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Fabrication of a high efficiency cosmic ray veto detector for the Mu2e experiment.

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The Mu2e experiment at Fermilab will search for the charged-lepton flavor-violating process of a neutrinoless muon-to-electron conversion in the presence of a nucleus. The sensitivity goal of the experiment is four orders of magnitude below the current strongest limits on this process. This requires all backgrounds to sum to fewer than one event over the lifetime of the experiment. One major background is due to cosmic-ray muons producing electrons that fake a signal inside of the Mu2e apparatus. The Mu2e Cosmic Ray Veto (CRV) has been designed to veto these cosmic-ray backgrounds with an efficiency of approximately 99.99%, while causing a low dead time and operating in a high-intensity environment. In this talk the design is motivated, and the fabrication processes, and status, of the components of the CRV being produced at the University of Virginia are presented in detail.

Are you are a member of the APS Division of Particles and Fields?

Yes

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