ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **172** Type: **Poster contribution**

FACT - Performance of the First SiPM camera

Thursday 30 July 2015 15:30 (1 hour)

The First G-APD Cherenkov Telescope (FACT) is the first operational test of the performance of silicon photomultipliers (SiPM) in Cherenkov Astronomy. These novel photon detectors promised to be an inexpensive and robust alternative for vacuum photomultiplier tubes, but had never been applied in an imaging airshower cherenkov telescope (IACT) up to now. For more than three years FACT has operated on La Palma, Canary Islands (Spain), for the purpose of long-term monitoring of astrophysical sources.

Stable performance of the photo detectors is crucial and therefore has been studied in great detail. Special care has been taken in regards to their temperature and overvoltage dependence through implementation of a feedback method in order to keep their properties stable. Several indipendent long term measurements were conducted to analyse and verify SiPM gain stability. Dark count spectra, which also make for an excellent self calibration mechanism, were used to study and correct for temperature dependencies. Ratescans make it possible to derive a method, for quickly finding apropriate trigger thresholds by measuring pixel currents, and thus allow for a consistent data aquisition rate. Dedicated measurements with an LED flasher are used to study the correct application of SiPM bias voltages.

In this talk, the results of the long term studies will be presented and the applicability of SiPMs in IACTs for long term monitoring will be shown.

Collaboration

FACT

Registration number following ”ICRC2015-I/”

181

Author: NEISE, Dominik (ETH Zurich)

Presenter: NEISE, Dominik (ETH Zurich)

Session Classification: Poster 1 GA

Track Classification: GA-EX