

Mineralogical Society of the UK and Ireland

www.minersoc.org

NOTES FROM LONDON

Apply for a bursary today!



The Mineralogical Society offers a range of bursaries, centrally, as well as through most of its eight SIGs (special interest groups). There is a good rate of success (up to 50% in some cases) so you are encouraged to apply now. These funds can be used to help attend the EMC 2024 conference below.

- £6000 is available from the Senior and Student Bursary funds at <https://www.minersoc.org/bursaries.html>.
- Deadline: Senior Bursary – **15th January 2024**
- Deadline: Student Bursary – **7th December 2023, 1st May 2024**
- Up to £3000 is available annually for the Hazel Prichard Student Bursary and the next deadline is **15th February 2024**.

Check the webpages of the Society Special Interest Groups at <https://www.minersoc.org/sig-bursaries.html> for details of money available.

Society Member, Roy Starkey, included in the King's Honours List

Roy Starkey, has been awarded a British Empire Medal for services to Mineralogy. Many congratulations Roy for an award richly deserved.

EUROPEAN MINERALOGICAL CONFERENCE 2024

The Mineralogical Society will host the fourth iteration of the European Mineralogical Conference in Dublin on 18–23 August 2024. Though we have been busy organizing many of the logistical details over the past two years (the venue is in place, rooms booked, catering organized, field trips being organized, social programme in hand), we have recently moved into a more active phase in terms of the programme.

Online registration will begin before the end of the year. The registration fees will be in the region of €540 for professional scientists and ~€350 for students. This includes all morning and afternoon refreshments as well as lunches and the conference banquet.

The following is the list of sessions that will be available for delegates to choose from:

- Accessory minerals, metamorphism and geochronology
- Analytical, experimental and theoretical approaches
- Applied Mineralogy – general
- Applied Mineralogy – CO₂ capture and storage
- Applied Mineralogy – Primary ore deposits
- Applied Mineralogy – Critical metals



- Applied Mineralogy – Process mineralogy and recycling / the circular economy
- Applied Mineralogy – Gem minerals
- Archaeometry and cultural heritage
- Geomicrobiology and biomineralogy
- Magmatism and igneous geochemistry
- Mantle mineralogy (petrology, geochemistry, and mineral physics)
- Mineralogical Crystallography
- Planetary minerals and evolution with time
- Education and outreach



We are planning field trips to the UNESCO Heritage site, the Giant's Causeway, to the monastic site of Glendalough in Co. Wicklow, to Howth Head (self-guided), and possibly elsewhere. We're also planning a workshop on PHREEQC and one or two non-technical skills sessions (e.g., paper writing, reviewing).

Abstract submission and registration will be open before the end of 2023.

Note that the conference is set to be a hybrid event.

Registration fees will be set at 40%–50% of the equivalent full fees. Those residing in low- and middle-income countries will be invited to join as full participants (attendees, speakers, poster presenters, as well as joining in the discussions) in order to truly share our science in an international way.

Visit and mark our website here: www.emc-2024.org. Complete this form if you would like to be added to our mailing list for updates about the conference.

We look forward to welcoming you to Dublin.

GEORGE BROWN LECTURER FOR 2023

This year's George Brown Lecture was delivered by Dr Janice Bishop of SETI Institute & NASA Ames, California

Characterizing phyllosilicates on Mars and what they reveal about ancient geochemical environments

Spectrometers orbiting Mars and other planets provide information about the surface mineralogy and composition. The Compact Reconnaissance Imaging Spectrometer for Mars (CRISM) instrument on the Mars Reconnaissance Orbiter collected visible/near-infrared (VNIR, 0.4–3.9 μm) spectra at 18 m/pixel surface resolution for >15 years and has enabled mapping of a variety of phyllosilicates and alteration assemblages that reveal information about former aqueous environments, including potentially habitable regions. Analyses of hyperspectral CRISM imagery suggest distinct aqueous geochemical environments on Mars including paleolakes, evaporites, hot springs, and subsurface hydrothermal systems. Phyllosilicates are the most abundant alteration mineral found on Mars and are excellent indicators of the ancient climate and environment. Martian phyllosilicate assemblages reveal planet-wide warm water environments that produced extensive deposits of Fe/Mg-smectite. More localized outcrops of clay/sulfate assemblages and Al-rich phyllosilicates likely formed in acidic environments, potentially resulting from volcanic gasses and surface brines.



Janice Bishop (RIGHT) with Anke Neumann, chair of the Society's Clay Minerals Group

Smectite/chlorite assemblages occur in other regions that are often accompanied by serpentine, talc, prehnite, zeolite, or carbonate and reflect higher temperatures due to impacts, volcanism, or geothermal processes.

Correlating the phyllosilicate assemblages detected on Mars with field and lab observations enables an improved understanding of the aqueous environments at the time these minerals formed or altered, and reflectance spectra are needed of these minerals and mineral assemblages in order to detect

them on planetary surfaces. For example, assemblages of smectite, hematite, and jarosite are observed at cinder cones and fumarole sites in volcanic environments, while smectite, kaolinite, opal, and gypsum are found in some evaporite settings. However, thick deposits dominated by smectite are more prevalent in warm wet/dry cycling environments and frequently form from pyroclastic material. Diagenetic environments include mixtures of smectite with high-temperature phyllosilicates, sulfates, zeolites, and/or carbonates. Alteration in glacial environments results in higher abundances of poorly crystalline phases and fewer crystalline clays and iron oxides. Reflectance spectra of analogue samples from field expeditions, coupled with alteration experiments in the lab, are improving our ability to discern minerals on Mars in complex, natural mixtures. The Martian surface regolith includes elevated S and Cl compared with terrestrial soil, and brine experiments in the lab provide clues to the potential evolution of phyllosilicate assemblages through alteration in Martian brines. Dehydration experiments in the lab also provide constraints on how hydrated minerals on Mars will change over time. The cold, arid surface environment of Mars today does not support formation of phyllosilicates, but many will persist over the long-term once formed. Through coordinated lab-field-remote sensing studies, we can retrace the ancient lacustrine, evaporite, and geothermal environments from the Martian past.

RECENT CONTENT IN MINERALOGICAL MAGAZINE

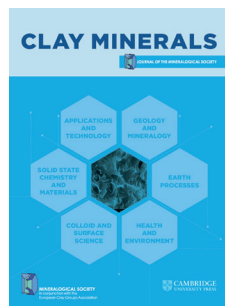
- **Magmatic and post-magmatic evolution of the Newania carbonatite complex, Rajasthan, north-western India** Amritpaul Singh, Roger H. Mitchell, Gurmeet Kaur, D. Srinivasa Sarma
- **Ferriandrosite-(Ce), a new member of the epidote supergroup from Betliar, Slovakia** Martin Števko, Pavol Myšľan, Cristian Biagioni, Daniela Mauro, Tomáš Mikuš
- **Physical properties and crystal structure of near-end-member oxy-dravite from the Beluga occurrence, Nunavut territory, Canada** Lenka Skrápková, Jan Cempírek, Philippe M. Belley, Lee A. Groat, Radek Škoda
- **Fluoralforsite, $\text{Ba}_5(\text{PO}_4)_3\text{F}$ – a new apatite group mineral from the Hatrurim Basin, Negev Desert, Israel** Arkadiusz Krztała, Katarzyna Skrzyńska, Georgia Cametti, Irina Galuskina, Yevgeny Vapnik, Evgeny Galuskin
- **Minerals with a palmierite-type structure. Part I. Mazorite $\text{Ba}_3(\text{PO}_4)_2$, a new mineral from the Hatrurim Complex in Israel** Rafał Juroszek, Irina Galuskina, Biljana Krüger, Hannes Krüger, Yevgeny Vapnik, Volker Kahlenberg, Evgeny Galuskin



- **Minerals with a palmierite-type structure. Part II. Nomenclature and classification of the palmierite supergroup** Rafał Juroszek, Biljana Krüger, Hannes Krüger, Irina Galuskina
- **Rewitzerite, $\text{K}(\text{H}_2\text{O})\text{Mn}_2(\text{Al}_2\text{Ti})(\text{PO}_4)_4[\text{O}(\text{OH})](\text{H}_2\text{O})_{10}\cdot 4\text{H}_2\text{O}$, a new monoclinic paulkerrite-group mineral, from the Hagendorf-Süd pegmatite, Oberpfalz, Bavaria, Germany** Ian E. Grey, Rupert Hochleitner, Anthony R. Kampf, Stephanie Boer, Colin M. MacRae, William G. Mumme, Erich Keck
- **Aluminotaipingite-(CeCa), $(\text{Ce}_6\text{Ca}_3)\text{Al}(\text{SiO}_4)_3[\text{SiO}_3(\text{OH})]_4\text{F}_3$, a new member of the cerite-supergroup minerals** Italo Campostrini, Francesco Demartin, Giuseppe Finello, Pietro Vignola
- **Occurrence and crystal chemistry of austinite, conicalcrite, and zincolivenite from the Peloritani Mountains, northeastern Sicily, Italy** Daniela Mauro, Cristian Biagioni, Jiří Sejkora, Zdeněk Dolníček
- **New arsenate minerals from the Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia. XX. Evseevite, $\text{Na}_2\text{Mg}(\text{AsO}_4)_2\text{F}$, the first natural arsenate with antiperovskite structure** Igor V. Pekov, Natalia V. Zubkova, Atali A. Agakhanov, Marina F. Vigasina, Vasilii O. Yapaskurt, Sergey N. Britvin, Anna G. Turchkova, Evgeny G. Sidorov, Elena S. Zhitova, Dmitry Yu. Pushcharovsky
- **Napoliite, Pb_2OFCl , a new mineral from Vesuvius volcano, and its relationship with dimorphous rumseyite** Anatoly V. Kasatkin, Oleg I. Sidra, Fabrizio Nestola, Igor V. Pekov, Atali A. Agakhanov, Natalia N. Koshlyakova, Nikita V. Chukanov, Evgeny V. Nazarchuk, Simone Molinari, Manuela Rossi
- **Fluorbritholite-(Nd), $\text{Ca}_2\text{Nd}_3(\text{SiO}_4)_3\text{F}$, a new and a key mineral for neodymium sequestration in REE skarns** Dan Holtstam, Patrick Casey, Luca Bindi, Hans-Jürgen Förster, Andreas Karlsson, Oona Appelt
- **Bakakinite, $\text{Ca}_2\text{V}_2\text{O}_7$, a new mineral from fumarolic exhalations of the Tolbachik volcano, Kamchatka, Russia** Igor V. Pekov, Atali A. Agakhanov, Natalia N. Koshlyakova, Natalia V. Zubkova, Vasilii O. Yapaskurt, Sergey N. Britvin, Marina F. Vigasina, Anna G. Turchkova, Maria A. Nazarova
- **Crystallisation of Ca-bearing nepheline in basanites from Kajishiyama of Tsuyama Basin, Southwest Japan** Keiya Yoneoka, Maki Hamada, Shoji Arai

RECENT CONTENT IN CLAY MINERALS

- **Desorption behavior of polymer on sepiolite surfaces under high-temperature and high-salinity conditions** Ling Lin, Yukun Yang, Xin Li, Guobin Jiang, Pingya Luo
- **Theoretical analysis on effect of doping [Na(I), K(I), Mg(II), Ca(II), and Fe(II)] on the electronic and mechanical properties of pyrophyllite** Jian Zhao, Yi-Fei Wang, Zhao-Long Luan, Yu Cao, Man-Chao He
- **Clay mineralogical evidence of near-equatorial Palaeocene-Eocene Thermal Maximum in Barmer Basin, India** Rohit Kumar, Abdul Hameed, Pankaj Srivastava
- **Characterization and drug release of benzalkonium chloride-loaded organo-palygorskite or organo-montmorillonite** Héctor A. Lobato-Aguilar, Wilberth A. Herrera-Kao, Santiago Duarte-Aranda, Fernando J. Aguilar-Pérez, Andrés I. Oliva-Arias, Víctor Rejón-Moo, José M. Baas-López, Jorge A. Uribe-Calderón, José M. Cervantes-Uc
- **Characterization of calcined red soil applied in the removal of methylene blue dye from wastewater to produce a hybrid pigment** Daiane L. Silva, Nayara Balaba, Dienifer F.L. Horsth, Silvia Jaeger, Fauze J. Anaissi
- **Iron removal from kaolin by oxalic acid using a novel pre-agitating and high-pressure washing technique** Bijan Taheri



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