

Preface

The 8th European Conference on Mineralogy and Spectroscopy

Mineral spectroscopy is nowadays a current component of most Earth Sciences research projects where it is applied to fundamental scientific questions, cutting-edge technology and societal questioning. The 8th European Conference on Mineralogy and Spectroscopy (ECMS 2015, <http://www.ecms2015.eu/>) was held in Rome, Italy, from September 9 to 11, 2015, sponsored by the Italian Society of Mineralogy and Petrology, Sapienza University of Rome and the Italian National Research Council. After the first edition held in Rome in 1988, this was a welcome back to the Eternal City.

The conference brought together 120 participants from 19 countries across Europe, America, Asia and Australia, and offered an opportunity for students and young researchers to interact with established, well-known scientists. A total of 100 contributions spanning from theoretical and computational mineralogy to new or well-established experimental approaches were presented, and can be downloaded from the Periodico di Mineralogia website (<http://periodicodimineralogia.it/index.php/mineralogia/issue/view/29>).

ECMS 2015 covered a combination of spectroscopy and crystallography applied to mineral sciences, with special focus on the interplay between short-range and long-range information to account for physical properties of minerals and crystalline materials. This meeting offered to a growing scientific community the opportunity to reconsider the emerging role of Mineralogy and advanced mineral characterization in facing the new challenges of the present-day society.

The ten papers included in this thematic issue of the European Journal of Mineralogy are related to the conference and feature the variety of topics currently investigated in Mineralogy (and related fields) using spectroscopic approaches. Hawthorne reviews the local atomic arrangements in amphibole, tourmaline and pyroxene, and their effects in the (OH)-stretching region of the vibrational spectra. Infrared and Raman spectroscopies are also exploited by Weis et al., Golubev et al., and Ciesielczuk et al. Weis et al. analyze the hydrogen bridges and characterize the (OH)-dipole in zoisite, Golubev et al. show that changes in natural nanostructured carbonaceous materials from low to intermediate metamorphic grades can be followed by spectroscopic techniques in addition to high-resolution transmission electron microscopy, Ciesielczuk et al. employ Raman imaging and cluster analysis to reveal chemical heterogeneity and structural disorder in the pseudomalachite–cornwallite and kipushite–philipsburgite phosphate–arsenate solid solutions. Tempesta et al. present micro-destructive and standardless chemical analyses of red beryls by means of Laser Induced Breakdown Spectroscopy and reveal different mineral species, while the studies by Ertl et al., Vereshchagin et al., Goryunov et al. and Giaccherini et al. combine spectroscopic methods with X-ray diffraction. In particular, Ertl et al. describe a new Fe³⁺-dominant mineral of the tourmaline supergroup, bosiite, with the help of Mössbauer spectroscopy. Vereshchagin et al. characterize the crystal structure and cation distribution of a synthetic Ga-dominant tourmaline. Goryunov et al. utilize Mössbauer spectroscopy with a high velocity resolution to study iron meteorites and their weathering products. Giaccherini et al. investigate synthetic pyrite nanoparticles obtained by a “green” process and showing the same technological properties as the bulk pyrite. A multianalytical approach including Mössbauer and nuclear magnetic resonance spectroscopies is also pursued by Rettenwander et al. to locate and characterise the role of dopants in Li-bearing garnets, technologically relevant materials for energy storage.

We thank all the contributors – authors and reviewers – to this thematic issue of the European Journal of Mineralogy, and Chief Editor Patrick Cordier, Managing Editor Christian Chopin and staff of the Publisher for their invaluable assistance during the publication process.

We look forward to the next ECMS conference which is planned to take place in 2019 in Prague, Czech Republic.

The Guest Editors
Giovanni B. ANDREOZZI (Sapienza University of Rome)
Ferdinando BOSI (Sapienza University of Rome)
Francesco DI BENEDETTO (University of Florence)