

Abstract Submitted
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Fluorescence Detection of Cosmic Ray Air Showers Between $10^{16.5}$ eV and 10^{19} eV with the Telescope Array Low Energy Extension (TALE) ZACHARY ZUNDEL, JEREMY SMITH, STAN THOMAS, DMITRI IVANOV, JOHN N MATTHEWS, CHARLIE JUI, University of Utah, TELESCOPE ARRAY COLLABORATION — The Telescope Array Experiment has been observing cosmic ray air showers at energies above 10^{18} eV since 2008. TA operates three Fluorescence Detector (FD) sites, with telescopes that observe 3-31 deg in elevation. The FD sites are located at the periphery of a surface array of 507 scintillation counters covering 700 km^2 , with 1.2km spacing. The TA Collaboration has completed building a low-energy extension at its Middle drum FD site. Ten new telescopes currently observe between 33 and 51 degrees in elevation. A graded ground array of between 400 and 600m will be placed in front of the TALE FD. We have already observed scattered light from the central laser (CLF) and coincident events with the Middle Drum FD. By 9/2013, all ten telescopes were instrumented with a central timing system. Additionally, the first 35 scintillator counters have been deployed by helicopter. With these upgrades, the physics threshold of TA will be lowered to $10^{16.5}$ eV. The TA Low Energy Extension(TALE) will explore the energy regime corresponding to that of the LHC in center-of-mass frame. This is also the range where the transition from galactic to extra- galactic cosmic ray flux is suspected to occur. We will give a brief overview of the physics, and report on the progress of TALE.

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