



Poster session 3 – Wednesday 6 July

P3.009 Charged Lepton Flavor Violation search with the $\mu^+ \rightarrow e^+\gamma$ decay: the final result by the MEG experiment

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In the last years, flavor physics has become one of the most exciting branches of particle physics due to its high sensitivity to new physics in charged Lepton Flavor Violation (cLFV) processes. The observation of neutrino oscillations has clearly demonstrated that neutral lepton flavor is not conserved. This implies that cLFV can also occur in the Standard Model (SM), although strongly suppressed. On the other hand, the simplest and most reliable Beyond SM extensions predict measurable cLFV processes, some being even further enhanced by the recently measured large mixing angle θ_{13} . Therefore cLFV searches have gained much interest recently as a sensitive tool for discovering “new physics”.

The MEG experiment, which searches for the $\mu^+ \rightarrow e^+\gamma$ decay, has recently completed the analysis of the full data sample acquired in the years 2009-2013. A most stringent upper limit on the branching ratio of $\beta(\mu^+ \rightarrow e^+\gamma) < 4.2 \times 10^{-13}$ has been established at the 90% C.L.

A detailed presentation of the final analysis will be reported and the status of the MEG upgrade (MEGII), with the aim of improving by an order of magnitude the sensitivity on the search of the $\mu^+ \rightarrow e^+\gamma$ decay, will be given.