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Development of a SiPM based camera for Cherenkov Telescope Array

The Italian Institute of Nuclear Physics (INFN) is involved in the development of a prototype for a SiPM-based camera for the Cherenkov Telescope Array (CTA), a new generation of telescopes for ground –based gamma ray astronomy. In this framework, an R&D program within the 'Progetto Premiale TElescopi CHErenkov made in Italy (TECHE.it)'for the development of SiPMs suitable for Cherenkov light detection (Near - Ultraviolet SiPMs) has been carried out. The developed device is a High Density NUV –SiPM based on a micro cell of 30 µm x 30 µm and 6 mm x 6 mm area produced by Fondazione Bruno Kessler (FBK). A full characterisation of the single SiPM will be presented and compared with the old technology (NUV –SiPM) and with other SiPMs commercially available. The NUV –HD SiPM will be tested in the pSCT (Schwarzschild –Couder Telescope prototype) for CTA which is leading to a camera concept based on 8 x 8 NUV –HD SiPM module as detecting unit. An update on recent tests on the detectors arranged in this matrix configuration and on the front –end electronics will be given.

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