

# The 19th International Workshop on Neutrinos from Accelerators (NUFACT2017)



Contribution ID: 54

Type: **talk**

## Status and prospects of charged lepton flavor violation searches with the MEG-II experiment

*Monday, 25 September 2017 14:00 (24 minutes)*

The MEG experiment took data at the Paul Scherrer Institut in the years 2009-2013 and published the most stringent limit on the charged lepton flavor violating decay  $\mu \rightarrow e\gamma$ :  $\text{BR}(\mu \rightarrow e\gamma) < 4.2 \times 10^{-13}$  @90% C.L.

The MEG detector is currently being upgraded in order to reach a sensitivity of  $\sim 4 \times 10^{-14}$ , which corresponds to an improvement of one order of magnitude.

The basic idea of MEG-II is to achieve the highest possible sensitivity by making the maximum use ( $7 \times 10^7$  muons/s) of the available muon

intensity at PSI with an improved detector, keeping the background at a manageable level.

The status of the MEG-II detector and the current schedule will be presented.

MEG-II, together with the next generation charged lepton flavor violation experiments Mu3e ( $\mu^+ \rightarrow e^+e^-e^+$ ) at PSI and Mu2e and COMET ( $\mu \rightarrow e$  conversion)

at Fermilab and J-PARC respectively, will reach very high sensitivities in the next years. Accelerator upgrades are also expected, that will make muon beams with intensities of the order of  $10^{10}$  muons/s feasible. At this extremely high beam rates, new detector concepts should be adopted for  $\mu \rightarrow e\gamma$  searches, in order to overcome the accidental background. Some future directions will be discussed.

### Summary

I will present the status and the schedule for the MEG-II experiment that will search the charged lepton flavor violating decay  $\mu \rightarrow e\gamma$  with a sensitivity of  $\sim 4 \times 10^{-14}$ . I will also discuss future directions for  $\mu \rightarrow e\gamma$  searches in a scenario with beam intensities of the order of  $10^{10}$  muons, that seems possible in the next years.

**Primary author:** Dr VOENA, Cecilia (INFN Roma)

**Presenter:** Dr VOENA, Cecilia (INFN Roma)

**Session Classification:** WG4: Muon physics

**Track Classification:** Working Group 4: Muon Physics