



Grenoble INP - UGA is a member of international engineering and management education and research networks. It is widely recognized in national and international rankings.



8 schools + **39** laboratories

8 300 students

1 300 teaching, research, administrative and technical staff

Grenoble INP-UGA is a renowned public institution of higher education and research, and a major player in the Grenoble ecosystem. It is the engineering and management institute of Grenoble Alpes University, and plays a leading role in the scientific and industrial community.

University lecturer Position

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| Short profile | Metal recycling engineering |
| Body | University lecturer |
| Position number | 62 MCF 0405 |
| CNU Section | 62 |
| Location | Grenoble |
| Date of recruitment | 01/09/2023 |
| Key words | Process sizing and coupling, hydrometallurgy, electrodeposition, recycling, modeling |

Grenoble INP - UGA is a leading public institution accredited with the French label "Initiative d'excellence". It offers innovative engineering and management programs, with an increasing internationalization of its course offers. The courses are grounded in sound scientific knowledge and linked to digital, industrial, organizational, environmental and energy transitions. The Engineering and Management Institute of Grenoble Alpes brings together more than 1300 staff members (teacher-researchers, lecturers, administrative and technical staff) and 8300 students, located on 8 sites (Grenoble INP - Ense3, Grenoble INP - Ensimag, Grenoble INP - Esisar, Grenoble INP - Génie industriel GI, Grenoble INP - Pagora, Grenoble INP - Phelma, Polytech Grenoble, Grenoble IAE) and the INP Prepa. Grenoble INP is also a highly-ranked institution of higher education and research, leading the way in the fields of engineering and management on an international scale. It is a member of a large number of international academic and research networks. It is part of the European University UNITE !

As part of Grenoble Alpes University, Grenoble INP has associated guardianship of 39 national and international research laboratories and of technological platforms. The research conducted there benefits both its socio-economic partners and its students. Grenoble INP is at the heart of the following scientific fields: physics, energy, mechanics and materials; digital; micronanoelectronics, embedded systems; industry of the future, production systems, environment; management and business sciences.

Grenoble INP - UGA is an equal opportunity employer committed to sustainability. Grenoble INP-UGA celebrates diversity and equity and is committed to creating an inclusive environment for all employees. All qualified applications will be considered without discrimination of any kind.

Teaching

School : Grenoble INP - Phelma

School website: <https://phelma.grenoble-inp.fr/>

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Grenoble INP Phelma is an engineering school within the Grenoble Institute of Technology. It offers its students a wide range of courses at the cutting edge of scientific and technological progress: micro and nanotechnology, instrumentation, energy, innovative materials, information technology, biomedical engineering, process engineering, and environmental engineering. It enrolls more than 1,400 students in 11 engineering programs, one of which is an apprenticeship program, and a dozen master's programs. The teaching staff is made up of about 100 full professors and over 300 part-time lecturers. The administrative and technical team consists of about fifty employees. The school operates on two sites, the Minatec site in Grenoble and the university campus in Saint-Martin d'Hères. Phelma's three main pillars - physics, electronics, and materials - are firmly anchored in the school's mission. The school's engineering and master's programs are evolving to keep pace with the changing needs of the industry, especially in the areas of energy and digital transition.

Teaching profile:

The successful candidate will be involved in cross-disciplinary teaching of engineering tools (experimental design, applied statistics), numerical tools and modelling, as well as in teaching of process engineering (unit operations, material and heat transfer, chemical and electrochemical reactors, heat exchangers). This includes the first year of the engineering cycle as well as certain courses in the EPEE (Electrochemistry and Processes for Energy and the Environment) program, the apprenticeship program (Materials and Energy Processes), and even continuing education, in conjunction with the school's industrial partners. The candidate will be required to contribute to the various projects and design offices offered to students in the areas of recycling, waste recovery, energy transition, and industrial decarbonization. He or she will also be involved in developing Phelma's curriculum on the topic of social and ecological transitions.

Research

Team : Laboratory of Electrochemistry and Physicochemistry of Materials and Interfaces (LEPMI). PEM cluster

Laboratory website: <https://lepmi.grenoble-inp.fr/>

Contacts : Fannie Alloin (Fannie.Alloin@lepmi.grenoble-inp.fr)

The Laboratory of Electrochemistry and Physicochemistry of Materials and Interfaces (LEPMI - UMR 5279, CNRS-Grenoble-INP-UGA-USMB) is currently carrying out research on the recycling and recovery of metals by hydrometallurgical means, namely those present in electrochemical generators (batteries, fuel cells, water electrolyzers, etc.). The themes of dissolution and recovery of metals have always been present at LEPMI, in particular thanks to skills in hydro(electro)metallurgy and to strong industrial applications (corrosion and electrocrystallization). Many projects in this field have been or are currently being developed at LEPMI, mainly within the Interfacial Electrochemistry and Processes team. The research of the group is therefore partly fundamental (understanding of the mechanisms of leaching, extraction or electrodeposition) but also applied (development of processes, process optimization). This leading area of the laboratory is carried out by a small number of teacher-researchers, in charge of courses and/or Masters. The objective of this faculty position is therefore to secure and consolidate the necessary skills within LEPMI for this important societal issue. This position is also in keeping with the priorities in energy and sustainable development of Grenoble-Alpes University.

Research profile:

The candidate will be involved in the "Second Life & Valorization" research project of the EIP team and more particularly in its "Hydrometallurgy" axis. The person recruited will develop a research project on the modelling and simulation of efficient separation processes integrating, in particular, the following aspects

- Study of the coupling between electrochemical and physico-chemical processes,
- Study of scale-up, process integration and optimization of the developed processes.

This approach will be conducted preferably by modeling / numerical simulation studies in close connection with the experiment. One of the aspects that we wish to study is the change of scale (approach allowing to include the whole chain of transformation to optimize the operating costs, whether they are of economic or environmental nature). It is indeed difficult to extrapolate directly from results obtained in the laboratory to the industrial scale. At the laboratory scale, the steps are considered as independent from each other, whereas at the industrial scale, the steps are generally interconnected to minimize energy and material losses. Moreover, phenomena such as high viscosity, which are not very troublesome at the laboratory level, can quickly become extremely limiting at the industrial level. The person recruited will also be involved in the recent work of the EIP team aiming at evaluating the environmental impacts of the processes developed, in particular by the methodology of life cycle analysis (LCA). The successful candidate will have a strong background in process engineering: simulation and modeling of separation processes applied to metals, process coupling, electrochemical reactors (electrolysis, electro-deposition) and basic knowledge of LCA methodology. She will actively participate in ongoing projects, in collaboration with the team members and will be involved in the setting up of national and international projects.

Position assigned in a restricted area: NO

(Protection of the scientific and technical potential of the nation, conditioning the appointment of the lecturer-researcher to the authorization of the Defense Security Officer).

Specific requirements or conditions

Proficiency in English is required, as a number of the school's courses are only taught in English. In addition, previous international experience is an undeniable asset.

Administrative activities

Within the next few years, the candidate will taking charge of a Teaching Unit.

Specifics of the position

The teaching activities can be carried out on the two sites of the school: Grenoble and St Martin-d'Hères.

How to apply

Applicants must submit their applications on the Galaxie Platform of the French Ministry of Higher Education and Research from the 23rd of February 2023, 10 a.m. (Paris time) to the 30th of March 2023, 4 p.m. (Paris time), deadline.

Any document sent outside the Galaxie procedure will not be taken into account.

The interview will include simulation/situational exercises. The details will be communicated when the invitation is sent out. In addition, part of the interview may be conducted in English.