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Cosmic Ray Backgrounds in the Mu2e Experiment at Fermilab

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The Mu2e experiment will study charged lepton flavor violation by searching for the neutrinoless, coherent conversion of a ⊠– to an ⊠–. Such a process will result in an electron of 105 MeV energy. A major background source comes from cosmic-ray muons which can either be misidentified as signal electrons or produce 105 MeV electrons. Such events will occur at a rate of approximately one per day. An active veto detector surrounding the apparatus will be used to detect incoming cosmic-ray muons. Results will be shown from one of the most extensive simulation campaigns ever undertaken in which the cosmic-ray background from several times the entire running period was simulated: over 1012 generated cosmic-ray muons.

Primary author: Dr EHRLICH, Ralf (University of Virginia)

Presenter: Dr EHRLICH, Ralf (University of Virginia)

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