

Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Measurement of the speed of Ultra-High Energy Cosmic-Ray Extensive Air Showers with the Pierre Auger Observatory ERIC MAYOTTE, Colorado School of Mines, THE PIERRE AUGER COLLABORATION COLLABORATION — At the Pierre Auger Observatory, the reconstruction of Extensive Air Showers (EAS) induced by Ultra-High Energy Cosmic-Rays (UHECR) relies on the very reasonable assumption that all EASs develop at the speed of light. However, because potential exotic species could in principle induce detectable, subluminal EASs, this assumption would lead to poor reconstructions in these rare cases. Additionally, the results of a speed-dependent reconstruction can be useful in monitoring the operation of the array, for instance if a systematic shift from the speed of light in normal showers was observed. In this context, the code for reconstructing optically detected events was modified to find the shower velocity along with the other EAS parameters. This method was first benchmarked with lasers shots fired into the sky from laser facilities located within the array. It was then employed in the multiple levels of shower reconstruction (Monocular, Stereo and Hybrid). Preliminary results from these analyses and an exotic candidate search will be presented.

Eric Mayotte
Colorado School of Mines

Date submitted: 14 Jan 2013

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