Post-Doc position in Minerals Engineering
at the University of Lorraine (Nancy, France)
GeoRessources Laboratory

Subject: *Geometallurgical assessment of unconventional Li and critical metals bearing deposits*

General requirements:

Candidates should have an outstanding research record in the field of Mineral characterization with extensive knowledge in Mineral processing. The selected candidate will join the "Georessources" research laboratory, a major international research centre with about 60 academics for an entire staff about 180 persons developing research programs in all fields of applied geosciences including ore genesis, mineral processing, minerals engineering, 3D modelling and economic geology.

The research activity on the geometallurgical assessment of Li-bearing rare metals granite ore deposit with reference to beneficiation processes will be related with the "Minerals engineering" team. The candidate will integrate an active and dynamic research group with two senior researcher and 2-3 PhD and Master students and will be involved in experimental research and academic tuition depending on candidate's curricula. In addition, through this project, the candidate will also beneficiate the collaboration with the geometallurgy team of the Geological Survey of Finland (GTK) (Pr A.Butcher and Dr Q.Dehaine).

Description of work:

The problems associated with complex liberation pattern of an unconventional Li deposits mineral deposits, make the use of conventional beneficiation processes difficult without extensive grinding, therefore making the process non cost-effective. To address such challenge, this project aim at translating textural and mineralogy aspect into process performance models to understand and predict the separation feasibility of such unconventional/complex mineral deposits.

The work plan includes:

- Development of a geometallurgical approach-based *process performance models* for the ore deposit by using advanced characterization tools.
- Experimental work, development of predictive models for beneficiation processes through geo-chemical and metallurgical studies of complex mineralogy based critical metal-bearing ore deposits.

- In-depth geo-metallurgical analyses, and the interpretation of geo-metallurgical data from geo-chemical and physical property measurements.
- Understanding and knowledge on different beneficiation processes including comminution, physical separation (enhanced gravity separation, magnetic and electrostatic separation) flotation, etc. *The role of mineralogy and liberation characteristics impacts on the separation* as well as developing a flowsheet will be studied extensively to develop prediction models.
- Study on the impact of different pretreatment processes such as high voltage electric pulse on the mineral separation by linking mineralogy data in terms of liberation and energy consumption.

The competences and expertise in

- micro-analytical techniques (*e.g.*, LA-ICP-MS, SEM, LIBS, electron microprobe) along with conventional geochemical tools including XRD, optical microscopy, XRF, etc.
- Experience is necessary on the planning, execution, and interpretation of automated mineral analysis data through different tools such as µ-XRF, QEMSCAN or MLA or others.

will be appreciated for the selection of candidates

Funding: The "***Labex21***" project will fund this postdoc position. "***Labex21***" proposes an integrated scientific approach to the understanding of geo-chemical and geo-metallurgical characterization and processing of critical metal-bearing ore deposits.

Provided documents:

- List of publications,
- Experience in the field, characterization, experimental and modelling approaches
- Project in two-three pages summarizing the main trends in research that the candidate would like to develop.

Applicants should send via email a Curriculum Vitae, Provided documents and the names and email addresses of two references to:

Pr Lev FILIPPOV, lev.filippov@univ-lorraine.fr

Calendar for applying:

- 24th January 2021: Deadline for submitting your application
- 31st of January 2021: Preliminary review, the candidates will be contacted after being preselected.
- For definitive selection, an audition of the candidate will be arranged either in Nancy or by video-conference
- Starting on 1st March 2021, duration of contract: 12 months

Level of salary: minimum 2400 Euros gross/month, depending on the post-doc experience.