

## POST-DOC POSITION

### Emergent nanoparticles for catalysis

**Level :** Post-doc position (M/F) for 18 months at the Institute of Researches on Catalysis and Environment of LYON (IRCELYON), University of Lyon, France.

**Profile of the candidate :**

**Skills :** Physical chemistry of materials, heterogeneous catalysis, electron microscopy (transmission and scanning), high level of English.

**Expertise :** Synthesis and sintering of ceramic powders, catalytic performances measurements and scanning electron microscopy.

**Team(s) :** The researcher will work in the CARE team (Catalytic and Atmospheric Reactivity for the Environment" of the Institute of Researches on Catalysis and Environment of LYON (IRCELYON). This academic laboratory located in Villeurbanne (France) is the largest one in Europe devoted to heterogeneous catalysis. The CARE group is focus on environmental topics such as catalysis for air cleaning (<https://www.ircelyon.univ-lyon1.fr/en/team/characterization-and-remediation-of-pollutants-in-air-and-water/>). The post-doc position will be granted by the Institute for Multiscale (iMUST labex) of the University of Lyon (<https://labeximust.universite-lyon.fr/>).

**Contact(s) :** Dr. Philippe Vernoux, [philippe.vernoux@ircelyon.univ-lyon1.fr](mailto:philippe.vernoux@ircelyon.univ-lyon1.fr)

Please send your application by email before 15/04/2020 to [rh.recrutement@universite-lyon.fr](mailto:rh.recrutement@universite-lyon.fr) and [philippe.vernoux@ircelyon.univ-lyon1.fr](mailto:philippe.vernoux@ircelyon.univ-lyon1.fr) with a motivation letter and a CV.

**Keyword(s) :** Redox exsolution, perovskite, catalytic applications.

**Scientific context :** This project aims to tailor innovative catalyst nanostructures using the concept of **redox exsolution**. This latter process deals with the emergence of metal nanoparticles from the bulk of perovskite oxides towards the surface under the impact of a chemical or an electrochemical reduction step. The research effort will focus on emergent Ni particles, with the objective to substitute noble metals in catalytic processes.

**Missions :** The post-doc researcher will be in charge of a project focused on the redox exsolution of Ni nanoparticles in perovskites for catalytic applications.

Main tasks will deal with :

- Synthesis and characterization of perovskites powders and pellets with controlled compositions.
- Study on the impact of the redox exsolution step parameters on the catalytic performances.
- Characterisation of the exsolution process by Environmental electron microscopy in collaboration with MATEIS lab.
- Analysis and interpretation of results.
- Writing of reports and publications.