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Towards the construction of the Mu2e electromagnetic calorimeter at Fermilab

Wednesday 26 May 2021 08:42 (18 minutes)

Mu2e will search for the CLFV conversion of a muon into an electron in the field of a nucleus. A clean discovery signature is provided by the mono-energetic conversion electron (Ee= 104.967 MeV). If no events are observed, Mu2e will set a limit of the ratio between the conversion and the capture rate below 6×10^{-17} (@ 90% C.L.). The calorimeter requirements are to provide Eres < 10%, Tres < 500 ps for 100 MeV electrons while working in vacuum and in a strong radiation environment. It is made of two annular aluminum disks, each one filled with 674 pure CsI crystals read out by SiPMs. A sophisticated mechanics and cooling system have been developed to support the crystals and cool the sensors. Radiation hard analog and fast digital electronics have been developed. In this presentation the QC tests performed on the produced components and the construction status are reported, as well as the results obtained on the large size prototype with test beam data and a cosmic ray test stand.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

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