

Mu3e looking for rare muon decays

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Mu3e is a dedicated experiment to search the rare charged lepton flavor violating (cLFV) decay $\mu^+ \rightarrow e^+e^-e^+$ with a sensitivity down to 10^{-16} under construction at PSI. In the Standard Model, this decay is heavily suppressed with a branching fraction of 10^{-54} . The Mu3e experiment will be able to reconstruct low momentum electrons and positrons from rare μ decays. Mu3e apparatus consists of a tracking detector based on monolithic active pixel sensors for very precise momentum and vertex reconstruction, combined with scintillating fibers and tiles for very high timing measurements. The motivation for the $\mu^+ \rightarrow e^+e^-e^+$ search will be presented, along with experimental design and subsequent expected sensitivity.

Author: DEMETS, Yannick (University of Geneva)

Presenter: DEMETS, Yannick (University of Geneva)

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