Evaluation of the prototype detector of AXEL

What’s AXEL?

We are developing a high pressure Xe gas TPC to search for 0νββ from 136Xe (Q=2458keV).

**Feature**
- Good energy resolution : 0.5% (FWHM@2.458MeV)
- Using proportional scintillation mode
- Large mass (high pressure gas)
- Background rejection with tracking

**R&D Status**

**Prototype Detector**

Prototype detector with 64ch MPPCs, two PMTs and up to 10 bar Xe gas.

**Cuts and corrections**

**Energy resolution**

Energy resolution is evaluated by fitting each peaks by "Gaussian + BG contributions"

**Future**

Next prototype detector
- Demonstration of the energy resolution using higher energy gamma-ray source (around Q-value)
- Pressure chamber has been already constructed
- Design of detection region and readout electronics are undergoing