

Postdoctoral Position – Physical Chemistry of CO₂

Location: IMP Laboratory, Lyon, France

Duration: 13 months

Start Date: ASAP

Within the framework of an **Explora'e** funding program, we are seeking a talented and highly motivated postdoctoral researcher with a strong interest in chemistry and physical chemistry. The successful candidate will join the IMP Laboratory (Lyon, France) and benefit from a fully integrated scientific environment with access to state-of-the-art facilities on the La Doua campus.

Research Project

This project focuses on the recent discovery that CO₂, under specific supersaturation conditions, can transform into bicarbonate clusters that adsorb onto the interfaces of various objects dispersed in water (particles, droplets, bubbles, etc.). The aim of the postdoctoral work is to directly track and characterize these bicarbonate species using advanced analytical techniques, including:

- Solid-state NMR
- SAXS (Small-Angle X-ray Scattering)
- SANS (Small-Angle Neutron Scattering)
- Raman spectroscopy

For more background information, candidates are encouraged to consult the following publications:

1. Central Role of Bicarbonate Anions in Charging Water/Hydrophobic Interfaces, *J. Phys. Chem. Lett.* 2018, 9 (1), 96–103. DOI: 10.1021/acs.jpcllett.7b02993
2. Freeze/Thaw-Induced Carbon Dioxide Trapping Promotes Emulsification of Oil in Water, *J. Phys. Chem. Lett.* 2018, 9 (20), 5998–6002. DOI: 10.1021/acs.jpcllett.8b02919
3. An Alternative Hypothesis on Enhanced Deep Supercooling of Water: Nucleator Inhibition via Bicarbonate Adsorption, *J. Phys. Chem. Lett.* 2025, 16 (1), 261–264. DOI: 10.1021/acs.jpcllett.4c03364

Candidate Profile

- Ph.D. in soft matter, physical chemistry, or a closely related field
- Strong experimental background and motivation for working on high-risk, exploratory research topics
- Proficiency in one or more of the following characterization techniques: solid-state NMR, SAXS, SANS, Raman spectroscopy
- Ability to interpret and analyze complex experimental data

Application

Interested candidates are invited to send their CV and a brief cover letter to:

Dr. François Ganachaud

Email: francois.ganachaud@insa-lyon.fr

