

Editorial

## Foreword to the special issue arising from the 9<sup>th</sup> European Conference on Mineralogy and Spectroscopy

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Spectroscopy methods provide valuable information about the local structure of minerals, since they do not depend on long-range periodicity (they are sensitive to defects or substitutions and vice versa), and, therefore represent great complementary techniques to diffraction methods that are used to analyze periodic (global) structures of minerals. Spectroscopy techniques have been successfully applied to the minerals during past decades, namely due to still-growing possibilities connected with the evolution of the instrumentation and data analysis.

Following the European Spectroscopic Conferences in Rome (1988), Berlin (1995), Kiev (1996), Paris (2001), Vienna (2004), Stockholm (2007), Potsdam (2011) and Rome (2015), the 9<sup>th</sup> European Conference on Mineralogy and Spectroscopy (ECMS 2019) took place at Břevnov

Monastery, Prague, Czech Republic on September 10–13, 2019. The conference brought together 111 participants from 20 countries. One hundred two oral and poster contributions were presented during three days. Among these contributions, six invited keynote-talks were presented by Peter C. Burns (University of Notre Dame, USA), Janice Bishop (SETI Institute, USA), Sergey V. Krivovichev (St. Petersburg State University, Russia), Anna Vymazalová (Czech Geological Survey, Czechia), Jural Majzlan (Friedrich Schiller Universität, Germany) and Sergey S. Lobanov (GFZ German Research Center for Geosciences, Germany). About one third of the delegates were students, who had the opportunity to present their work to broad international audience. Two workshops focused on gemstone deposits and training in crystallographic com-



Participants of the 9<sup>th</sup> European Conference on Mineralogy and Spectroscopy at the courtyard of the Břevnov monastery.

puting system Jana2006 were organized the ECMS 2019 meeting. Moreover, a scientific section of the conference dedicated to the uranium mineralogy has been held on occasion of the 90<sup>th</sup> birthday of Dr. Jiří Čejka.

The 9<sup>th</sup> European Conference on Mineralogy and Spectroscopy covered mineralogy, spectroscopy and related fields of science, with a special focus on interplay between short- and long-range information revealing physico-chemical properties of both crystalline and amorphous materials. The six contributions in this special issue of the *Journal of Geosciences* cover a wide range of topics presented at the ECMS 2019.

The first paper by *Giaccherini et al.* presents a new two-step solvothermal approach to obtain nanoparticles in the kuramite–stannite ( $\text{Cu}_3\text{SnS}_4$ – $\text{Cu}_2\text{FeSnS}_4$ ) join and subsequent multi-analytical characterization of the experimental products. The study reveals a complicated situation in multinary sulfides and factors that control the final properties of the products, especially those of interest in solar cell applications. Paper by *Steciuk et al.* describes a modulated crystal structure of calcurmolite, a rare supergene uranyl–molybdate mineral. In order to overcome difficulties related to the poor crystallization ability of the mineral, the crystallographic data were obtained by a precession electron diffraction tomography. Paper by *Mottram et al.* focuses on laboratory X-ray absorption spectroscopy experiments and instrumentation and documents their feasibility for valence state

determination of iron from X-ray absorption near-edge structure spectroscopy at in-lab conditions. Contribution by *Malczewski et al.* deals with the partially metamict mineral davidite and a determination of the activation energy obtained from the Mössbauer spectroscopy. Both contributions document the power of (even) laboratory methods applied to various problems. *Tvrđý et al.* describe structural details of zincoberaunite, a rare member of the beraunite group. Refinement of cation disorder and detailed analysis of complex water and hydrogen bonding supported by Raman spectra extend knowledge on this group of phosphates. The work of *Vasilev et al.* is focused on inverse distribution of optical centers within the growth zones of cuboid diamonds from three deposits in Russia. Authors used using Fourier-Transform infrared (FTIR) and photoluminescence (PL) spectroscopy to study A and C centers and their distribution within the diamond crystals.

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