**Postdoctoral position to study prebiotic reactions**

Job offer from the Institut de Physique du Globe de Paris | CNRS UMR 7154

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| **Researcher in** | Computational physics/chemistry/mineralogyPrebiotic chemistry |
| **Duration** | One year, renewable  |
| **Affectation** | IPGP, CAGE |
| **Salary** | According to profile |
| **Date of publication** | 15 Sept 2025 |
| **Starting date** | Earliest date possible after 01 Nov 2025 |
| **Location** | 1 rue Jussieu, 75005 Paris, France |

### Missions

An opening at the postdoctoral level is available in the ab initio team of IPGP to work on the prebiotic reactions between simple organic molecules and the surface of fresh warm lavas. The work is entirely computational.

The position is on the project VOLCANOR, funded by the HERMES inidex initiative of the Université Paris Cité.

### Activities

The successful candidate will perform an ensemble of atomistic simulations based on density-functional theory and molecular dynamics. She/he will explore first the catalytic potential of the amorphous structure exhibited by fresh lavas. Then, she/he will fit machine learning interatomic potentials, and will further run large-scale atomistic simulations to study the possible chemical reactions mediated by the surface. Particular reactions that mark the transition from prebiotic to biotic chemistry will be thoroughly investigated.

### Expected Skills

The successful candidate must have a strong background in research, with experience in catalysis research and organic chemistry, machine learning potentials, molecular dynamics simulations, and statistical physics techniques. She/he must have a strong background in thermodynamics, and mineral physics or organic chemistry.

Strong knowledge of programming languages such as Python and machine learning techniques are necessary.

Candidates who have excellent communication skills and the ability to work well in a team environment, who can work independently and manage their own time effectively, and who show a strong interest in continuing research in organic chemistry, catalysis, and prebiotic chemistry are preferred.

### Obligations and risks

The job follows standard procedures and regulations currently in use in France, with remote work reduced to a minimum.

### Training and experience required

A Ph.D. in chemistry, physics, or a related field with a focus on physical chemistry and thermodynamics. A strong record of publications in relevant journals and conferences.

### How to apply

Please submit a cover letter and your CV before October 15th, 2025. You must also provide up to two referees who can provide an assessment of your previous work.

### Team Department

You will be part of the *ab initio* group at IPGP. With more than 12 young researchers, the ab initio group is an active and dynamic group in computational mineral physics. Our research spans a wide range of topics in planetary mineralogy, going from the supercritical state that dominated the protolunar disk, to the internal structure of exoplanets. Recent focus is on the formation and evolution of the atmosphere during the Hadean, and on exploring explore what conditions planets must fulfill to make prebiotic chemistry thrive. The funding of the group comes from the ERC, UPC, and other sources. The ab initio group is part of the CAGE team (Cosmochemistry, Astrophysics, and Experimental Geophysics). CAGE brings together researchers and teachers with an interest in the formation of the solar system and its early evolution, the formation of the Earth, and its ancient geologic history. We are a highly dynamic group, with several ERC projects funded. We regularly host a variety of national and international researchers.

### The Institut de Physique du Globe de Paris (IPGP)

A world-renowned geosciences organization, the IPGP is associated with the CNRS and is an integrated institute of the Université Paris Cité. Bringing together more than 500 people, the IPGP studies the Earth and the planets from the core to the most superficial fluid envelopes through observation, experimentation, and modeling.

The research areas are structured around four main unifying themes: the interiors of the Earth and Planets, Natural Hazards, the Earth System, and Origins.

The IPGP oversees labeled observation services in volcanology, seismology, magnetism, gravimetry, and erosion. The IPGP's permanent observatories monitor the four active French overseas volcanoes in Guadeloupe, Martinique, Réunion Island, and Mayotte.

The IPGP hosts powerful computing resources and state-of-the-art experimental and analytical facilities and benefits from first-class technical support. The IPGP provides its students with geosciences training that combine observation, quantitative analysis, and modeling and that reflects the quality, richness, and thematic diversity of the research conducted by the IPGP teams.