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Status of the DeeMe experiment to search for μ-e conversion at J-PARC MLF

Wednesday 8 September 2021 12:40 (30 minutes)

The DeeMe experiment aims to search for one of the charged lepton flavor violating processes, muon to electron conversion in the field of a nucleus. Our goal is to measure the process with a single event sensitivity of 1×10^{-13} for a graphite target with a novel method, with which the final sensitivity could reach down to a level of 10^{-15} for a silicon carbide target. That is one or two orders of magnitude better than the current upper limits, 7×10^{-13} for a gold target by the SINDRUM-II experiment at PSI and 4.6×10^{-12} for a titanium target by the experiment at TRIUMF. The construction of the secondary beamline, H Line, is now in progress. Meanwhile, we measured the momentum spectrum of electrons through muon decay-in-orbit (DIO) for the momentum region 48–62 MeV/c at the D2 area, MLF. I will present the preparation status of DeeMe, the detector development, and the measurement of the DIO spectrum.

Working group

WG4

Primary author: Dr TESHIMA, Natsuki (Osaka City University)

Presenter: Dr TESHIMA, Natsuki (Osaka City University)

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