

Search for lepton flavor violation - latest results from the MEG experiment

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Abstract content

Lepton flavor violation processes are ideal probes for new physics due to the suppression of Standard Model backgrounds. The $\mu^+ \rightarrow e^+ \gamma$ reaction in particular has been used extensively to search for new physics by many experiments in the past. The MEG Collaboration is currently operating the world's most sensitive charged lepton flavor violation experiment at the Paul Scherrer Institute near Zurich, Switzerland. By using one of the world's most intense surface muon beams, together with a liquid Xenon detector of 900 liters and a gradient-field superconducting positron spectrometer, the $\mu^+ \rightarrow e^+ \gamma$ decay can be distinguished from the normal Michel and radiative decay processes. To resolve the dominant background process of accidental overlapping events, a detector with excellent spatial, temporal and energy resolution is required. The current status of the experiment as well as the latest results will be presented. An outlook on the prospects of the MEG experiment including future upgrades will be given as well.

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