

Development and operations of INFN optical modules for the SCT Telescope camera proposed for the CTA Observatory

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The Schwarzschild-Couder Telescope (SCT) is a proposal for the Medium Size Telescopes of the Cherenkov Telescope Array that is based on a two-mirror optical system designed to improve the telescope field of view and image resolution with respect to the single mirror Davies-Cotton solution. The SCT camera is planned to be instrumented with 177 photodetection modules, each composed of 64 Silicon Photomultiplier (SiPM) pixels. The third generation of $6 \times 6 \text{ mm}^2$ high density NUV SiPMs (NUV-HD3) produced by Fondazione Bruno Kessler in collaboration with INFN has been used to equip optical units to be integrated on the upgrade of the camera of the Schwarzschild-Couder Telescope prototype (pSCT) operating at the Fred Lawrence Whipple Observatory. Each optical unit is composed of an array of 16 NUV-HD3 SiPMs coupled with the front-end electronics designed for full-waveform nanosecond readout and digitization using the TARGET-7 ASIC. The units have been assembled and tested in the laboratories of INFN and are now integrated on the camera of the pSCT telescope. In this contribution we report on the development, assembly and calibration of the optical units that are currently taking data on the pSCT camera.

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