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Development of a SiPM camera demonstrator for the Cherenkov Telescope Array observatory telescopes

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The Cherenkov Telescope Array (CTA) Consortium is developing the new generation of ground telescopes for the detection of ultra-high energy gamma-rays.

The Italian Institute of Nuclear Physics (INFN) is participating to the R&D of a possible solution for the Cherenkov photon cameras based on Silicon Photomultiplier (SiPM) detectors sensitive to Near Ultraviolet (NUV) energies. The latest NUV-HD SiPM technology achieved by the collaboration of INFN with Fondazione Bruno Kessler (FBK) is based on 30 μm x 30 μm micro-cell sensors arranged in a 6 x 6 mm^2 area. Currently, INFN is developing the concept, mechanics and electronics for prototype modules with active area made up of 8 x 8 FBK NUV-HD SiPMs which could equip the focal planes of CTA telescopes.

In this contribution, the performances of NUV-HD SiPMs and of multi-SiPM modules will be reviewed.

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