Offre postdoc au LUTH, Observatoire de Paris

Contract Period : 36 mois
Expected date of employment: 1 septembre 2021
Rémunération : between 2728 et 3368 euros monthly gross salary, depending on experience , with social insurance included
Niveau d'études souhaité : Doctorat

Missions

Applications are open for a post-doctoral position at Paris Observatory, France. The successful candidate will be a member of the High Energy Phenomena (PHE) research team at LUTH and is expected to play a leading role in the activities of the European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures (H2020-ESCAPE) project in relation to the Cherenkov Telescope Array (CTA) observatory.

The successful candidate will carry out activities mainly focused on some of the challenges related to the CTA data, e.g. setting up the ESCAPE Science Analysis Platform (ESAP), which aims at integrating data from European research infrastructures into EOSC (European Open Science Cloud). This includes the development and evaluation of Virtual Observatory standards to make the scientific data of CTA and its precursors (such as H.E.S.S. - High Energy Stereoscopic System) "FAIR" (Findable, Accessible, Interoperable and Reusable). We will be particularly interested in the provenance metadata. A percentage of the time may be dedicated to personal research related to the scientific themes of the LUTH PHE team.

The work will be carried out in close collaboration with the CTA consortium and the partners in ESCAPE. An active participation in the H.E.S.S. collaboration is possible.

Activities

The successful candidate will have access to H.E.S.S. and simulated CTA data and will be expected to validate some of the proposed solutions with specific scientific cases of very high energy gamma rays.

The main activities are:
- deployment and testing of the ESAP platform developed in the framework of the ESCAPE project,
- integration of the open-source software solution Gammapy from CTA in the platform,
- integration of the tools to build the provenance of the data produced by the CTA pipelines,
- preparation and analysis of H.E.S.S. and CTA data by getting involved in the development of Gammapy: for example, development of gammapy functionalities on temporal analysis,
- tests on the high level archive for H.E.S.S.

These activities require strong interactions and coordination with ESCAPE partners, the international CTA consortium and other ESFRI projects in astronomy.

Skills

PhD in Astrophysics/Astroparticle or CNRS recognized school of engineer and work experience in physics, computer science or software engineering.
Skills and professional experience in scientific software development, previous demonstrated work experience in collaborative software or computer science projects in an international context.
This position requires a thorough understanding of some of the modern challenges in computing, scientific software, archiving and data access. Candidates should have good experience in software development and object-oriented programming, especially in Python and with a web development framework (Django). Skills in development tracking (Git), application deployment (Docker, Kubernetes) and scientific analysis platform technologies (JupyterHub) would be an advantage. Experience with high energy gamma ray data analysis and open access tools and frameworks such as Virtual Observatory would be appreciated.
Excellent oral and written English is a prerequisite.
Good communication skills are expected.

Work Context

The Laboratory Universe and Theories (LUTH) is a joint research unit (UMR 8102) of the CNRS, the Observatoire de Paris and the University of Paris and has its premises in the beautiful park of the Château de Meudon. The laboratory gathers about fifty people. The scientific activity of the laboratory is mainly focused on the theoretical study of compact objects and on their modeling, including that of very high energy plasmas (GeV - TeV). A part of the activities also concerns the data processing of high energy observations. The LUTH will offer all the necessary means (office, workstation, scientific environment, travel budget) to carry out this work within the PHE team.

Constraints and risks

Travel: short trips are to be expected in France and abroad.

Additional Information

The position is financed for 3 years, the first year under the ESCAPE project, then the contract can be extended for 2 additional years on dedicated CTA funds.

The application must include a detailed CV and a description of professional experience and project (up to 4 pages in one file) to catherine.boisson@obspm.fr , andreas.zech@obspm.fr et mathieu.servillat@obspm.fr . At least two references are required.