PhD opportunity in Precambrian Tectonics

Project SP2022-PhD: Tectono-magmatic evolution of the Winnipeg River gneisses, Ontario, Canada

This PhD project aims to unravel a billion years of Archean crustal history in the Winnipeg River gneisses, between Sioux Lookout and Kenora, north-western Ontario. This Eo- to Neoarchean "pinkstone" belt represents the basement of the western Wabigoon greenstones to the south and English River turbidites to the north. The presence of dome and keel geometries, such as the Twilight-Mystery-Cedar domes, bounded by regionally extensive deformation zones and crosscut by dike and sill networks, provides a unique opportunity to investigate secular changes in tectonic processes within the Archean crust.

Tectono-stratigraphic mapping will be conducted, integrating legacy data with new field observations, and whole rock geochemistry. Airborne geophysical data will be used to refine structural interpretations and to provide 3D constraints. Isotopic analyses will help to decipher multiple stages of crustal growth, using laser ablation (LA) multi-collector (MC) inductively coupled plasma mass-spectrometry (ICP-MS) at the Mineral Exploration Research Centre, Laurentian University.

The main goals of the project will be to i) build a structural map of the Winnipeg River gneisses, with primary focuses on the dome and keel geometries and nature of the boundaries with the overlying Wabigoon greenstones and English River turbidites, ii) build an assemble map to document the age and spatial distribution of each gneissic domains, and iii) propose a revised tectono-stratigraphic model of the western Superior Province and integrate it in the global evolution of the Archean Earth.

The PhD candidate will be based at Laurentian University. Extensive field/boat work in north-western Ontario from June to August 2022 and 2023 is expected. Applicants must possess an MSc degree in geosciences and have a minimum average grade of 80%. Research experience in field structural mapping and/or geochronology is an asset. Research funding (NSERC Discover Grant) consists of the student stipend (CA$30k including a Laurentian Teaching Assistantship), analytical and field travel costs for the duration of the project (4 years). The project will begin as soon as a suitable candidate has been found.

To apply, please email your application to sperrouty@laurentian.ca. The application package must include a cover letter, CV, academic transcripts, contact details and names of three referees. Only short-listed applicants will be contacted.

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 this position.

The University's Policy and Program on COVID-19 Vaccination is available here. By submitting an application to Laurentian University you acknowledge that you have read the Policy and Program. Should you be successful in securing employment at Laurentian University you are aware that this would be a precondition of your employment. The University will require that the successful candidate submit proof of full vaccination or receive an approved exemption as outlined in the Policy and Program. Failure to comply may result in a delay to the start of employment and/or the employment offer may be deemed void resulting in your employment contract ending without notice or payment in lieu of notice or any other payment.