Readout Electronics for TPC-based MeV Gamma-ray Telescope in Space

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Presented by Maoyuan Zhao

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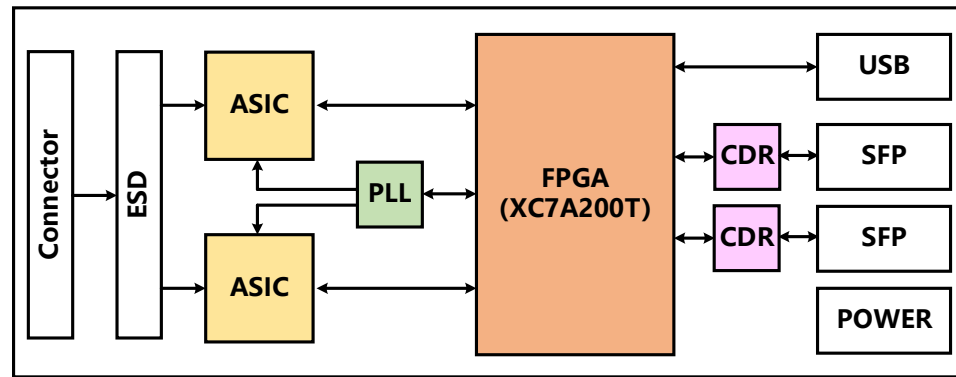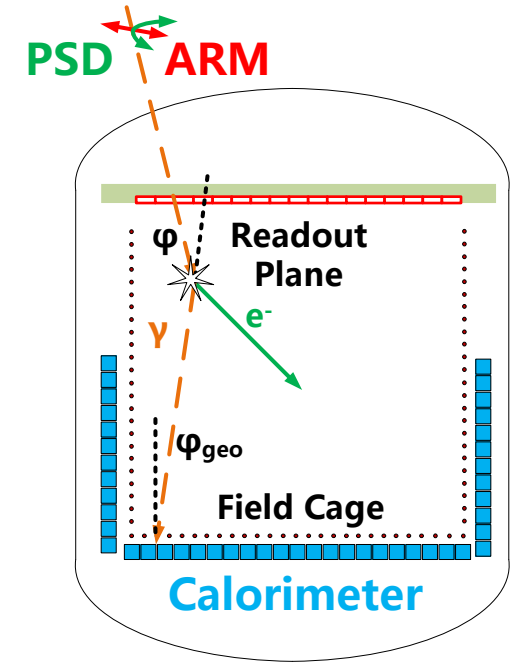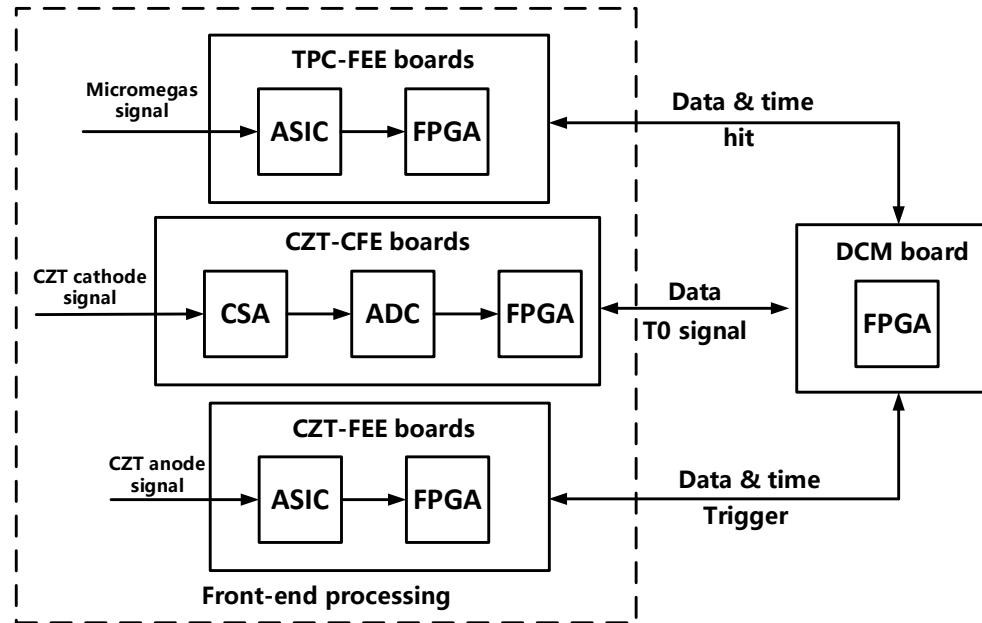## MeV gamma ray measurement

- **MeV spectral line astronomy**
- **MeV polarization**

Prototype

- **926 channel for TPC strips**
- **121-pixel CdZnTe detectors**

Challenges & Solutions

- **Large mount of channels**
  - **Multiplexing method**
- **Low noise**
  - **Low noise ASIC**

Multiplexing method

- **Multiple pads of different detectors can be connected to one readout channel.**

- **The cathode signal of CdZnTe shows which detector has been hit.**

Test Result

- **The energy resolution of a single pixel get a bit worse than the original one, from 1.5% to 1.9% at 662 keV (FWHM), but the channel amount is decreased.**

Conclusion

- **We have preliminarily completed the readout electronics design.**
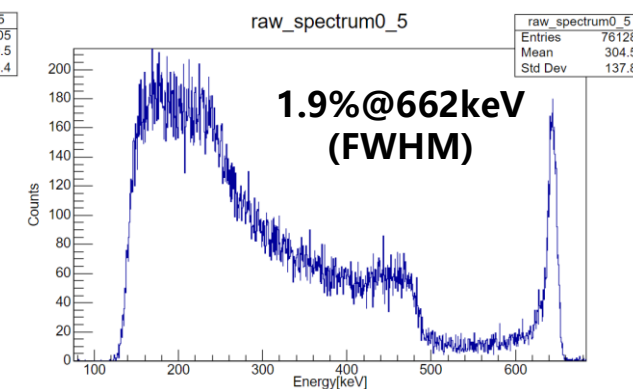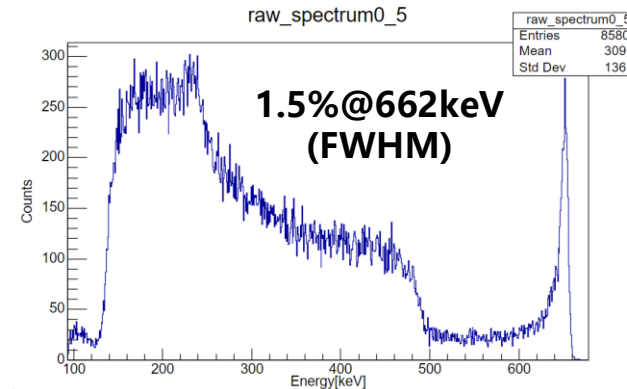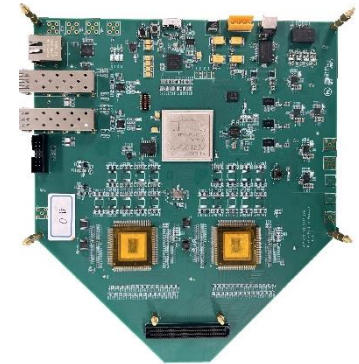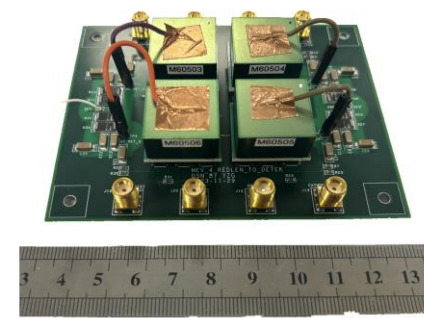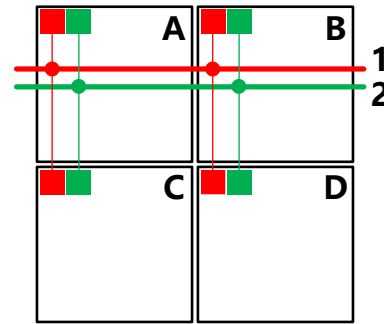
Thank You for Watching
&
Welcome to Discuss

Session: **Poster A (#79)**

Date & Time: **23/04/2024, Tuesday – 15:45 (Asia/Ho Chi Minh, Time Zone)**