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Subluminal Events in the Search for UHECR at TA[1] NATHAN WAUGH, Weber State Univ, TELESCOPE ARRAY COLLABORATION — The Telescope Array (TA) experiment in western Utah searches for ultra-high-energy cosmic rays (UHECR), which are particles of extraterrestrial origin with energies of 10^{18} eV or more. These particles are ultra-relativistic nuclei that, on interaction with Earth's atmosphere, create showers of relativistic daughter particles. These showers should progress through the atmosphere with speeds near c, and observations so far confirm this expectation. However, velocity fits to detector data can return subluminal cases, which are expected to result from finite detector resolution and event misreconstructions. We have developed an event quality measure that can estimate the statistical significance of these slower-than-c cases. Our results indicate a low probability of real subluminal events in fluorescence detector data from TA.

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