



## Metal Earth PhD Research Opportunity

Summer / Fall 2019

With CAD \$104 million in funding provided by the Canada First Research Excellence Fund (CFREF) and through strategic partnerships with 5 Canadian universities, 6 government geological surveys and 3 international research centres, the Mineral Exploration Research Centre (MERC) at Laurentian University has initiated Metal Earth - the largest ever mineral exploration research project undertaken in Canada. Metal Earth seeks to identify and understand the processes responsible for Earth's differential metal endowment during the Precambrian. This research initiative aims to transform our understanding of Earth's early evolution and how we explore for metals.

### Metal Earth PhD Opportunity

Metal Earth is seeking a PhD student to conduct a detailed geochemical and isotopic survey across the Abitibi-Wawa region of the south-east Superior Craton. The project will involve the compilation of existing data, isotopic analysis of existing samples, as well as fieldwork to collect new material. The student will develop an advanced understanding of Hf-O-S isotopic systems applied to the early Earth, and in linking fundamental research to the search for major mineral provinces.

### PhD Project Outline – Isotopic mapping of the Abitibi-Wawa Terrane

Archean cratons make up only 12% of the Earth's crust, but contain all of the geological information on the first 2 billion years (44%) of Earth evolution. This early period marks major thermal, tectonic, and crustal changes, as well as the formation of a number of world-class ore-deposit provinces, such as the Abitibi-Wawa Terrane. This project aims to develop an advanced time-space understanding of the evolution of this critical region using a combination of U-Pb zircon dating, integrated with Hf-, O-, and S-isotopes. Using these data, the student will produce high-resolution multi-isotopic maps of the region, and use these to investigate (1) the crustal evolution of the terrane; (2) geodynamic processes in operation during crust formation; and (3) the role of these processes in localizing the major ore deposits systems.

This PhD project is an evolution of similar work completed on the Archean Yilgarn Craton, Western Australia. The intention is for the student to spend a portion of their time at the University of Western Australia in Perth, working with some of the most experienced geoscientists in the Archean geochemistry field, and subsequently the PhD will be jointly awarded by Laurentian University, and the University of Western Australia, once the pending cotutelle agreement is finalised.

The PhD project is fully-funded for four years (\$30K/yr. which includes a Laurentian Graduate Assistantship). Experience working with geochronology/isotope data, and in Archean terranes, is an asset, but not vital. To apply, please forward your application and cover letter to [metalearth@laurentian.ca](mailto:metalearth@laurentian.ca) and reference the Job Identification Number: 2019 02. The application should include: a CV with a list of publications, academic transcripts, contact details, and the names of three referees. Review of applications will begin immediately, but applications will be accepted until the position is filled. Position to ideally begin in the summer of 2019.

Laurentian University is a bilingual (French-English), tri-cultural institution. Laurentian University especially welcomes and encourages applications from members of visible minorities, women, Aboriginal persons, members of sexual minorities and persons with disabilities. Applicants may self-identify as a member of an employment equity group. All qualified candidates are encouraged to apply. However, Canadians and permanent residents will be considered first for these positions.