

## Performance of Wavelength-Shifting Fibers for the Mu2e Cosmic Ray Veto Detector

The Mu2e experiment will search for a neutrino-less muon-to-electron conversion process with almost four orders of magnitude of sensitivity improvement relative to the current best limit. One important background is caused by cosmic ray muons, and particles produced by their decay or interactions, mimicking the conversion electron signature. In order to reach the design sensitivity, Mu2e needs to obtain a cosmic ray veto (CRV) efficiency of 99.99%. The CRV system consists of four layers of plastic scintillating counters read out by silicon photo-multipliers (SiPM) through wavelength shifting fibers. The CRV counters must produce sufficient photo statistics in order to achieve the required veto efficiency. We study the light properties of several wavelength shifting fiber sizes in order to optimize the total light yield for the CRV system. The measurements are performed using a scanner designed to ensure fiber quality for the CRV. Results from prototype and production fiber studies will be presented.

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