

Abstract Submitted
for the TSF21 Meeting of
The American Physical Society

Experimental Design for Detecting Cosmic Rays at ACU¹ ISLA CASEY, Abilene Christian University — Scintillators are materials that emit light, when they are struck by ionizing radiation, this property makes scintillators useful in a wide range of applications. Whenever a charged particle passes through the scintillator it emits photons, also known as Cherenkov radiation. One application is to use scintillators to detect cosmic rays from space. Cosmic rays are particles emitted from space, e.g., from the sun or supernovae, the most common of which are muons. These photons are then converted into electrons through the photoelectric effect by the PMTs on either end of the scintillator. Over the past summer Abilene Christian Universitys Cosmic Ray Test Stand has been repaired and tested to optimize its light detection efficiency. This has been done through sourcing and repairing light leaks, as well as using radioactive source testing to optimize particle detection. ACUs test stand has also been used to test newly built clip lines designed to adjust the measurement of scintillator pulses, these clip lines will then be sent to Fermi National Laboratory for use on their Cosmic Stand. This presentation will show how the repairs made to ACUs cosmic ray test stand will improve its efficiency with cosmic ray detection.

¹This research was supported by US DOE MENP Grant DE-FG02-03ER41243

Isla Casey
Abilene Christian University

Date submitted: 02 Aug 2021

Electronic form version 1.4