

^{137}Cs - ^{60}Co OFFLINE data analysis using present AGATA-DAQ system at LNL

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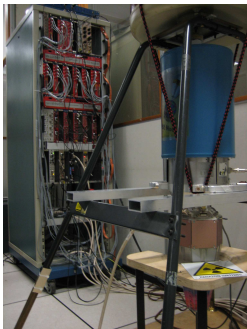
Outline

- 1 Introduction
 - Experimental set-up
 - DAQ
- 2 The DAQ prototype
 - CrystalFrame producer
 - Preprocessing filter
 - PSA filter
 - Service consumer
- 3 Conclusion



FEE

TNT2 100MHz 14bit digitizers



- 10 TNT2 digitizers
- external trigger from the core
- ^{137}Cs - ^{60}Co lead collimated source. placed in front of the detector.



AGATA-DAQ

current prototype



Detector

TNT2 digitizer

E, Traces



TNT2 digitizer

E, Traces

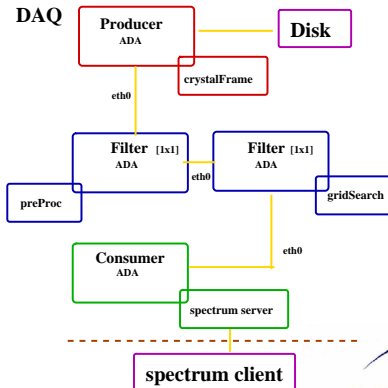
TNT2 digitizer

E, Traces

Disk

FEE

DAQ



CrystalFrame producer

data read from disk

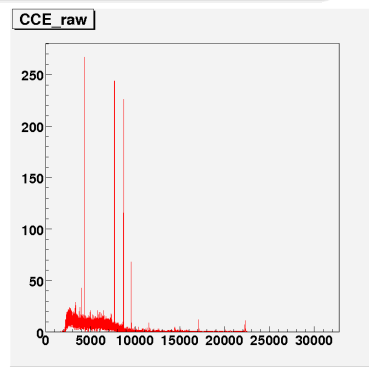
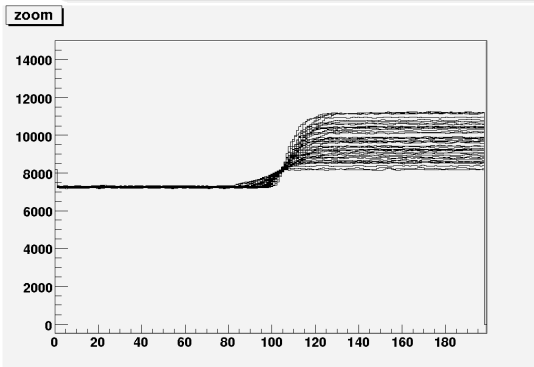
Raw data compliant with the temporary ADF 4.0: 15688 B/ev

- ~12 GB of raw data.
- 20 byte event header: frame length(int), key 4.0(int), event number(int), time stamp(long long)
- Data-Frame: Id(short), status(short)
+ nSEGMENTS(36)
(length(int)+status(short)+Id(short)+energy(float)+
+nSamples(200)*(short))
+ nCORES(2)*
(length(int)+status(short)+Id(short)+energy(float)+time(float)+
+nSamples(200)*(short))

CrystalFrame producer

ADF crystalFrame

Raw energy and traces of the core.

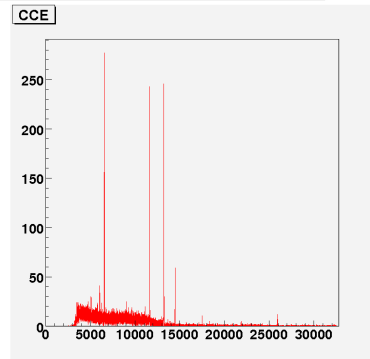
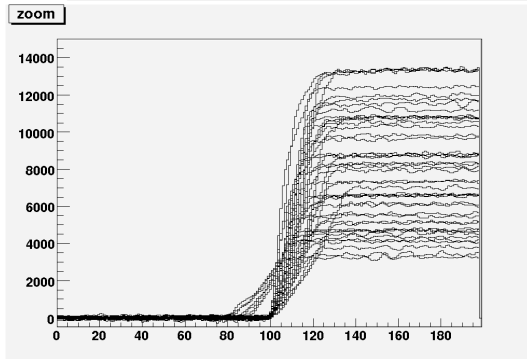


PSA preprocessing

ADF crystalFrame

Raw data compliant with the temporary ADF 4.0: 15688 B/ev

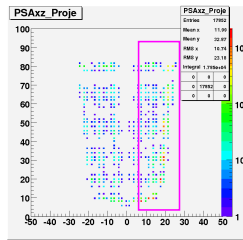
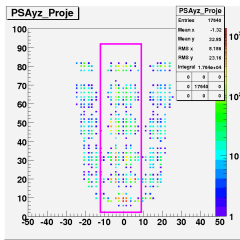
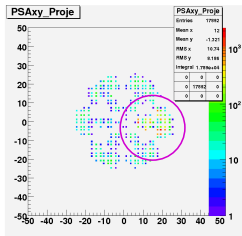
- Energy calibration
- Time normalization, baseline and offset removal, synchronization.



Simple grid search

ADF psaFrame

- 2 mm base, 100 samples, 5 ns
- high background: $\sigma_x \sim 2$ mm , $\sigma_y \sim 2$ mm (M=1, E=662 keV)



PSA consumer

ADF psaFrame

- disk writer actor.
- spectrum server (libGRU) -> spectrum client (viGRU)



Conclusion

- OFF-LINE analysis already feasible up to PSA.
- debug still needed and tuning from expert.

TO DO/ ON GOING

- event builder (ON LINE analysis!)
- spy
- merger for ancillary
- ...

