

Abstract Submitted
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Physics and Fluorescence Detection of Cosmic Ray Air Showers with Energies Between $10^{16.5}$ eV and 10^{19} eV¹ ZACHARY ZUNDEL, University of Utah, TELESCOPE ARRAY COLLABORATION — The Telescope Array (TA) Experiment has been observing cosmic ray air showers at energies above 10^{18} eV since 2008. The TA detectors include fluorescence telescopes that look between 3 and 33 in elevation and a surface array consisting of 507 plastic scintillators laid out on a 1.2 km square grid. The TA collaboration is currently installing fluorescence telescopes that look between 33 and 59 in elevation and starting the construction of a graded infill array of surface detectors spaced at 400 m and 600 m. 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 of TALE, and report on the progress of the new fluorescence telescopes.

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