



# Mineralogical Association of Canada

[www.mineralogicalassociation.ca](http://www.mineralogicalassociation.ca)

## GEOCONVENTION 2020 JOINT MEETING

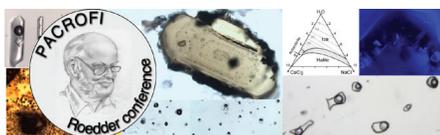
Concerning the GeoConvention 2020 meeting that is being organized in association with Geological Association of Canada–Mineralogical Association of Canada (GAC–MAC) Annual Conference and which is to take place at the Telus Convention Centre in Calgary (Alberta, Canada).



In light of the developing coronavirus outbreak and the resultant directive from the Government of Alberta's Chief Medical Officer, the GeoConvention 2020 meeting and all associated short courses and field trips have been postponed. New dates set for this conference are from 31 August to 2 September. Please visit the conference website to keep up-to-date on developments: <https://geoconvention.com>.

## PACROFI 2020 CONFERENCE

The Pan-American Current Research on Fluid and Melt Inclusions (PACROFI) 2020 conference and the associated



MAC-sponsored short course entitled Fluid and Melt Inclusions to be held at the Geology Department in the University of Calgary have been postponed indefinitely. Please visit the conference website to keep up-to-date on convention news: see <https://cms.eas.ualberta.ca/pacrofi/home-page/pacrofi-2020/>.

## MAC TRAVEL AND RESEARCH GRANT AWARDS IN 2019

The Mineralogical Association of Canada (MAC) awarded 23 Student Travel and Research Grants in 2019 that totaled \$15,000: six went to undergraduate students, nine to MSc students, and eight to PhD students. Congratulations to these deserving individuals! Report excerpts from 12 of the recipients follow.



**Lauren Macquarrie**, an undergraduate student at St. Francis Xavier University (Canada), is completing her BSc honours thesis, which focuses on using titanite to investigate the age and petrogenesis of the Donegal batholith in Ireland. Titanite, a common accessory mineral in granitoid rocks, has the ability to take in uranium and many trace elements into its structure. The MAC Research

Grant allowed her to use laser ablation inductively coupled plasma mass spectrometry at the University of New Brunswick (Canada) to perform uranium–lead dating and trace element analyses to provide essential data for her project.



**Nikol Posnov** completed his BSc (2014) in medical science at the University of Western Ontario (Canada), specializing in microbiology and immunology, with a minor in planetary science and space exploration. To pursue her passion in both subjects, Nikol's MSc project explored the relationship between shock metamorphism, hydrothermal alteration, and microbial

colonization, thereby determining the extent to which basaltic impact rocks can serve as an effective habitat for life on Mars. The MAC Student Travel Grant allowed Nikol to attend the 50<sup>th</sup> Annual Lunar and

Planetary Science Conference (LPSC) in Woodlands (Texas, USA), where she presented two posters: "Classification of Shocked Basalts from Vargeão Dome and Vista Alegre: Implications for the Search of Life on Mars", and "Hydrothermal Alteration of Vista Alegre Basalts: Implication for the Search for Life on Mars". The LPSC conference is the world's premier planetary science conference, and this experience helped her network and build valuable relationships for potential future collaboration.



**Taylor Ledoux** completed his BSc honours thesis in April 2019 and is currently starting an MSc in geology at the University of British Columbia (Canada) studying porphyry indicator mineral geochemistry. In March 2019, he presented the results of his honours thesis as the poster "Thallium Mineralogy of the Taron Epithermal Cesium Deposit: Implications for Economics, Mining,

Metallurgy and the Environment" at the Prospectors and Developers Association of Canada convention in Toronto. This enabled him to share his results on the unusual mineralogy and geochemistry of a unique type of mineral deposit and gain valuable feedback from other researchers and industry professionals. In addition, he attended a short course on the geology, genesis, and exploration for magmatic and magmatic–hydrothermal ore deposits.



**Alison Martin** completed her BSc in geological engineering in 2018 at Queen's University (Canada). She is currently an MSc student in structural geology at Queen's University under the supervision of Dr. Laurent Godin. Her project focuses on three different manifestations of melt which can be found in her field area of northwest Nepal. She is seeking to test the genetic links between these manifestations

of melt and to assess the timing of their emplacement within the tectonic evolution of the Himalaya. She was awarded a MAC Travel Grant to go to the University of California at Santa Barbara (USA) to conduct U–Th/Pb monazite petrochronology on seven different samples, analysing over 100 monazite grains. Alison is grateful to have been given the opportunity to travel to Santa Barbara. She now has a much deeper understanding of how laser ablation systems operate, and she got to see the Pacific Ocean.



**Daniel Meagher** is an M.Appl.Sc. student at Saint Mary's University (Canada) under the supervision of Dr. Jacob Hanley. Using the MAC Travel Grant, he attended the European Current Research on Fluid Inclusions (ECROFI) conference in Budapest (Hungary). The conference hosted roughly 150 of the top fluid- and melt inclusion researchers in the world, and he received invaluable advice on his own

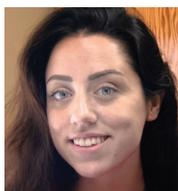
project, "Evaluation of Magmatic Contributions to Gold-bearing Hydrothermal Systems, Mooshla Intrusive Complex, Doyon–Bousquet–LaRonde Mining Camp, Abitibi Greenstone Belt, Québec". His attendance at ECROFI 2019 was also an opportunity to learn in person about the culture and history of Hungary, including visits to museums and monuments in Budapest relating to the fascist and communist regimes of 20<sup>th</sup> century Hungary. He found these experiences to be extremely humbling and was grateful to be given the opportunity.

## MAC PINCH MEDAL – CALL FOR NOMINATIONS

A reminder to submit your nominations by 1 May 2020 to Andrew M. McDonald; E-mail: [amcdonald@laurentian.ca](mailto:amcdonald@laurentian.ca). Check our website, <https://www.mineralogicalassociation.ca/awards/pinch-medal/>, for additional details.



**Sofya Niyazova** completed her undergraduate degree in geology at the University of Calgary (Canada) in May 2013, worked for five years in mining and mineral exploration in Canada and Kazakhstan, and is now an MSc student at the University of British Columbia (Canada). Her research focusses on the petrology of kimberlites; in particular, the nature of metamorphic/metasomatic alterations that felsic xenoliths undergo as they get entrained in the kimberlite melt. Her samples are from the Renard65 pipe in Quebec. By identifying the metamorphic reactions, she hopes to understand the thermal history of the pipe. Presenting her research at the session on carbonatites and kimberlites at the 2019 GAC-MAC conference provided her with a great opportunity to expand her academic network.



**Andree Roy-Garand** is a BSc Honors geology student at Saint Mary's University (Canada), under the supervision of Professor Erin Adlakha. Her BSc thesis used apatite's ability to fingerprint the evolution of hydrothermal fluids to understand the Mactung W (Cu, Au) skarn deposit. Through the classification of multiple chemically distinct generations of apatite, she was able to identify two distinct ore fluids associated with different stages of mineralization. She received the MAC Student Travel Grant to attend the 2018 GAC-MAC conference in Quebec, where she presented her undergraduate research at a national level and could discuss her finding with fellow researchers. She will continue this study as a research assistant at Saint Mary's University where she will work to integrate the trace element chemistry of skarn-hosted scheelite and apatite to more accurately constrain fluid evolution.



**Haylea Nisbet** is a PhD student at McGill University (Canada) under the supervision of Prof. Anthony Williams-Jones and Prof. Vincent van Hinsberg. The MAC Travel Grant allowed her to attend the 2019 Goldschmidt Conference in Barcelona (Spain). Haylea gave the talk "The Behavior of Thorium in REE-bearing Hydrothermal Fluids" at the exceptionally applicable session entitled "Hydrothermal Geochemistry and Mineralogy of Rare Earth and High Field Strength Elements". Her research focuses on deriving the thermodynamic behaviour of thorium and the rare earth elements in hydrothermal systems to better constrain their mobility and deposition during ore formation. She was excited to be approached by several researchers after her talk for feedback, discussion and potential future collaborations.



**Noah John Phillips** is a PhD candidate at McGill University (Canada) under the supervision of Dr. Christie Rowe. He received the MAC Student Research Grant to analyze garnets collected from the Morin Shear Zone (Québec) using electron backscattered diffraction. This project, in collaboration with Dr. Shaocheng Ji (École Polytechnique de Montréal, Canada), aims to determine the deformation mechanisms that operated as the garnets deformed. The grant allowed Noah to spend four weekends on the scanning electron microscope at McGill University, where he mapped individual elongate garnet grains at a spacing of one micron. One weekend of electron microprobe work examined the chemical zonation of the grains. Together, these observations provide constraints on the strength of garnet in the lower crust.



**Morteza Rabiei** is a PhD candidate at the University of Regina (Canada), supervised by Dr. Guoxiang Chi, who is working on the hydrodynamic conditions of the formation of unconformity-related uranium (URU) deposits in the Athabasca Basin, northern Saskatchewan, the richest uranium deposits in the world. The favoured model for these deposits is that of basin-scale oxidizing brines interacting with reducing fluids/basement lithologies to produce U mineralization at unconformities. But this does not solve where the U came from. Morteza attended the 2019 GAC-MAC conference and presented on the microthermometry and geochemical analyses of over 400 fluid inclusions at the "uranium session". He suggested that basinal brines and interaction zones can extend up to 1 km into the basement rock along reverse faults and is not limited to unconformity surfaces between the crystalline basement rocks and overlying basinal sandstones. Morteza also attended a post-conference workshop on the application of laser ablation inductively coupled plasma mass spectrometry to ore deposits.



**Margo Regier** is a PhD student at the University of Alberta (Canada), under the supervision of Profs. Graham Pearson and Thomas Stachel. The MAC Travel Grant allowed her to attend the 2019 Goldschmidt Conference in Barcelona where she presented on the paragenesis of lower mantle-derived blue diamonds. This research utilized the traditional techniques of mineral inclusion identification by Raman spectroscopy, carbon isotope analyses by secondary ion mass spectrometry, but also by a new technique to measure the isotopic signatures of the boron impurities within the diamond matrix. During the conference, Margo participated as a student volunteer and attended several early career sessions, including "Best Practices in Scientific Publishing" and "Non-Academic Careers". She is very grateful for the networking opportunities provided by the MAC grant.



**Stan Roozen** is a PhD student under the supervision of Vincent van Hinsberg at McGill University (Canada). He is studying the phase relationships between aqueous fluids and tourmaline – tourmaline being a mineral that can adjust its composition to suit a wide variety of environments, and, therefore, display a remarkable range in stability in terms of pressure, temperature, fluid- and host-rock composition. Once tourmaline's phase relationships are well understood, this mineral could tell us a tremendous amount about its host rock's history. Stan wants to obtain high-quality thermodynamic data in order to build a crystal-chemical model that describes tourmaline energetics and, in the process, interpret the high pressure and temperature experimental results that comprise the main part of his PhD. Stan will visit the world-class thermodynamic laboratory at the University of Salzburg (Austria) to measure the entropy and the low-temperature heat capacity of tourmaline by using relaxation calorimetry between 3 Kelvin and 300 Kelvin.

### MAC SCHOLARSHIPS

The Mineralogical Association of Canada will award a \$3,000 scholarship to a graduate student enrolled in an MSc program and a \$5,000 to a student in a PhD program. Deadline to apply: **1 May 2020**. Visit the website for more info at: <https://www.mineralogicalassociation.ca/scholarships-and-grants/mac-scholarships/>