

Monte Carlo Simulations and Validation of NectarCAM, a Medium Sized Telescope Camera for CTA

Friday 16 July 2021 19:18 (12 minutes)

The upcoming Cherenkov Telescope Array (CTA) ground-based gamma-ray observatory will open up our view of the very high energy Universe, offering an improvement in sensitivity of an order of magnitude over previous experiments. NectarCAM is one of the proposed cameras for the Medium-Sized Telescopes (MST) which have been designed to cover the core energy range of CTA, from 100 GeV to 10 TeV. The final camera will be capable of GHz sampling and provide a field of view of 8 degrees with its 265 modules of 7 photomultiplier each (for a total of 1855 pixels). In order to validate the performance of NectarCAM, a partially equipped prototype has been constructed consisting of only the inner 61 modules. It has so far undergone testing at the integration test-bench facility in CEA Paris-Saclay (France) and on a prototype of the MST structure in Adlershof (Germany). To characterize the performance of the prototype, Monte Carlo simulations were conducted using a detailed model of the 61 module camera in the CORSIKA/sim_telarray framework. This contribution provides an overview of this work including the comparison of trigger and readout performance in the lab and trigger and image parameterization performance during on-sky measurements.

Keywords

Collaboration

CTA

other Collaboration

Subcategory

Experimental Methods & Instrumentation

Primary author: Dr ARMSTRONG, Thomas (CPPM - CNRS)

Co-authors: Dr COSTANTINI, Heide (CPPM); GLICENSTEIN, Jean-Francois (IRFU-CEA Paris-Saclay); Dr LENAIN, Jean-Philippe (LPNHE, CNRS/IN2P3, Sorbonne Université); Dr TAVERNIER, Thomas (IRFU, CEA Paris-Saclay); SCHWANKE, Ullrich (Humboldt University Berlin)

Presenter: Dr ARMSTRONG, Thomas (CPPM - CNRS)

Session Classification: Discussion

Track Classification: Scientific Field: GAI | Gamma Ray Indirect