

Abstract Submitted
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Implementation of Silicon Photomultipliers in Cosmic Ray Detection MARCUS WADE, JAIME VASQUEZ, Hartnell College, SILICON PHOTOMULTIPLIERS IN COSMIC RAY DETECTION TEAM — A cosmic ray detector has been constructed which uses the silicon photomultiplier (SiPM) rather than the standard photomultiplier (PMT). Two scintillators have been cut and polished with grooves embedded into them. The design utilizes optical fibers, which are planted into the grooves, to collect light emitted from the scintillator and transmit them to the surface of the SiPM. One goal of this project is to determine the differences in performance of the photomultiplier and the silicon photomultiplier. Once construction is completed, data will be taken which compares the frequency of counts, the output gains, cost of the setup, etc. of the two detectors. The second goal is to create a manual with a detailed description of the construction so that it will be easily replicable to students or professionals, reduce the cost of the construction of the cosmic ray detector, which will make this device more useful to anyone interested in duplicating this design.

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