Abstract Submitted
for the APR14 Meeting of
The American Physical Society

**Cerenkov Events Seen by The TALE Air Fluorescence Detector**
T. ABUZAYYAD, Z. ZUNDEL, J.D. SMITH, S.B. THOMAS, D. IVANOV, J.N. MATHEWS, C.C.H. JUI, G. THOMSON, University of Utah, TELESCOPE ARRAY COLLABORATION — The Telescope Array Low-Energy Extension (TALE) is designed to study cosmic rays at energies above 30 PeV. The TALE FD is comprised of 10 telescopes covering the elevation range 31-58° and 14 telescopes with elevation coverage of 3-31°. 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. We have investigated the feasibility of using these events for cosmic rays measurements. With this data, the low energy reach of the TALE detector can be extended down to $\sim 5$ PeV. The use of the Cerenkov events collected by an FD represents *a new approach* to the measurement of cosmic rays at energies above the knee and below 100 PeV. By leveraging a detector built for the purpose of observing cosmic rays at higher energies, this technique adds to the capability of the detector and provides a cost effective way to view an energy region that has thus far been inaccessible to Air Fluorescence detectors. We will report on a first measurement by TALE of the cosmic rays energy spectrum in the energy range of 5 - 100 PeV. Since we are using a newly deployed detector, and we are looking at a new type of event, this result is very preliminary.

Tareq Abuzayyad
University of Utah

Date submitted: 10 Jan 2014 Electronic form version 1.4