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The prototype Schwarzschild Couder Telescope: a Medium-Sized Telescope for the Cherenkov Telescope Array

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The Schwarzschild Couder Telescope (SCT) is a dual mirror Medium-Sized telescope proposed for the Cherenkov Telescope Array (CTA), the next-generation very-high energy (from about 20 GeV to 300 TeV) gamma-ray observatory. The SCT design consists of a dual-mirror optics and a high-resolution camera with a field of view (FoV) of 8 degrees, which will allow exceptional performance in terms of angular resolution and background rejection. A prototype telescope (pSCT) has been installed and is operating at the Fred Lawrence Whipple Observatory (FLWO) in Arizona, USA. Its camera is partially equipped with silicon photomultiplier (SiPM) matrices and covers a FoV of 2.7° . The pSCT has recently successfully detected the Crab Nebula with a statistical significance of 8.6 standard deviations. The upgrade of the pSCT focal plane is now ongoing, aimed to equip the full camera with upgraded sensors and electronics, enhancing the telescope field of view from the current 2.7° to the final 8° . In this presentation, an overview of the pSCT project and obtained results will be given, together with the camera upgrade status and expected performance.

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