Postdoctoral positions in gamma-ray Astronomy

The Cherenkov Telescope Array (CTA, http://cta-observatory.org) collaboration in the new Paris-Saclay University (France) invites applications for **three post-doctoral positions** in gamma-ray Astronomy. CTA is a major new facility aimed at the study of the most energetic sources of radiation in the Universe. The candidates will contribute to the operation and exploitation of NectarCAM cameras that will equip the CTA Medium Size Telescopes (MST). The NectarCAM consortium includes groups from France, Spain, and Germany.

Candidates interested in future exploitation of CTA and with experience in gamma-ray Astronomy are particularly encouraged to apply. A PhD or equivalent in Physics or Astronomy is a requirement, and good knowledge of programming (in particular C++ and/or Python) is highly desirable. Preference may be given to individuals having received their PhD (or equivalent) more recently than January 2015.

The initial contracts will be for 1 year, and can be extended for a second year. The contract can start as early as October 2016 but no later than 1st January. Salary will be based on experience, with a minimum of €2,070 net per month after all social charges. The deadline for application is September 25th 2016. Late applications will be accepted until the positions are filled. Applicants should send a CV and a brief statement of research interests, and should arrange for two letters of recommendation to be sent on their behalf. The applications should be sent to paris.saclay.cta.postdocs@gmail.com.

For contact information and work description, please see below.

Postdoctoral position at IPNO (http://ipnwww.in2p3.fr)

The gamma-ray Astronomy group at the Institut de Physique Nucléaire, Orsay (IPNO, IN2P3/CNRS, Paris-Sud and Paris-Saclay University) develops a single photoelectron calibration system for NectarCAM. The team contributes to the integration and installation of the first camera prototype, which is expected to be ready in 2017, with first data available by early 2018. For this technical development, the team collaborates with the engineers and scientists at the IPNO, the IRFU/CEA, and the LLR laboratories of the Paris-Saclay University.

Scientific areas of interest of the group include but are not limited to: extragalactic gamma-ray science, propagation of gamma rays, study of the extragalactic background light, and probe of fundamental physics. Interests in other gamma-ray research topics are also welcomed from the candidates.

The main tasks and responsibilities proposed for the post-doctoral fellow are:

· Contribution to NectarCAM: R&D of the calibration system, data analysis.

· Preparation of the CTA science case: analysis of publicly available data e.g. from Fermi-LAT, simulations, modeling.

For further information, please contact Jonathan Biteau (biteau@ipno.in2p3.fr) or Tiina Suomijarvi (tiina@ipno.in2p3.fr).

Postdoctoral position at IRFU (http://irfu.cea.fr)

The high-energy gamma-ray Astronomy group at IRFU/Service de Physique des Particules from CEA-Saclay is responsible for the integration and operation of NectarCAM, which will be integrated and tested in a hall at CEA-Saclay. Tests and data analysis are performed in collaboration with other members of the CTA consortium, in particular physicists at LLR (Ecole Polytechnique) and IPNO (Orsay).

The group at IRFU is involved in other high-energy experiments such as H.E.S.S. (https://www.mpi-hd.mpg.de/hfm/HESS/) or ANTARES. The main physics interests are Astroparticle Physics (dark matter search, cosmology, primordial black holes), but also galactic astronomy (Galactic Center) and active galactic nuclei.

The successful candidate will be primarily involved in the commissioning of the *Qualification Model* of NectarCAM. He/she will be in charge of the operations and data taking in the integration hall at CEA-Saclay, a major responsibility. He/she will work on calibrations in cooperation with the scientists at LLR and IPNO. A NectarCAM prototype is planned to be installed on a Medium SIzed Telescope at a CTA site. The candidate will be involved in the preparation of scientific data taking with NectarCAM. Finally, the candidate will have the opportunity to join H.E.S.S. and work on high-energy Astronomy sources.

For further information, please contact J-F. Glicenstein (glicens@cea.fr).

Postdoctoral position at LLR (http://www.llr.in2p3.fr/)

The gamma-ray Astronomy group at Laboratoire Leprince Ringuet (LLR), based at Ecole Polytechnique in the Paris region, has responsibility for the mechanical design and calibration of NectarCAM. The group has a long history in gamma-ray Astronomy, having developed the mechanical structures of the H.E.S.S. cameras and the Fermi calorimeter. LLR scientists are involved in H.E.S.S., CTA and Fermi, studying galactic and extragalactic sources.

The successful candidate will be primarily involved in the commissioning of the *Qualification Model* of NectarCAM, initially taking and analyzing data during the testing phase at the nearby integration facility, and eventually at the CTA site after the camera is installed on one of the Medium Sized Telescopes. The work will involve the development of calibration algorithms and methodologies for CTA and their subsequent testing with Monte Carlo simulations and validation with data from the camera. This will provide the candidate with a deep understanding of the MST / NectarCAM system.

The candidate will also be expected to contribute to the scientific output of the group, working on either H.E.S.S. and/or Fermi depending on his/her interest.

For further information, please contact Stephen Fegan (sfegan@llr.in2p3.fr).