

Abstract Submitted
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Developing a Modern Low Cost Apparatus to Measure Muon Flux vs. Angle at Muhlenberg College¹ LUCAS KASLE, CHARLES BENE, TRAVIS CRAWFORD, RICHARD MORASH, KELLY TORNETTA, Muhlenberg Coll — Experiments using cosmic ray muons have been a staple of the undergraduate lab for decades. Muhlenberg seeks to modernize one of these experiments, and implement it inexpensively. Cognizant of the widespread use of Silicon Photomultipliers (SiPMs) in the research environment, our detector employs SiPMs instead of PMTs. Furthermore, a simulation activity has been developed to accompany the laboratory experiment. Our detector design consists of two small plastic scintillators arranged so that coincidence measurements select cosmic ray muons of particular angles with respect to the zenith. Each scintillator is attached to an SiPM and electronics to process the signal. A crude prototype was constructed last summer that produced results consistent with the well established dependence of flux on polar angle, and a simulation was created that also produced consistent results. Progress in the development of the electronics for the SiPMs, the overall design of the apparatus, and the accompanying computer simulation will be reported.

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