

University of Toronto
PhD project

Advanced analytical techniques to investigate critical metals – applications for paleo-redox studies and economic geology

PhD project at the University of Toronto using advanced analytical techniques to investigate critical metals – applications for paleo-redox studies and economic geology.

We are looking for a PhD candidate who is interested in learning about synchrotron based XANES and XAFS analyses to understand how different trace elements (Vanadium and Molybdenum) are held within sedimentary rocks. These analyses will have application to both people interested in identifying and understanding the formation of potential strata-bound critical metal deposits, essential for transitioning to a green economy as well as people who use these redox sensitive elements to understand the history of life and oxygenation of Earth's oceans.

This project will also teach the student to conduct Fe-isotope analyses to better understand the chemical conditions of the sediments in which these metal enrichments are found. This can be solution or in situ (laser ablation multi-collector ICPMS) based depending on the candidate's interest. The project can be tailored to the successful candidate's interests and we hope they will develop additional directions of enquiry to add to the project. Field mapping components, potentially with Territorial Geologic Surveys, are a potential, though not necessary part of the project.

For more information please contact Dan Gregory (daniel.gregory@utoronto.ca).
Applications are due by Jan 7, 2022