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Construction of a medium size prototype Schwarzschild-Couder telescope as candidate instrument for the Cherenkov Telescope Array: Overview of mechanical and optical sub-systems.

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The design of a 9.5-m prototype Schwarzschild-Couder telescope (pSCT) with an aplanatic two-mirror optical system has been developed to evaluate its capabilities for the future Cherenkov Telescope Array Observatory (CTAO). The construction of this novel imaging atmospheric Cherenkov telescope (IACT) is scheduled for early autumn of 2015 at the Fred Lawrence Whipple Observatory in Southern Arizona, USA. The pSCT is expected to verify superior performance of this instrument (high angular resolution, wide field of view, reduced focal plane plate scale, high channel density low cost camera electronics, single photon counting operation regime, etc.) as compared to the traditional Davies-Cotton IACTs constructed for the VERITAS and HESS ground based gamma-ray observatories. An array of SC telescopes operating as a possible extension of the CTA installation is expected to significantly enhance the research capabilities of the observatory for very high-energy ($E > 100$ GeV) gamma-ray astronomy. In this contribution we present the design overview of the pSCT mechanical and optical sub-systems and the status of the telescope construction.

Collaboration

CTA

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