



The role

PhD student to develop research in the framework of the EIT RM-H2020 project: RECOPPs (Recovery of added-value raw materials from the primary production of Copper).

The Environmental Geochemistry and Atmospheric Research (EGAR) group (Industrial Pollution research field), and Research Group in Sustainable Mining (GREMS), Polytechnic University of Catalonia (UPC), are looking for a PhD student in hydrometallurgy and mineral processing to develop research on the recovery of added-value Bismuth (Bi) and removal and inertisation of Arsenic (As) from the residues and by-products generated during the pyrometallurgical production of Copper (Cu). The PhD student will also participate (TBD) in the transition of the environmentally and economically sustainable technology to a Technology readiness levels (TRL) of 7 (pilot scale) to validate this technological solution at such operational environment.

What do we look for?

- **Qualifications**

Competitive applicants will have a first-class or upper second-class degree (or equivalent) in relevant subjects including environmental or chemical engineering, chemistry, metallurgy, mineral processing or environmental sciences. Where applicants have (or expect to obtain) an MSc degree, a distinction or merit is required.

- **Competences**

Applications are invited for a May-June 2021 start from candidates with a background in the hydrometallurgy and mineral processing (EWacid, alkaline and pressure leaching, thermodynamic and kinetic aspects of leaching, purification of leach liquors by ion exchange, solvent extraction, adsorption, selective precipitation operations, and solid-liquid separation techniques, concentration techniques of minerals and wastes, like gravity concentration, flotation, flocculation, etc.) a strong interest in interdisciplinary research at the interface between environmental and chemical engineering and geochemistry.

Working conditions

- Contract duration: 3-4 years
- Target start date: May-June

The groups

The EGAR's group develops research on the following subject areas:

- Air Quality
- Aerosols and climate
- Exposure
- Industrial Emissions
- Industrial Residues

The Mineral Processing Laboratory of the GREMS group, Mining School of Manresa, develops research in the following areas:

- Liberation studies.
- Size and Density distribution determination.
- Grinding optimization.
- Modelling and evaluation of waste and minerals separations.
- Processing plants evaluation and optimization.
- Gravity concentration processes.
- Processes based on Physical Chemistry of Surfaces: Flotation, Floc-flotation, Carrier-flotation, Selective Flocculation etc.
- Mineral Processing Flowsheets determination and design.

The PhD candidate will be involved in the Industrial Pollution research (IDÆA-CSIC) where we do develop research on the evaluation of industrial emissions relating to inorganic trace pollutants and, with special focus, on the valorisation of residues including, but not limited to, coal combustion, copper primary production, municipal waste incineration, wastewater treatment plants, recycling plants, as well as investigations into industrial processes to assess their environmental sustainability.

The institute

The **Institute of Environmental Assessment and Water Research (IDAEA)** is an environmental science institute devoted to the study of the human footprint on the biosphere. Much of the research work at this institute is centred on two of the great environmental challenges of our time: cleanliness and availability of water and quality of air.

Founded in 2008 as a member of the **Spanish National Research Council (CSIC)**, the Institute brings together a wide range of expertise in environmental science. It is organized under two Departments (Environmental Chemistry and Geosciences), established with a strong record of publication in top scientific journals, leading international projects, membership on international committees, and adopting a high-profile contribution to the identification and remediation of environmental problems.

IDÆA has demonstrated strengths in the analysis of organic pollutants and their impact on ecosystems, the study and management of water resources, the development of multivariate resolution algorithms in chemometrics, and in the study of inhalable particulate matter and toxic gases.

IDÆA has been recently awarded with the distinctive **Centre of Excellence “Severo Ochoa”** (2020-2023), distinction that indicates the high-quality scientific leadership and global impact of the work developed at the centre.

We offer a diverse and inclusive environment where no discrimination against disability, gender, nationality, religion or sexual orientation will occur during the selection process.

GREMS (UPC) - Sustainable Mining Research Group

The Research Group in Sustainable Mining (GREMS), Polytechnic University of Catalonia (UPC), is focused on mining and sustainability. The group provides solutions in all stages of mining activities:

- Research and innovation in the mining sector.
- Solution in mining.
- Dissemination of advances in mining technology.

The Mineral Processing Laboratory of GREMS-UPC develops research in Mineral Processing areas, such as, mineral liberation, grinding optimization and mineral separation optimization, as well as waste processing. The group presents several publications in the area and has been developing in the last years numerous research projects with the mining industry. Our team has worked in some internationals, national and regional projects, funded by EC, national and local foundations, and private companies.

We offer a diverse and inclusive environment where no discrimination against disability, gender, nationality, religion or sexual orientation will occur during the selection process.

How to apply?

Those interested may email their **CV** and **motivation letter** to **Patricia Córdoba** (PI and coordinator of the EIT RM-H2020 project: RECOPPs) at patricia.cordoba@idaea.csic.es and **Carlos Hoffmann** at carlos.hoffmann@upc.edu, adding PhD student position to the email subject.

Deadline: 31st April 2021