

Abstract Submitted
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The Cosmic Rays Energy Spectrum observed by the TALE detector TAREQ ABUZAYYAD, University of Utah, THE TELESCOPE ARRAY COLLABORATION COLLABORATION — We report on a cosmic ray energy spectrum measurement by the Telescope Array Low-Energy extension (TALE) fluorescence detector (FD). The TALE FD is an air fluorescence detector which is also sensitive to the Cerenkov light produced by shower particles. Low energy cosmic rays, in the PeV energy range, are detectable by TALE as "Cerenkov Events". Using these events, we measure the energy spectrum from a low energy of ~ 4 PeV to an energy greater than 100 PeV. Starting at around 100 PeV, TALE also observes showers by their fluorescence light; and above this energy fluorescence becomes the dominant light production mechanism by which most showers are observed. The event processing and reconstruction procedures are identical for both low and high energy regions. This allows for treating the Cerenkov events and Fluorescence events as a single data set and thus calculating a single cosmic rays energy spectrum based on this data set, which extends from an energy of ~ 4 PeV to above 1 EeV. In this talk, we will describe the detector, explain the technique, and present results from the measurement of the spectrum in this energy range by the Telescope Array experiment.

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