

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

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Muon to electron conversion in a muonic atom is a process of charged lepton flavor violation (CLFV). It is not allowed in the Standard Model (SM) and known to be one of the best processes to search for new physics beyond the SM. The COMET experiment aims to search for this process at J-PARC with single-event sensitivity of 3×10^{-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 3×10^{-15} with a partial muon beam line and a Phase-I dedicated detector. The construction of COMET Phase-I has started in 2013 and its physics run is expected to start in 2018/2019. The COMET Phase-II will follow immediately afterwards. In this talk, we will describe the physics motivation of CLFV, and the details of COMET Phase-I / Phase-II together with the current status of the experiment preparation.

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