



XXII GENERAL MEETING OF THE INTERNATIONAL MINERALOGICAL ASSOCIATION (IMA2018)

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IMA2018 MEMORIES

The XXII General Meeting of the International Mineralogical Association, IMA2018, was held 13–17 August 2018 at the Melbourne Convention Exhibition Centre in beautiful downtown Melbourne (Australia) and was hosted by the Geological Society of Australia (<https://www.gsa.org.au/>). Six hundred people from 38 different countries attended five days of talks, one day of workshops, and pre- and post-conference fieldtrips.



IMA President Patrick Cordier (FAR RIGHT) and Past President Peter Burns (FAR LEFT) with the IMA PhD Student Award recipients (LEFT TO RIGHT): Stefan Farsang, Philippe Belley and Marek Tuhý.

The ten plenary sessions were both packed out and insightful. Jill Banfield (University of California at Berkeley, USA) discussed her research group's work on high-resolution transmission electron microscopy, a technique which is now able to image individual layers in smectite clays. Frank Reith (University of Adelaide, Australia) presented his research on gold and platinum, elements long thought to be immobile but which actually possess microbially driven geochemical cycles. Juraj Majzlan (University of Jena, Germany) discussed his work on a wide variety of mine drainage sites and the importance of understanding the solubility and thermodynamic properties of minerals to properly remediate contaminated areas. Janice Bishop (SETI Institute, California, USA) discussed mechanisms for the formation of phyllosilicate and sulfate minerals, which are likely to have formed in warm waters early in the history of Mars. Motohiko Murakami (ETH Zurich, Switzerland) described his work on mineralogy at the extreme environment of the core-mantle boundary, which stemmed from his discovery of the post-perovskite $MgSiO_3$ phase in 2004. The 2017 IMA medalist Emil Makovicky (Copenhagen University, Denmark) presented a lecture on the mineralogy of thallium sulfosalts, a fascinating group of minerals which typically display metal-metal interactions. Peter Burns (University of Notre Dame, Indiana, USA) reviewed recent developments in uranium mineralogy, from sklodowskite to bluelizardite to paddlewheelite. Paul Agnew (Chief Geologist with Rio Tinto Exploration) discussed the role of mineralogy in mineral exploration: the techniques available are ever more sensitive, but it is also becoming more and more difficult to find new deposits. Kathryn Goodenough (British Geological Survey) presented her research on the rare-earth elements, postulating that their increasing demand could result in the opening of new mines to exploit as-yet-untapped deposits. Sergey Krivovichev (Saint Petersburg State University, Russia) presented his work on the information contained in mineral structures: while not as complex as biological structures, minerals can be ranked using complexity analysis by treating the unit cell as a box of information. These one-sentence overviews cannot do justice to the quality of each speaker, but they do provide an idea of the scope of the plenary talks in which each speaker discussed different frontiers in mineralogical science. All were thought-provoking for the attendees.



Excursion to Organ Pipes National Park in the outskirts of Melbourne.

The IMA PhD Student Award enabled three students to present their research in Melbourne. In his presentation, Marek Tuhý (Charles University, Czech Republic) explained how his mineralogical and stable-isotope studies help model the behaviour of metals around mine and processing sites. Stefan Farsang (University of Cambridge, UK) unraveled the fate of carbonates in subduction zones, and Philippe Belley (University of British Columbia, Canada) gave a talk on chemical fingerprinting of gem spinels.

Several trends in mineralogy were frequently touched upon through the course of the conference. Microbes and their role in mineralogical processes are becoming an increasing presence in a science long considered mostly inorganic. Processes relating to iron oxides were also a common topic of discussion, including the role of microbes in a (bio)geochemical iron cycle. The cycling of our 'old favourite' gold dominated talks about the world's best-known precious metal. Lithium also garnered considerable interest at IMA2018, given its potential for uses in efficient batteries, among other applications. Uranium was a focus of many talks, thanks to its structural versatility, continuing uses in some industries, and possible mineralogical methods for storing radioactive waste. Environmental mineralogy was also a highly popular discussion point, often taking the form of leaching studies, or finding a 'greener' way to process minerals or ores by which to access the element of interest. Minerals or mineral-like structures are finding applications in the field of material science, while the role of mineralogists in exploration geology is becoming increasingly important.

One of the most consistently controversial topics in mineralogy – new minerals and related issues – did not fail to deliver. Several talks were presented on mineral diversity, estimates of the number of as-yet-unknown minerals, and related debates about when a mineral becomes too 'anthropogenic' to retain validity as a 'natural' species. The IMA in cooperation with Schweizerbart Science Publishers also published *A Compendium of IMA-Approved Nomenclature* (2018, Edited by Schertl, Mills and Maresch), which covers all the up-to-date papers on mineral and mineral group nomenclature: this includes garnets, epidotes, apatites, tourmalines, pyroxenes, amphiboles, zeolites, sulfosalts, perovskites, pyrochlores and hydrothermalites.

On behalf of the delegates, the IMA thanks the Local Organizing Committee of Andy Christy, Sue Fletcher, Bill Birch, Dermot Henry, Joël Brugger and Pete Williams for all their hard work. We all now look forward to the next IMA General Meeting in Lyon (France) (<http://www.ima2022.fr/>)!

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REFERENCE

Schertl H-P, Mills SJ, Maresch WV (Eds) (2018) *A Compendium of IMA-Approved Nomenclature*. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, Germany, 353 pp