

MASTER THESIS PROJECTS @ IFAE GAMMA RAYS GROUP

TITLE: Contribution to the characterization of the CTA LST-1 camera through the analysis of test-bench data at IFAE lab.

PROJECT DESCRIPTION: The gamma-ray astrophysics group at IFAE is playing a leading role in the construction of the first of the large-size telescopes of CTA, the largest planned ground-based gamma-ray observatory worldwide. Dubbed LST-1, this telescope will be equipped with a 23-m diameter reflecting dish, and a fast (ns-sampling) camera which will be mounted and tested at the IFAE labs in the first months of 2018, prior to its shipment to the *Observatorio del Roque de Los Muchachos*. The offered master thesis will consist in the analysis of the data taken during the lab tests, to contribute to the camera characterization and validation. Candidates with some experience in programming, particularly in python and/or C/C++, would be preferred.

<https://www.cta-observatory.org/project/technology/lst/>

CONTACT PERSON: Abelardo Moralejo (moralejo@ifae.es)

TITLE: Contribution to the commissioning of the Raman LIDAR for CTA-North

PROJECT DESCRIPTION: The gamma-ray astrophysics group at IFAE, together with the Radiation Group of UAB, is building a state-of-the-art Raman LIDAR (Light Detection And Range) for the characterisation and monitoring of the atmosphere in the Northern CTA array at the *Observatorio del Roque de Los Muchachos*, La Palma island. The characterisation and assembly of all its elements is basically completed and very soon the commissioning of the full system will start near the IFAE workshops and by mid next year at the ORM site. The offered master thesis will consist in the participation in the data taking and analysis during the tests at the IFAE site and the participation in the installation and commissioning of the Raman LIDAR at the ORM site. Candidates with some background on instrumentation and some experience in programming, particularly in python and/or C/C++, would be preferred.

CONTACT PERSON: Manel Martinez (martinez@ifae.es)

TITLE: Characterisation of improved trigger system for the next LST cameras

PROJECT DESCRIPTION: The gamma-ray astrophysics group at IFAE is coordinating the construction of the camera for the large-size telescopes of CTA, the largest planned ground-based gamma-ray observatory worldwide. The first camera is being built and will be commissioned in La Palma during 2018. In parallel the construction of the following cameras has started. Some subsystems have already been shown to need some modifications, namely the lowest levels of the trigger system. Those modifications are being implemented at IFAE and they will need to be characterised. The offered master thesis will consist in the

characterisation of the new version of the low-level trigger in the laboratory. Candidates with some experience in the laboratory, would be preferred.

CONTACT PERSON: Oscar Blanch (blanch@ifae.es)
