

Abstract Submitted
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Constructing a Low Cost, Portable Cosmic Ray Muon and Neutron Detector JAMES SHIRK, XIAOCHUN HE, Georgia State University — A modular, portable, low-cost, and state-of-the-art cosmic ray muon and neutron detector called a 'cosmic ray telescope' has been developed at Georgia State University. It has been designed to measure surface level cosmic ray muon and neutron flux, and is portable to allow for worldwide deployment. The telescope consists of three layers of plastic scintillator tiles used to measure muons, and a 'neutron-cell', or tank, filled with liquid scintillator to measure both muons and neutrons. Cosmic ray particles cause the scintillators to emit light which is captured by an embedded wavelength shifting fiber routed to a silicon photo-multiplier (SiPM). The data acquisition (DAQ) is performed via custom built SiPM interface boards connected to a Raspberry PI. This presentation will highlight the construction of thirty telescopes and their performance tests. A Geant4-based Monte Carlo simulation of the telescope performance will also be presented.

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