



Master's student (MSc) opportunity in Minerals Engineering Hydrometallurgical pre-separation of rare earth elements

Background and Overview: Critical and strategic elements (CSEs) include important elements for the energy transition such as rare earth elements (REEs), used in the production of efficient electric motors. To be used, individual REEs including lanthanum, cerium, neodymium and praseodymium, must be separated from each other, which is often presented as one of the biggest challenges of the metallurgical industry. The overall objective of this project is to study a novel process for the pre-separation of REE with the potential to greatly simplify the subsequent steps.

Specific objectives: the student recruited will be responsible for carrying out laboratory tests aimed at:

- test the process on a laboratory scale and document the optimal operating conditions and yields.
- validate its applicability to the separation of other metals, including those present in Li-ion batteries.

Location: The student will be based at the Research Institute on Mines and the Environment (RIME) at the Rouyn-Noranda campus of the Université du Québec en Abitibi-Témiscamingue (UQAT). The work will be supervised by Prof. Jean-François Boulanger, supported by a team of specialized professionals. IRME targets the search for environmentally sustainable solutions for the life cycle of mines. This project is part of the activities of the Centre of Excellence in Strategic Minerals Elements 08 (<https://elements08.com/>) which aims at the responsible extraction of SCMs.

Financial Support: A tax-free scholarship of a minimum of \$20,000 per year is offered over two years.

Profile sought:

- A good or excellent academic record, with a completed bachelor's degree (License in the French system) in hydrometallurgy, metallurgical or materials engineering, chemical engineering, chemistry or any other relevant field.
- Must demonstrate autonomy and curiosity and have good teamwork skills. Laboratory experience will be an asset.
- **Individuals from groups under-represented in science** (women, First Nations, newcomers), are strongly encouraged to apply and applications will be accepted until at least 4 (or 50%) applications from these groups are received.

Duration of the project: 2 years, beginning in May 2023 (summer semester) or September 2023 (fall semester).

Apply: Please send 1) a cover letter, 2) your CV, 3) university transcripts and 4) the names and contact details of at least two people who can provide references or two letters of reference. The position will be open until it is filled, with priority given to applications received before **February 7th, 2022**.

Send your application (or questions) to the following email jean-francois.boulanger@uqat.ca Jean-François Boulanger, Eng., Ph.D., Regular Professor of Hydrometallurgy, Telephone: 418-262-5271



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