



# Mineralogical Association of Canada

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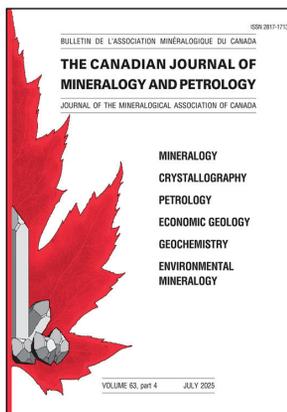
## NEWS FROM THE CANADIAN JOURNAL OF MINERALOGY AND PETROLOGY (CJMP)

### Highlights

The July issue of *The Canadian Journal of Mineralogy and Petrology* (formerly *The Canadian Mineralogist*) kicks off with an important contribution for carbonate petrologists, in the form of a cautionary recommendation from Roger Mitchell on the use and abuse of the mineral name ankerite. Next up, Maëlys Bévan and colleagues at Rennes report on their utilization of geochemistry and petrology to distinguish magmatic and hydrothermal fluid effects in felsic dikes intruding ultramafic rocks in southern Spain. The lithological contrast (and being the opposite of the more common arrangement wherein mafic dikes intrude felsic crustal rocks) allows them to more effectively evaluate the transformations across the magmatic-hydrothermal transition. Andrei Barkov, Bob Martin, and colleagues from elsewhere in Russia examine the Perchatka mafic intrusion from the Kola Peninsula in Russia; the intrusion, part of the Paleoproterozoic belt of rift-related mafic intrusions (and one of my personal favorite belts) that extends from Ontario through to Finland and Russia, features a variety of coronitic textures derived from early deep crystallization and subsequent stewing in its own juices, as it were.

Reza Deevsalar and colleagues from Saskatoon, as well as from Wuhan (China), assess the reliability of Ce-in-apatite geothermometers using combined X-ray photoelectron spectroscopy (XPS) and synchrotron X-ray absorption near-edge structure (XANES and  $\mu$ XANES) spectroscopy on fluorapatites from Mexico. They conclude that the absence of a Ce anomaly is not sufficient evidence to rule out the presence of Ce<sup>+4</sup>, such that Ce speciation needs to be actually measured rather than simply inferred from the REE profile for accurate geothermometry, relevant to REE mineralization and exploration studies. Hexiong Yang (Arizona) and colleagues from his institution as well as from China, and from across the state line in California, introduce the new glycolate mineral rasmussenite,  $\text{Ca}(\text{C}_2\text{H}_3\text{O}_3)_2 \cdot 3\text{H}_2\text{O}$ , from the mountains near Tucson, conveniently (for the authors). The mineral was named for notable Arizona mineralogist and educator Dr. Carol Rasmussen, still active in the area. Finally, workers from the eastern and westernmost U.S. collaborate to reveal blueridgeite (you can work out the origins of the name yourselves; clue for non-“locals”: the Blue Ridge Mountains occur in North Carolina), a new secondary hydrated Pb-Zn-Cu sulfate from the seemingly ever-fecund Redmond Mine, North Carolina.

As final thoughts for this edition, I find it particularly gratifying, editing for this journal, to witness the extent of international collaboration that goes into the generation of scientific research in the geosciences. As a Canadian working in South Africa, currently writing this contribution from China, it is a pleasant reminder of the collegial spirit between scientists and the common desire to understand the natural world. This is not necessarily in itself novel, but my perception is that modern technology of various sorts enhances these kinds of collaborations, and the result is, on average, a more effective and efficient way of communicating science.



## MAC SCHOLARSHIP WINNERS 2025

The Mineralogical Association of Canada funds annual scholarships to graduate students. \$3000 scholarships are available to students enrolled in MSc programs and \$5000 scholarships are available to students enrolled in PhD programs.

We congratulate Maxwell Porter, Sophie Benaroya and Xuefei Fan, each of whom received a 2024 Mineralogical Association of Canada Scholarship.

### Maxwell Porter



Maxwell Porter is a first-year MSc student in geological sciences at the Mineral Deposit Research Unit (MDRU) at the University of British Columbia (UBC), working under the supervision of Professor Shaun Barker and Dr. Farhad Bouzari. He earned his BSc in exploration geology from Cardiff University (Wales), where he examined analytical methods for assessing soil geochemistry for gold exploration in Wales under Professor Iain McDonald. Maxwell has previously worked as an exploration geologist at Brixton Metals and as a student geologist at Anglo American, which focused on exploring for porphyry copper deposits in Canada. He currently volunteers as the Chair of the Society of Economic Geologists Student Committee and previously served as the President of the UBC Society of Economic Geology Chapter from 2023 to 2024.

His research focuses on characterizing the host rocks, alteration processes, and timescales of magmatism in the Camp Creek Late Cretaceous calc-alkalic Cu-Au-(Mo) porphyry deposit located within the Stikine terrane in northern British Columbia, in collaboration with Brixton Metals. The first year of studies has focused on classifying the mineralogy of different intrusive phases and their cross-cutting relationships at Camp Creek. Four drill holes were relogged and sampled to capture additional information on mineralogy, alteration, veining, and cross-cutting relationships. Ongoing research integrates petrography, whole-rock geochemical analysis,  $\mu$ XRF element mapping, shortwave infrared studies, U-Pb geochronology, and whole-rock geochemistry. The project aims to provide insights into potential geochemical vectors for discovering blind porphyry Cu-Au-(Mo) mineralization, which is crucial for sourcing critical metals for the green energy transition.

### Sophie Benaroya



Sophie Benaroya earned her BSc Honours degree in 2020 and her MSc in 2022 from Rutgers University (USA). She is currently pursuing a PhD at the University of Alberta (Canada), where she studies the petrology and geochemistry of the Martian interior under the supervision of Dr. Chris Herd. Sophie was awarded a MAC travel grant to attend the Lunar and Planetary Science Conference in Houston, USA, where she presented experimental results from her development of a new oxybarometer for basaltic Martian meteorites. She also shared her research on the use of X-ray computed tomography for the curatorial handling of terrestrial analogues to samples collected by NASA's *Perseverance* rover at Jezero Crater. This opportunity allowed Sophie to present her research at a pivotal stage of her PhD and gain valuable feedback to support future publications. Her presentation was recognized as the conference's second-best graduate student oral presentation.

**Xuefei Fan**

Xuefei Fan completed her BSc in geology at the University of Toronto (Canada) in 2021, where she was awarded the Wesley Tate Scholarship and Coleman Gold Medal for the top GPA of her graduating class. During her time as an undergrad, she worked on high-grade metamorphic rocks from the Grenville Province under the guidance of Dr. Xu Chu. This project naturally led to her MSc studies co-advised by Drs. Xu Chu and Corliss Sio at the University of Toronto, where she carried on

her studies on the Grenville and branched out to method development and applications of non-traditional isotopes.

In January 2023, Xuefei started her PhD in the Non-Traditional Isotope Laboratory at the University of Washington (USA) with Dr. Fang-Zhen Teng. Her PhD work focuses on using metal stable isotopes, such as Mg and K, to trace subduction zone processes. Her first project is a survey of Mg isotopic compositions of global subduction zone lavas. This work revealed that the common occurrence of high- $\delta^{26}\text{Mg}$  arc lavas is likely a result of flux melting of the mantle wedge triggered by hydrous mineral breakdown in the mantle wedge. While Mg isotopes record the source mineralogy and melting reaction of the mantle wedge, her ongoing project will use K isotopes to study the mechanisms of subducting slab input to the mantle, zooming into the Central America Volcanic Arc. Understanding the petrogenesis of arc lavas is a critical step to decipher the enigmatic origin of the continental crust.

**MAC TRAVEL & RESEARCH GRANT WINNERS 2025****Kiersty Malay**

Kiersty Malay completed her BSc (2021) and MSc (2022) at Saint Francis Xavier University (NS, Canada). She is currently undertaking her PhD at Memorial University (NL, Canada) under the supervision of Dr. Donnelly Archibald and Dr. David Lowe. Her PhD research aims to establish petrogenetic connections between the rare Cs-bearing Hydra pegmatite, Rose Blanche, Peter Snout, and Cochrane Pond granitic plutons, and basin strata in southwestern Newfoundland. She

will investigate the mineralogy in the pegmatite and in the contact aureole. She was awarded the MAC travel grant to attend the GAC-MAC-PEG 2024 conference in Brandon, Manitoba. At this conference, she presented her work as a poster on the Cs-rich Hydra lithium-cesium-tantalum (LCT) pegmatite in southwestern Newfoundland; specifically, the interesting mineralogy present in this Cs-rich pegmatite. This experience was incredibly beneficial to Kiersty as she received great feedback from pegmatite experts at the conference and ideas on how to continue her research.

**Leo Ka Long Cheung**

Leo Cheung is a PhD candidate at the University of Saskatchewan, working under the supervision of Dr. Yuanming Pan in the Department of Geological Sciences and Dr. John S. Tse from the Department of Physics and Engineering Physics. The MAC travel grant provided him the opportunity to attend the 2024 GAC-MAC-PEG conference held at Brandon University. At the conference, he presented a poster showcasing the preliminary results of his research on phosphorus speciation

in majoritic garnet. This study is a first step towards comprehending the residence and dynamics of phosphorus within the Earth's silicate mantle and metallic core. The conference experience not only enabled him to receive invaluable feedback from experts but also allowed him to forge meaningful professional connections.

**Lydia Fairhurst**

Lydia Fairhurst completed an integrated master's and bachelor's degree in July 2020 at the University of Birmingham in England. She is currently a PhD candidate at Dalhousie University in Canada, focusing on kimberlite crystallisation and emplacement under the supervision of Dr. Yana Fedortchouk. She was awarded the MAC travel grant to attend the 12<sup>th</sup> International Kimberlite Conference in Yellowknife, Northwest Territories, Canada. There, she delivered an oral presentation

titled "Understanding Kimberlite Crystallisation and Emplacement: Insights from Reaction Products on Ilmenite and Chromite." Because this conference focused on kimberlites, it provided her with an exceptional opportunity to deepen her understanding of the latest research in the field. This experience enabled Lydia to share her findings with leading experts and receive valuable feedback essential for completing her thesis.

**Carson Kinney**

Carson Kinney is a PhD student in the Department of Earth and Environmental Sciences at the University of Waterloo (Canada) under the supervision of Dr. Chris Yakymchuk. He is currently researching the production and transfer of heat in Earth's crust, which has direct implications for most geologic processes including mineral deposits, the metamorphism-magmatism continuum, and cratonization. Carson was awarded the MAC travel grant to attend the 2024

GAC-MAC meeting in Brandon (Canada). There he gave two oral presentations on the redistribution of heat-producing elements (K, U, and Th) during the melting of mafic rocks and on the tectonic history of the Frontenac Terrane (located in Eastern Ontario, Canada). Attending this conference allowed Carson to disseminate his research, receive valuable feedback from respected leaders, and make meaningful connections with his peers. This grant was greatly beneficial to Carson's development as a scientist.

**Alix Osinchuk**

Alix Osinchuk is a PhD candidate at University of British Columbia Okanagan with Dr. Brendan Dyck. The MAC Travel Award allowed her to attend GAC-MAC-PEG 2024 in Brandon, Manitoba, where she presented her research as an invited speaker on the paleostress in exhumed metamorphic rocks from different tectonic settings. Alix uses the microstructures of minerals, specifically subgrains, to quantify paleostresses in deformed metamorphic rocks, known as paleopiezometry.

Paired with phase modeling and thermobarometry, her approach links the chemical and stress records of metamorphic rocks to understand how ductile deformation is accommodated in different polymineralic rocks.