Postdoc in Astrophysics for the development and testing of superconducting cryogenic detectors

Job offer from the institut de physique du globe de Paris | CNRS UMR 7154

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| **Researcher in** | Astrophysics |
| **Duration** | 24 months |
| **Affectation** | Astroparticules et Cosmologie (UPCité) |
| **Salary** | Dependent on experience |
| **Starting date** | 23/12/2024 |
| **Location** | Astroparticule et Cosmologie, 10, rue Alice Domon et Leonie Duquet, 75013 Paris |

### The institut de physique du globe de Paris

A world-renowned geosciences organisation, the IPGP is associated with the CNRS and 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 modelling.

The research aeras are structured through 4 main unifying themes: Interiors of the Earth and Planets, Natural Hazards, Earth System and Origins.

The IPGP is in charge of labelled observation services in volcanology, seismology, magnetism, gravimetry and erosion. And 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 modelling, and that reflects the quality, richness and thematic diversity of the research conducted by the IPGP teams.

### Astroparticule and Cosmology Laboratory

### The Astroparticles and Cosmology Laboratory (APC; http://apc.u-paris.fr/) at Université Paris Cité is seeking applications for a postdoctoral position in dark energy research, with a particular focus on participation in the European Space Agency's (ESA) Euclid Mission and the Rubin Observatory Legacy Survey of Space and Time (LSST). Understanding the nature of dark energy, responsible for the accelerated expansion of the universe, is arguably the most challenging question facing physics and cosmology today.

### Scheduled for launch in 2023, the Euclid mission will study the extragalactic sky from the Sun-Earth Lagrange point 2 to constrain the evolution of dark energy through weak gravitational lensing, galaxy clustering, galaxy cluster evolution, and cross-correlations with the Cosmic Microwave Background (CMB). Rubin will begin operations in 2024, employing a similar set of observational probes in the southern sky over its ten-year survey.

### The Euclid and Rubin teams at APC are involved in both the scientific analysis of survey data and the development of the ground segment. We are particularly active in galaxy cluster science, cross-correlations with the CMB, and weak gravitational lensing. There is strong synergy between the efforts of Euclid, Rubin, and the CMB.

### We are looking for candidates interested in working with the team on studies of galaxy clusters and proto-clusters, contributing to the preparation of the Euclid mission and fostering synergies between the Euclid and Rubin projects. Experience in galaxy formation and evolution, scientific computing, and data analysis in the context of cosmology and astrophysics is recommended.

### Missions

> Presentation of the missions within the context : Development and testing of superconducting cryogenic detectors: Implementation of cryogenic test benches, data acquisition, analysis of physical results, and participation in the performance improvement process. Simulation of observations using these detectors.

> Number of agents : 1

> Position of responsibility : no

> For researchers: research project for the UnivEarthS LabEx

### Activities

> Description of the activities : Cryogenic instrumentation, data acquisition, analysis of results from a physical perspective, and simulation of observations.

### Expected Skills

> Specific training : Physics of superconductors, electronics, cryogenics, data analysis.

### Obligations and risks

> Work schedules : Standard full-time hours, Monday to Friday.

> Professional trips : conferences and collaboration meetings in France and abroad

### Training and experience required

> Maximum of 5 years experience post PhD

> Education level or diploma : PhD

### How to apply

> CV and cover letter

> Contacts (2 contacts are required for the interview): Michel Piat (piat@apc.in2p3.fr), Manuel Gonzalez (mgonzalez@apc.in2p3.fr)