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The mu+ -> e+ gamma decay search with the full dataset of the MEG experiment

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Lepton flavor violation (LFV) research is currently one of the most exciting branches of particle physics due to its high sensitivity to new physics. The observation of neutrino oscillations has clearly demonstrated that neutral lepton flavor is not conserved. This implies that charged LFV (cLFV) processes, such as the mu+ -> e+ gamma decay, can also occur in the Standard Model (SM), although strongly suppressed. On the other hand, Beyond SM (BSM) extensions strongly enhance the predictions for cLFV branching ratios. Therefore such decays are ideal probes for new physics.

The MEG experiment at the Paul Scherrer Institut searches for the mu+ -> e+ gamma decay and has completed the data collection at the end of the 2013. The analysis of the full data set acquired in the period 2009-2013 for a total amount of 7.5 x 10^14 stopped muons on the target will be presented. A new upper limit on the branching ratio of this decay of 4.2 x 10^-13 (90% confidence level) has been established. It is a factor 30 improvement over the previous limit set by the MEGA experiment and also the strongest bound on any forbidden decay particle.

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