Mineralogy, which prompts thoughts about who is a mineralogist. In Poland, those who consider themselves mineralogists join the Mineralogical Society of Poland and/or declare a research interest in mineral sciences in the national database "The People of Science" (http:// www.nauka-polska.opi.org.pl/). Interestingly, out of the 212 researchers included in the national database who declared themselves as mineral sciences researchers, only 60 belong to the Mineralogical Society of Poland. The plausible explanation for this observation is that those who work with minerals do not necessarily have a background in mineralogy or petrology, and do not identify themselves as mineralogists. They could be soil scientists, environmental scientists, material scientists, paleontologists, archaeologists, physicists, etc. The Mineralogical Society of Poland brings together mineralogists as well as petrologists and geochemists but, surprisingly, few geologists. Polish mineralogists have a strong sense of conducting research beyond the limits of geology.

and 22 in 2021 out of 27 Scopus main categories. Likewise, the number of sub-subjects also increased significantly from 73 in 2012 to 117 in 2021 out of 334 Scopus sub-categories, and the number of source titles increased from 82 in 2012 to 139 in 2021. Despite this increase, Polish mineralogists keep publishing their results predominantly in Polish journals with the notable exception of *Minerals*, which became the journal of choice for many Polish mineralogists during the last 10 years (FIG. 1B). Polish mineralogists have changed their way of doing research as is evidenced by a rapid decrease in single-authorship publications from 14% in 2012 to 2% in 2021, and the corresponding increase in national collaborations from 28% to 40% and in international collaborations from 30% to 36%. Intra-institutional research collaborations declined over the same period from 27% to 20%.

The multidisciplinary nature of mineral sciences has become increasingly pronounced as many chemists, physicists, environmentalists, archeologists, and biologists find their place within mineralogy, mostly through cooperation with more Earth-science focused researchers. This trend should be applauded because it bodes well for the future development of mineral sciences.



(A) The interdisciplinary nature of mineral sciences in Poland is evident from the bubbles on the wheel of science (SciVal analyses of scholarly output of mineralogists in Poland between 2012 and 2021). Each bubble represents a topic. The size of the bubble indicates the output in the topic, whereas the position of the bubble is based upon the ASJC categories of the journals. (B) The increase in the number of journal sources in which Polish mineralogists publish. The five journals to which Polish mineralogists contributed the most in the consecutive 10-year periods of 2001–2011 and 2011–2021 are listed on the plot. The numbers refer to the articles by Polish authors or coauthors.

Mineral sciences have evolved toward embracing various interdisciplinary fields, including environmental and material sciences, engineering, agricultural and biological sciences, archeology, history, chemistry, physics, and even medical sciences. This is reflected in the publications of Polish mineralogists (FIG. 1A). According to SciVal analyses, 226 Polish researchers, working within mineral sciences and having at least one publication in the Scopus database, published 2530 articles between 2012 and 2021 in 829 topic clusters, many of them interdisciplinary. Mineralogical investigations in Poland have become increasingly interdisciplinary, as is shown by a steady increase in the number of main subject areas covered by publications, i.e., 16 in 2012



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