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Recovery of Photon Detection Efficiency of SiPMs in the liquid xenon detector by annealing

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The MEG II experiment searches for the charged lepton flavor violation process, $\mu \to e^+ + \gamma$, with the target sensitivity of branching ratio : O(10⁻¹⁴).

Gamma-rays are detected by the liquid xenon detector to reconstruct their energy, timing, and position. In the liquid xenon detector, 4092 VUV-sensitive MPPCs produced by Hamamatsu photonics are used. Decrease of photon detection efficiency (PDE) of MPPCs during beam time was a problem and we found the PDE recovers by annealing (heating). In the beginning of 2022, annealing of almost all MPPCs was conducted. In this poster, the result of this annealing will be presented.

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