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Highlights from the Telescope Array experiment

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The Telescope Array (TA) is the largest cosmic ray observatory in the Northern Hemisphere. It is designed to measure the properties of cosmic rays over a wide range of energies. TA with it's low energy extension (TALE) observe cosmic ray induced extensive air showers between 2x10^15 and 2x10^20eV in hybrid mode using multiple instruments, including an array of scintillator detectors at the Earth's surface and telescopes to measure the fluorescence and Cerenkov light. The statistics at the highest energies are being enhanced with the ongoing construction of the TAx4 experiment which will quadruple the surface area of the detector. We review the present status of the experiments and most recent physics results on the cosmic ray anisotropy, chemical composition and energy spectrum. Notable highlights include a new feature in the energy spectrum at about 10^19.2 eV., and a new clustering of events in their arrival directions above this energy. We also report on a new spectrum and composition results in the lower energy range from the TALE extension.

Keywords

ultra-high energy cosmic rays; cosmic ray anisotropy; UHECR spectrum; UHECR chemical composition

Collaboration

Telescope Array

other Collaboration

Subcategory

Experimental Results

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