**Motivation**

Motivation of particle identification in liquid scintillator
- Background reduction
- Detection efficiency improvement

Particle identification with imaging detector is the new method as the improvement of detector. It makes to distinguish beta-ray and gamma-ray possible!

**Imaging Detector**

Imaging detector prototype
- Keigo’s poster mentions status of optic.
- Multi Pixel Photon Detector
- Requirement
  - 1 p.e. sensitivity
  - Low darkrate
  - Ease of expansion

The first candidate is...
- MAPMT (Multi Anode PMT)

**Setup for demonstration**

Image Check
- Histograms show the hit count about all taken photo.
- It means success of beta-ray and gamma-ray imaging statistically.
- I must analyze taken photos one by one about its RMS.

**Monte Carlo Simulation**

Observation shows slightly positive result. Next, I am verifying the result by Geant4 simulation (Monte Carlo simulation tool).

Reproduced Optic
- It is necessary that Optic is reproduced precisely in Monte Carlo simulation. I adopted aberration from LED images taken by CCD camera.

**Summary & ToDo**

**Summary**
- Prototype of imaging detector has been made.
- Demonstration for Particle identification has been done.
- Beta-ray and Gamma-ray imaging was successful.
- The difference of RMS histogram was found.

**ToDo**
- Monte Carlo simulation should be finished.
- In demonstration, There are many background events. I identify background source and evaluate its effect.
- I will suggest more suitable setup for particle identification.