

# Search for Muon to Electron Conversion at J-PARC – the COMET Experiment –

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Muon to electron conversion in a muonic atom is a process of charged lepton flavor violation (CLFV). The COMET experiment aims to search for muon to electron conversion at J-PARC with single-event sensitivity of  $3 \times 10^{-17}$ , which is about 10,000 improvement over the current limit. Recently the COMET experiment has taken a staged approach. COMET Phase-I, as the first phase, aims at a single-event sensitivity of  $3 \times 10^{-15}$  with a partial muon beam line and a Phase-I dedicated detector. The funds for COMET Phase-I have been secured, and the construction has started in 2013. The physics run is expected to start in 2016. The COMET Phase-II will follow after the Phase-I. In this talk, I will describe physics motivation of CLFV, and the details of the COMET experiment, together with the current status.