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SiPM and front-end electronics development for Cherenkov light detection

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The Italian Institute of Nuclear Physics (INFN) is involved in the development of a demonstrator for a SiPM-based camera for the Cherenkov Telescope Array experiment, with a pixel size of 6x6mm^2.
The camera houses about two thousands electronics channels and is both light and compact.
In this framework, an R&D program for the development of SiPMs suitable for Cherenkov light detection (so called NUV SiPMs) is ongoing.
Different photosensors have been produced at Fondazione Bruno Kessler, with different microcell dimensions and fill factor, in different geometrical arrangements.
At the same time, INFN is developing front-end electronics based on the waveform sampling technique optimized for the new NUV SiPM. Measurements on 1x1mm^2, 3x3mm^2, and 6x6mm^2 NUV SiPM coupled to the front-end electronics will be presented; first imaging capability of a 16-channel matrix system will also be shown.

Collaboration

CTA

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