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# Cerenkov Events Seen by The TALE Air Fluorescence Detector

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The Telescope Array Low-Energy Extension (TALE) is a hybrid, Air Fluorescence Detector (FD) / Scintillator Array, designed to study cosmic ray initiated showers at energies above ~3x10^16 eV. Located in the western Utah desert, the TALE FD is comprised of 10 telescopes which cover the elevation range 31-58 deg in addition to 14 telescopes with elevation coverage of 3-31 deg.
As with all other FD's, a subset of the shower events recorded by TALE are ones for which the Cerenkov light produced by the shower particles dominates the total observed light signal. In fact, for the telescopes with higher elevation coverage, low energy Cerenkov events form the vast majority of triggered cosmic ray events. In the typical FD data analysis procedure, this subset of events is discarded and only events for which the majority of signal photons come from air fluorescence are kept.
In this talk I will report on a study to reconstruct the "Cerenkov Events" seen by the high elevation viewing telescopes of TALE. Monte Carlo studies and a first look at real events seen by TALE look very promising. Even as a monocular detector, the geometrical reconstruction method employed in this analysis allows for a pointing accuracy on the order of a degree. Also, based on preliminary Monte Carlo studies, the expected energy resolution is better than 25%. Early indications are that it may be possible to extend the low energy reach of TALE to below 10^16 eV. This would be the first time a detector designed specifically as an air fluorescence detector is used as an imaging Cerenkov detector.

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