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A SiPM Multichannel Asic for high Resolution Cherenkov Telescopes (SMART) developed for the pSCT camera telescope

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The Schwarzschild-Couder Telescope (SCT) is a Medium-Sized Telescope proposed for the Cherenkov Telescope Array (CTA). The first prototype (named pSCT) has been constructed and is being commissioned at the Lawrence Whipple Observatory (FLWO) in Arizona, USA. The SCT is characterized by a dual-mirror optical design in order to remove the comatic aberrations across its field of view. The pSCT camera is now partially equipped with Silicon Photomultiplier (SiPM) matrices produced by Fondazione Bruno Kessler (FBK) and is now in the upgrade phase. A new design of the front-end electronics (FEE) based on the TARGET ASICs will be installed to obtain an improvement especially in the noise performance. The new FEE design will also include a 16-channel integrated pre-amplifier, called SMART, developed and tested by INFN to match the signal produced by the FBK SiPMs.

The results of the performance of the SMART ASIC coupled to the FBK SiPMs and to the new FEE modules will be shown in terms of gain and noise.

Collaboration

on behalf the SCT collaboration

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