

The AD at LNL in view of the experimental campaign.

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Outline

1 Introduction

- DAQ & data flow

2 Support to the AD commissioning

- WeekX Commissioning

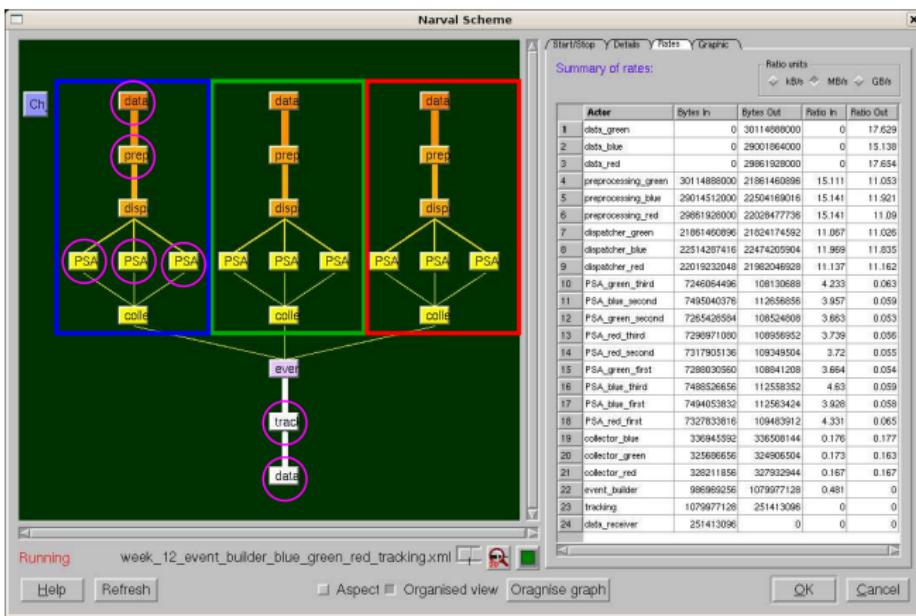
3 Simulation

- RDDS lifetime measurements

4 Conclusion

First In-beam commissioning

acq rate ≈ 1 kHz/crys

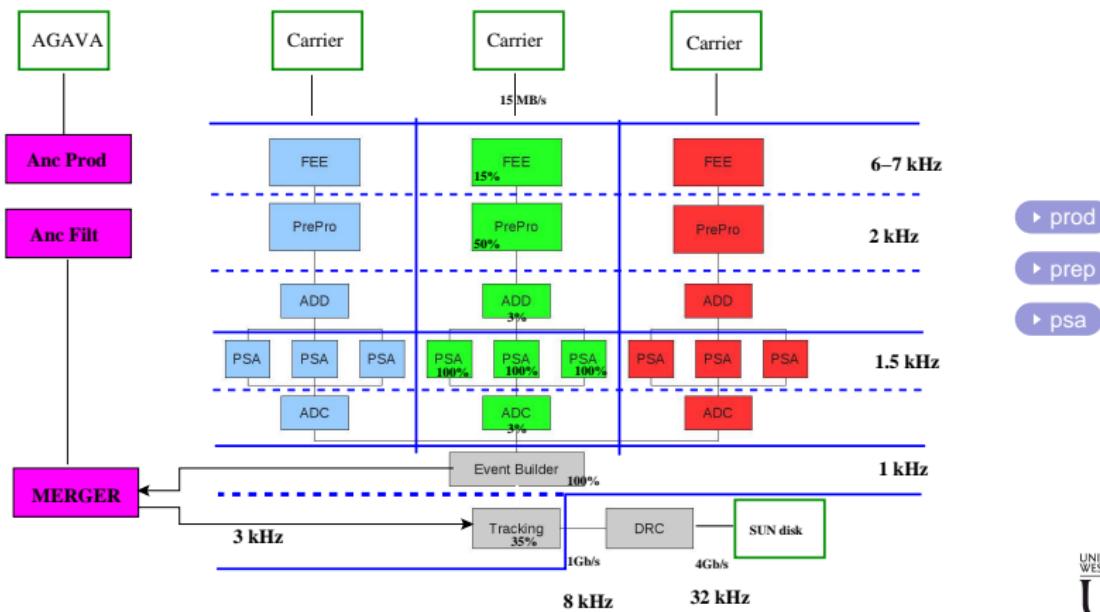


DAQ

Topology and performances

ANCILLARIES

DSSD, TRACE,DANTE,PRISMA, etc

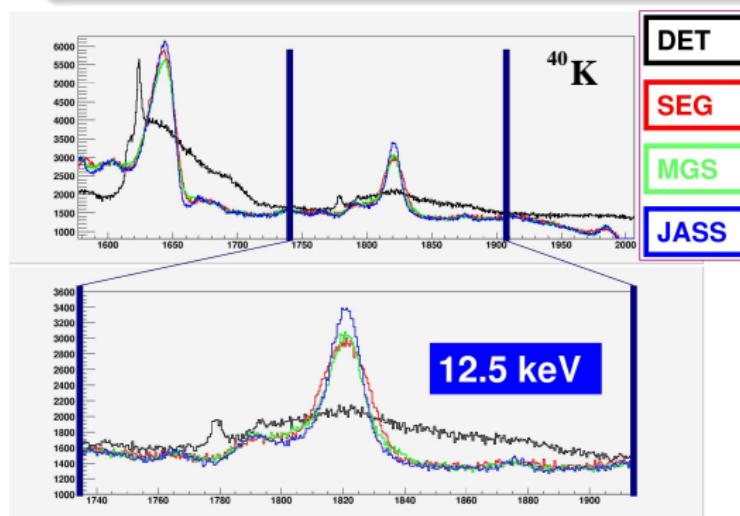


WEEK12

FE reaction: $^{30}\text{S}(70\text{MeV})+^{12}\text{Ca}$

Main goal of the meas.

position resolution from PSA

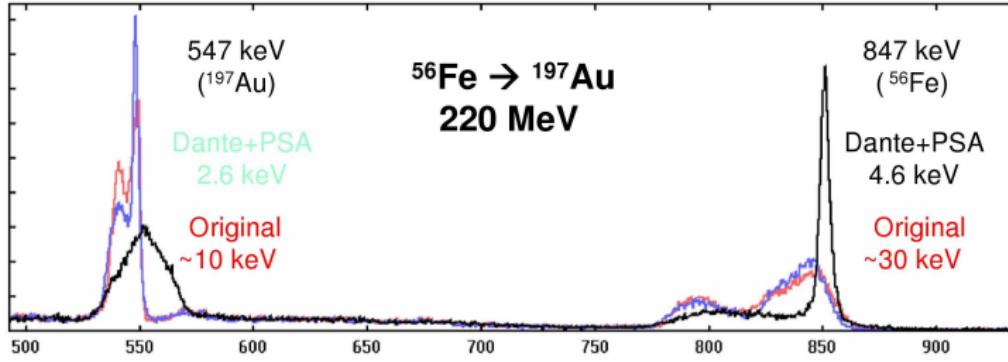
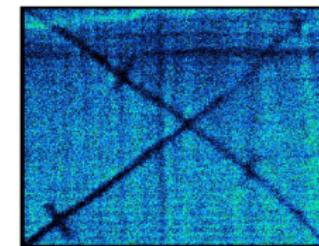
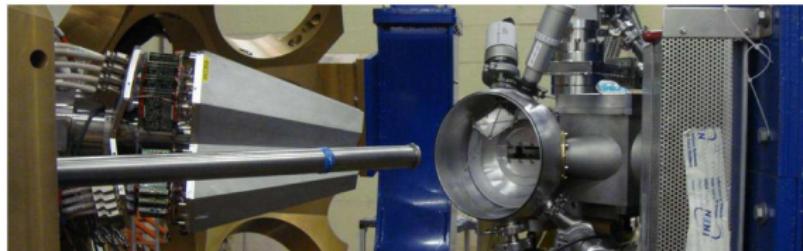


WEEK27 (+WEEK22)

Coulex reaction: $^{56}\text{Fe}(220\text{MeV})+^{197}\text{Au}$

Main goal of the meas.

digital trigger processor + ancillary (DANTE)

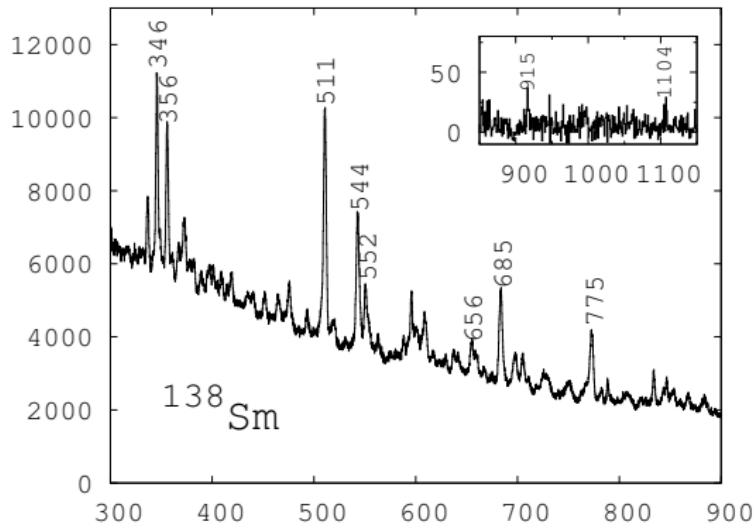


WEEK43

FE reaction: $^{32}\text{S}(130\text{MeV})+^{110}\text{Pd}$

Main goal of the meas.

AGAVA + 2ATC + high mult events

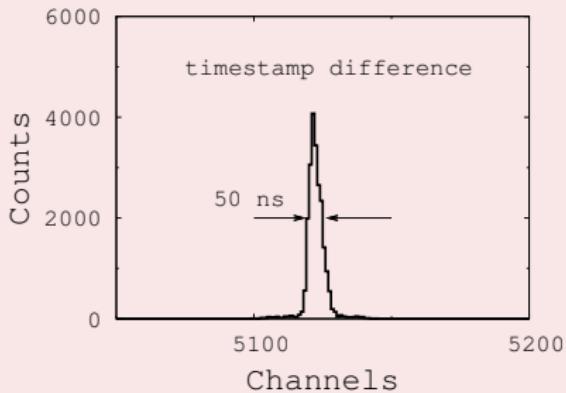


WEEK43

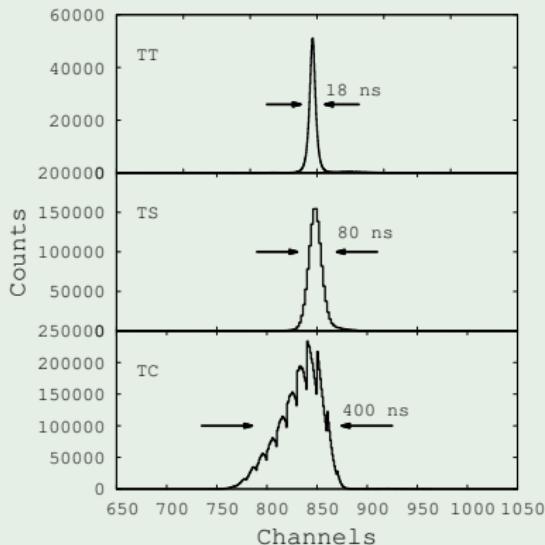
Timing

*digital trigger:
coinc between two partitions*

Sync AGAVA-AGATA



Timing after track

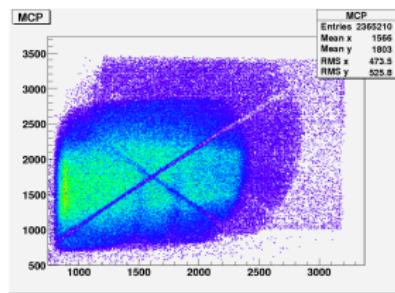
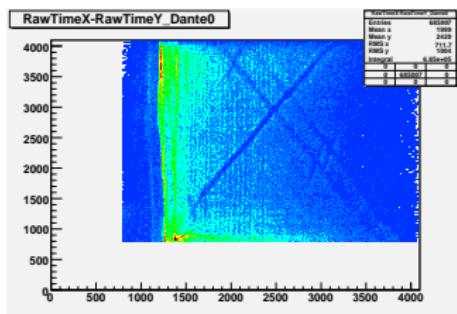
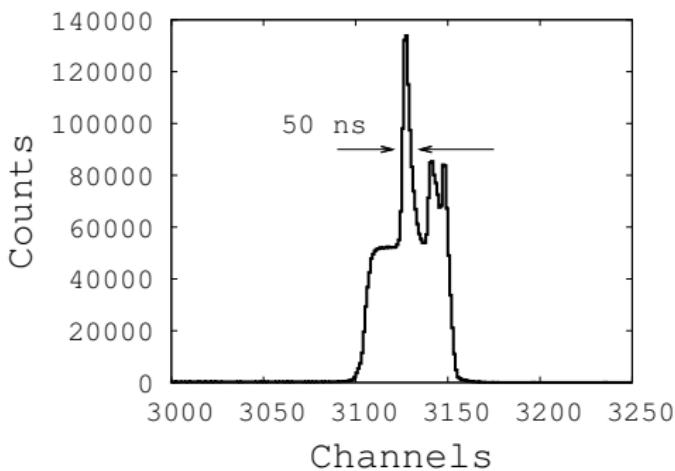


WEEK46

MNT reaction: $^{58}\text{Ni}(235\text{MeV})+^{96}\text{Zr}$

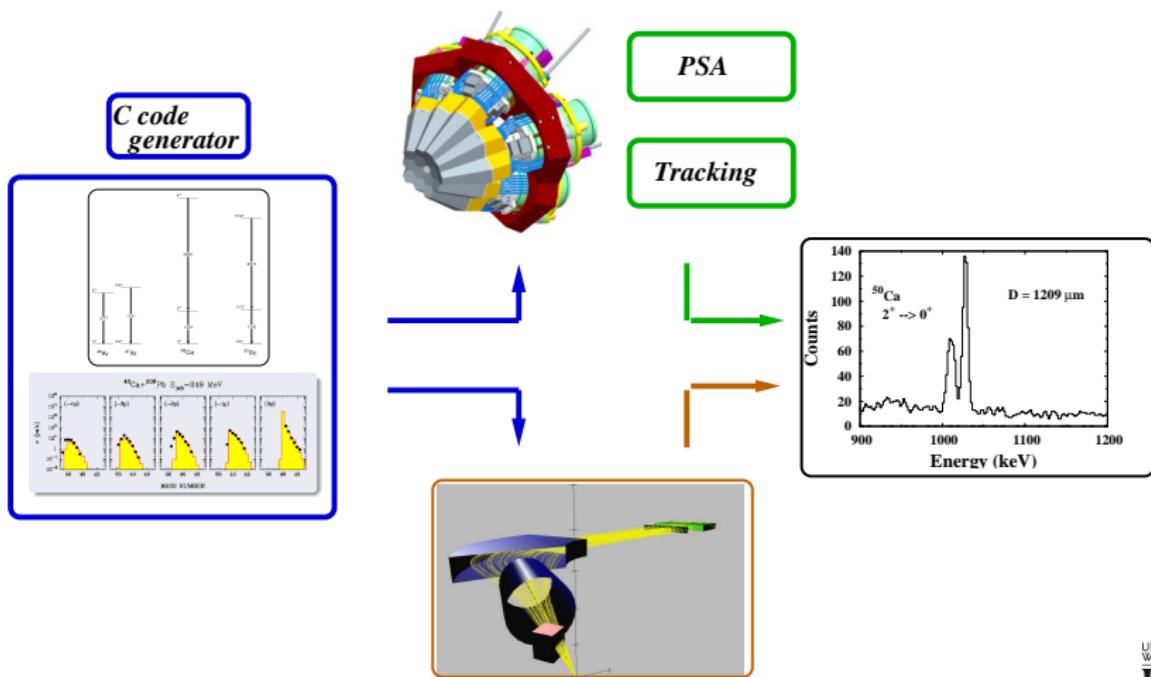
Main goal of the meas.

AGATA-PRISMA coupling

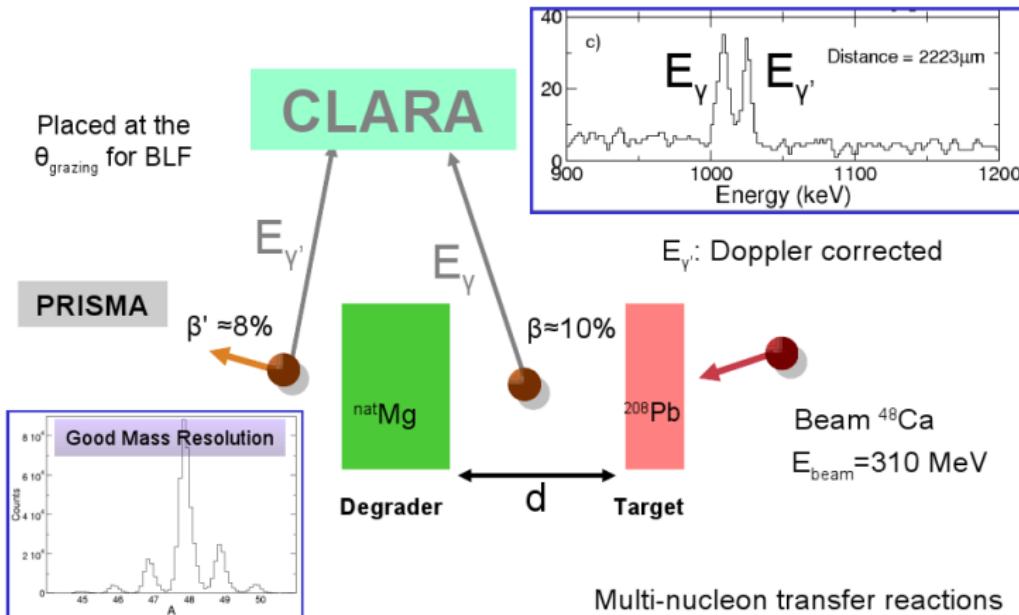


Simulation framework

Realistic physics



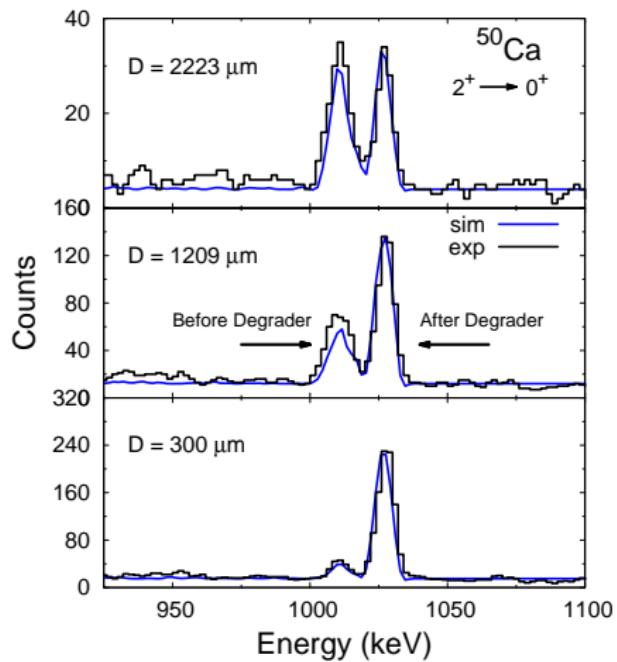
Working principle



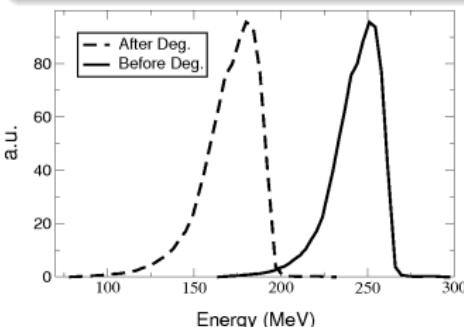
J.J. Valiente, D. Mengoni et al., LNL An.Rep. 2007.

Simulation

The ^{50}Ca bench



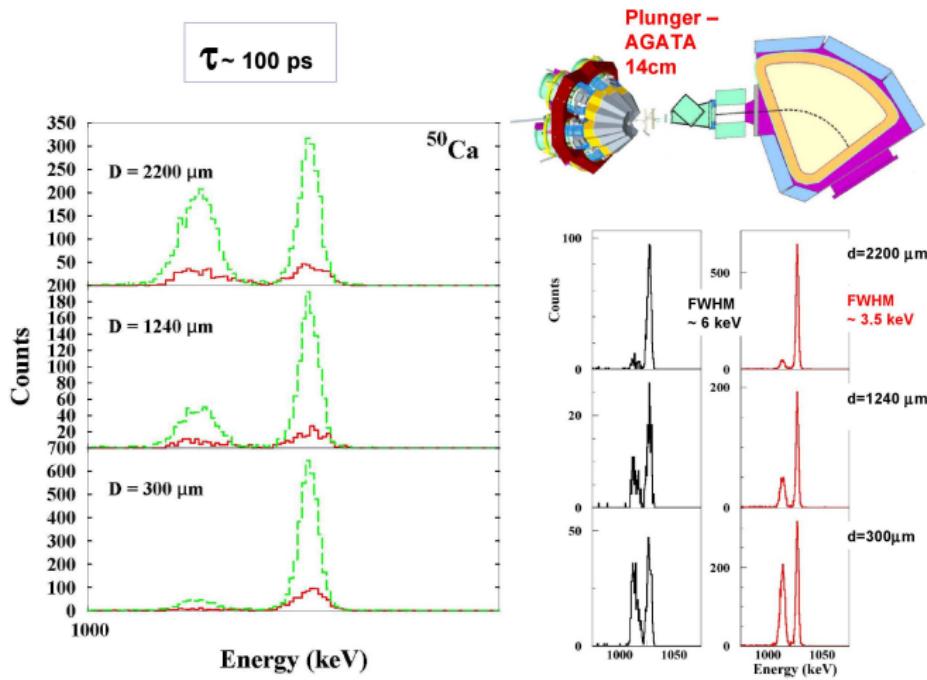
- EVENT GENERATOR
- CLARA
- PRISMA



D. Mengoni et al, EPJA in press.

Simulations

realistic CLARA(..AGATA)+PRISMA simulation



Summary and conclusions

- Actively involved in the system set-up, particularly in DAQ;
- ON-LINE analysis at a rate of $\gtrsim 5$ kHz/crys, with two ATCs;
- AGAVA coupling;
- Simulation tool for RDDS measurement (EPJA09 in press, PRC under submission).

TO DO/ ON GOING

- Presort and sort of data: improv. of the algorithms and sort code.
- last (two?) commissioning test + physics campaign (displacement of the ATC3);
- Simulations in view of the next LNL PAC and to reproduce commissioning results.

Libraries

What are they really?

C/C++ code

- The BASE CLASS usually binds with the ADF:
I/O methods, configuration, initialization
- The DERIVED CLASS usually overloads the processing
method where the job is done
- (symbols for Narval interface)

ORGANIZATION INSIDE NARVAL

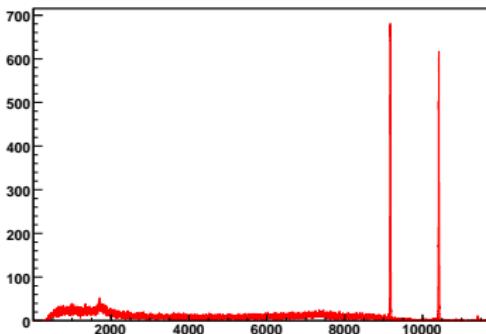
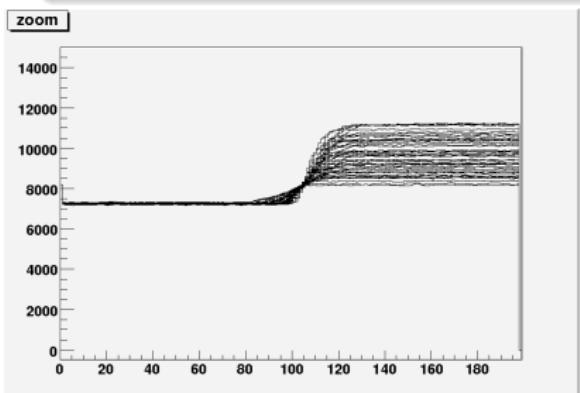
All the C/C++ code is in a dedicated machine where all the libraries have been ported and build. Afterwards they are copied to a common nfs directory, loaded and configured inside NARVAL.

Mezzanine producer

data reading from disk/carrier

Data import inside the DAQ

- Input: Disk/Carrier reading and mezzanine decoding
- Output: event Crystal Frame conversion
- Data compliant with ADF 2.0: 12.648 kB/ev

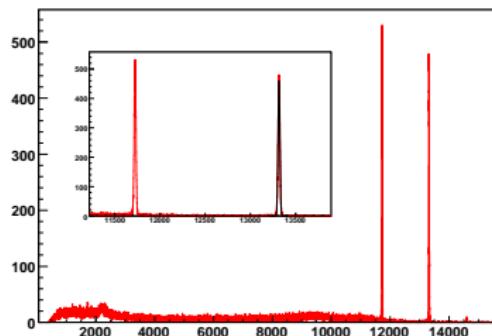
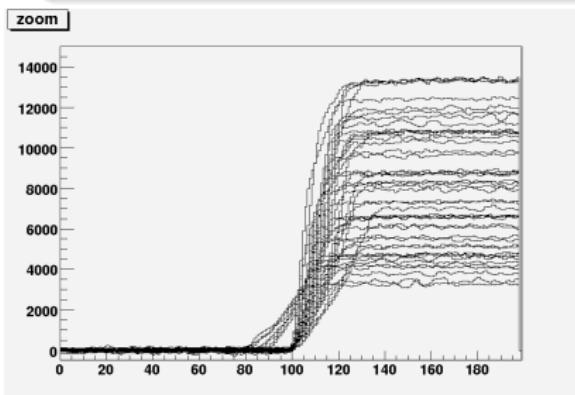


▶ Return

PSA preprocessing

ADF crystalFrame

- Energy calibration and integral cross talk correction
- Time normalization, baseline and offset removal, alignment.

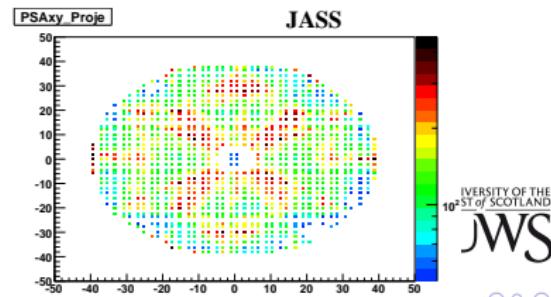
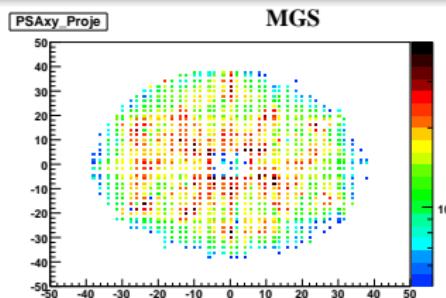
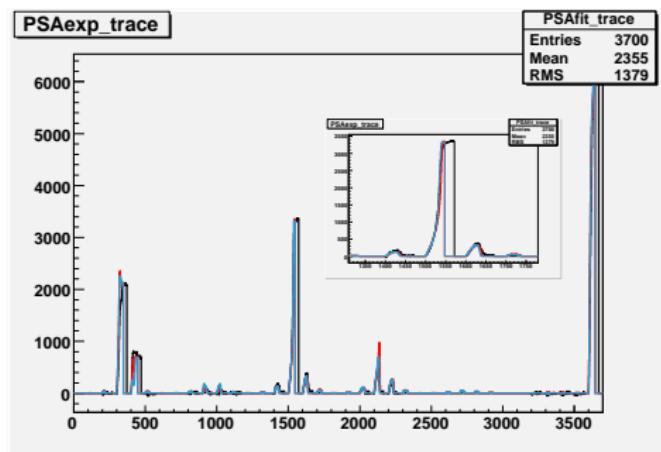


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PSA

ADF psaFrame

- Simple grid search: JASS and MGS basis (2 mm, 5 ns).
- Comparison: different exp point in the same segment.



▶ Return

