

Post doc position (12 months)

Researcher (fixed Term) in Scientific Instrumentation (M/F). Development of APT for cosmochemistry.

<https://emploi.cnrs.fr/Offres/CDD/UMR6634-CHRVUR-069/Default.aspx?lang=EN>

Key words:

Atom Probe Tomography (APT); instrumentation; material science analysis

Context:

This post doc is part of a wider project *COSMO-SAT* (P.I. A.-M. Seydoux-Guillaume, Co-P.I. F. Vurpillot and M. Roskosz) from the PEPR Origins (<https://www.cnrs.fr/fr/cnrsinfo/pepr-origins-entre-ruptures-technologiques-et-origines-de-la-vie>).

The objective of *COSMO-SAT* is to develop a new generation of tomographic atom probe dedicated to the analysis of geological and extraterrestrial samples in order to significantly improve their quantitative and isotopic measurements at the nanometric scale. Measuring quantitatively the elemental and isotopic composition of samples, down to the atomic scale, allows to trace and quantify the irradiation processes and the gas-grain interactions in the protoplanetary disk, to determine the origin of pre-solar grains and their associated nucleosynthesis, as well as the origin of primitive complex objects. The project has several ambitious instrumental improvement objectives (<https://pepr-origins.fr/projet/cosmo-sat-2/>) to tackle various questions. This will be at the centre of the present Post doc.

Objectives:

The recent use of APT in the field of nano-geochronology, has shown the potential but also its limitations and the technological hurdles to be overcome. It is, in particular, essential to improve isotopic quantification at such small spatial scales, which suffers from technical limitations at the level of detection and mass spectra. Recent advances by Tom Veret (doctoral thesis, 2025) on simplified synthetic phosphate samples have opened new prospects for improving isotopic quantification using APT. These have been considered in the construction of the *COSMO-SAT* prototype located at the GPM in Rouen. The objective of the post-doc in the *COSMO-SAT* project is to



optimise this new generation of Atom Probe developed at the GPM. The recruited researcher will have in charge the metrological qualification and of the optimization of the prototype under development on standard materials.

The researcher will have in charge the optimization of the prototype under development with tasks concerning



- Tests and optimisation of the laser pulsing capabilities on standard materials.
- Tests and optimisation of the detection system (hardware and software optimisation). Metrological performances of the instrument in term of elemental quantification
- Experimental analyses on geological materials (performance evaluation)

Profile:

The targeted candidate should hold a PhD in materials science characterization. Moreover, knowledge in data mining on atomic scale analytical techniques are pre-requisites for the successful completion of this project. Prior experience on FIB preparation, APT or TEM would be an advantage.

Apply directly on the CNRS job platform¹ <https://emploi.cnrs.fr/Offres/CDD/UMR6634-CHRVUR-069/Default.aspx?lang=EN>

Starting date: November 2026 (flexible over a few months).

Working places:

The present postdoctoral project will be mostly based at the GPM in Saint Etienne du Rouvray (Rouen) (<https://gpm.univ-rouen.fr/>) with François Vurpillot and Gerald Da Costa. The recruited researcher (M/F) will be attached to the Scientific Instrumentation Department of the GPM. The researcher will be integrated into the *COSMO-SAT* project development team (F. Vurpillot, G. Da Costa, J. Houard, F. Danoix). The Scientific Instrumentation Department is recognized as an international leader in the development of materials nano-analysis instruments, among them the Atom Probe Tomography (APT) technique (unique lab to develop this instrument in France).

¹ Interested candidates could send in addition a short CV (including the list of articles/communications) + a letter of motivation + a letter of recommendation, by email to francois.vurpillot@univ-rouen.fr.