

Recent results from prototypes of the Fluorescence detector Array of Single-pixel Telescopes (FAST) in both hemispheres

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The origin and nature of ultrahigh-energy cosmic rays (UHECRs) are of uppermost importance in astroparticle physics. Motivated by the need for an unprecedented aperture for further advancements, the Fluorescence detector Array of Single-pixel Telescopes (FAST) is a prospective next-generation, ground-based UHECR observatory that aims to cover an enormous area by deploying a large array of low-cost fluorescence telescopes. The full-scale FAST prototype consists of four 20 cm photomultiplier tubes at the focus of a segmented mirror 1.6 m in diameter. Three FAST prototypes have been installed at the Telescope Array Experiment in Utah, USA, and two prototypes at the Pierre Auger Observatory in Mendoza, Argentina, commencing remote observation of UHECRs in both hemispheres. We report on recent results of the full-scale FAST prototypes operated in both hemispheres, including telescope calibrations, atmospheric monitoring, ongoing electronics upgrades, development of sophisticated reconstruction methods and UHECR detections.

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