



## Background photon suppression to search for rare muon decay with the highest sensitivity Kensuke Yamamoto on behalf of the MEG II collaboration The University of Tokyo Contact: <u>kensukey@icepp.s.u-tokyo.ac.jp</u>





## Abstract

The MEG II experiment at Paul Scherrer Institut searches for  $\mu \to e\gamma$  with the highest sensitivity of  $\mathcal{O}(10^{-14})$  [1]. The muon decay is predicted in new physics models while it is strongly suppressed in the Standard Model of particle physics. Further background photon suppression reduces the number of background events to achieve the highest sensitivity of the  $\mu \rightarrow e\gamma$  search. Multiple photons are identified and unfolded with a high-granularity photon detector. A radiative decay counter is installed to identify radiative muon decay ( $\mu \rightarrow e\nu\nu\gamma$ ) events. In total, background photon suppression of 40% can be achieved by these methods.



- of new physics

## Background suppression - Focusing on $\gamma$



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