

Abstract Submitted
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Composition of Ultra High Energy Cosmic Rays Observed by Telescope Array in Hybrid Mode WILLIAM HANLON, Univ of Utah, TELESCOPE ARRAY COLLABORATION — The energy spectrum of cosmic rays exhibits several important features such as the knee ($E \sim 10^{15.5}$ eV), ankle ($E \sim 10^{18.7}$ eV), and high energy suppression ($E \sim 10^{19.8}$ eV). Cosmic ray chemical composition is the key to understanding their galactic and extragalactic sources as well as the origin of particle production and acceleration mechanisms. Energy dependent chemical composition is a fundamental input for models of cosmic ray sources and interstellar transport which may lead to competing explanations of the observed spectral features. Understanding composition will therefore allow one to distinguish between the different scenarios of cosmic ray origin, a decades old problem in astrophysics. In this talk we will describe measurements of ultra high energy cosmic ray composition performed by Telescope Array (TA) using X_{\max} measured in extended air showers (EAS) simultaneously observed by the TA surface array and TA fluorescence stations (called hybrid mode). Showers with primary energies above 10^{18} eV will be considered. We will also discuss improved methods of comparing the measured composition to EAS models.

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