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**Speed of Cosmic Ray Muon Using Silicon Photomultipliers** JEFFERSON QUIAMBAO, None, HARTNELL TEAM — Recently, the silicon photomultiplier (SiPM) has attracted considerable attention as a possible replacement for conventional photomultiplier detectors (PMT). To realize the practicality of SiPM detectors, we developed a 4-fold coincidence experiment to estimate the speed of the cosmic ray muons. Cosmic rays are highly energetic atomic nuclei mainly originating outside the Solar System. After striking the Earth's atmosphere, cosmic rays are broken into different particles, one of which is the muon. Our experimental apparatus consists of a coincidence setup, a digitizer, and two pairs of cosmic ray detectors involving SiPMs and PMTs. The distance between the two pairs of detectors were periodically altered to determine the arrival time difference between them to accumulate timing histograms with 3000 coincidence events. Detailed data analysis was conducted using the CERN software package Physics Analysis Workstation (PAW) in a Linux-based environment. Utilizing the data for the distance and time difference, we were able to determine the speed of the cosmic ray muons.

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None

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