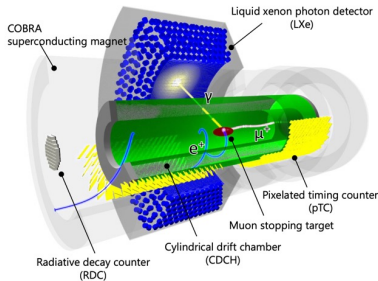
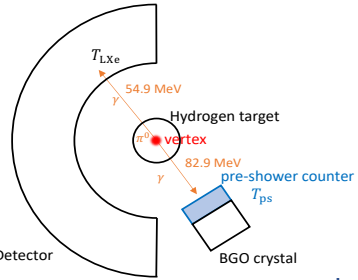


Commissioning of Liquid Xenon Gamma-Ray Detector for MEG II Experiment

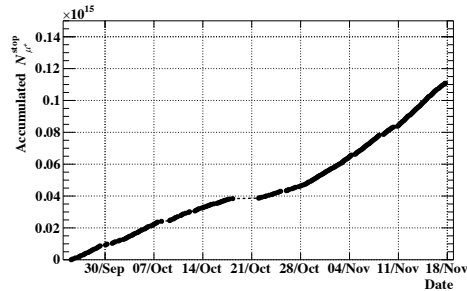


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Start of Physics Data Taking

- The full electronics were installed in 2021.
- All kinds of the required calibration data were taken.
→ Physics data taking started.
- The energy scale is monitored stably with sensor calibration.
- MPPC PDE decrease has an impact for energy scale, but it can be recovered by annealing.
- Trigger for $\mu \rightarrow e\gamma$ is fired correctly.
- Physics data was taken in 2021 in some beam intensities, and analysis is ongoing.



Accumulated number of muon stopped on target

Timing Resolution Evaluation

absolute timing resolution

$$\sigma_{\text{abs}} = \sigma(T_{\text{LXe}} - T_{\text{ps}} - T_{\text{TOF}}) \ominus \sigma_{\text{ps}} \ominus \sigma_{\text{vertex}}$$

intrinsic timing resolution

$$\sigma_{\text{int}} = \sigma(T_{\text{PM,even}} - T_{\text{PM,odd}})/2$$

	Measured	MC
σ_{abs} [ps]	85.4	57.3
σ_{int} [ps]	37.8	38.4

(Preliminary result)

- The cause of the difference between the measured resolution and the result of MC should be investigated.
- Timing reconstruction and calibration method should be improved.

Liquid xenon gamma-ray detector is ready for the long-term physics data taking, and the detector performance and stability will be improved furthermore.