



## **M2ex – Exploiting metal-microbe applications to expand the circular economy**

Marie Skłodowska-Curie Action H2020-MSCA-ITN-EJD-2019

### **ESR2-UNILIM: Study of the correlation between the metal labile fraction and Microbial responses in (bio)reactors**

#### **Job description**

We are looking for a motivated Early Stage Researcher (ESR) to evaluate analytical and biological tools for the evaluation of metals impacts on (bio)reactors. The research fellow will be hosted at the Université de Limoges (UNILIM, France). This group has long expertise in speciation of metal(loid)s and evaluation of biological activity, leading several projects in this area. He/she will be recruited by UNILIM for a period of 36 months with the aim of obtaining a joint PhD degree between UNILIM and Universidade do Porto (UP, Portugal).

The M2ex European Joint Doctorate offers to the ESR2 an innovative series of Network-wide training events to ensure a high-quality, engaging and inspirational training environment including secondments in UP/CIIMAR (Portugal), Tratamento de Resíduos Sólidos E.I.M. (Portugal) and ODESSOL (France).

#### **Objectives**

In anaerobic digesters, the addition of some metals and metalloids has been proven to enhance the biological activity but no analytical tool is currently available to monitor *in-situ* their bioavailable fraction. Several analytical approaches, such as selective extractions, sequential extractions or DGT (Diffusive Gradients in Thin-films) passive sampling, has been developed to assess the labile fraction of metal and correlate it to bioavailable metals. The objective of this project will be to compare the evolution of biological activity in AD in response to evolutions of bioavailable metals concentration determined with analytical approaches.

#### **Expected Results**

Establishment of a suitable procedure to assess labile metal fraction in a simplified AD pilot. Identification of simple biological responses that are relevant to evaluate biological activity in a simplified AD reactor. Evaluation of the correlation between analytically determined fractions and biological responses with model bacterium.

#### **Candidate's profile**

We are looking for a candidate with Analytical/Water Chemistry, Chemical Engineering, Environmental Science or Biochemistry Degree.



### **Our Offer**

You will receive an employment contract for 3 years according to the EU contribution for ITN recruitments and general conditions at the host institution. It includes full social security coverage and will start in September/October 2020.

### **Enrolment in Doctoral degree(s):**

UNILIM / UP