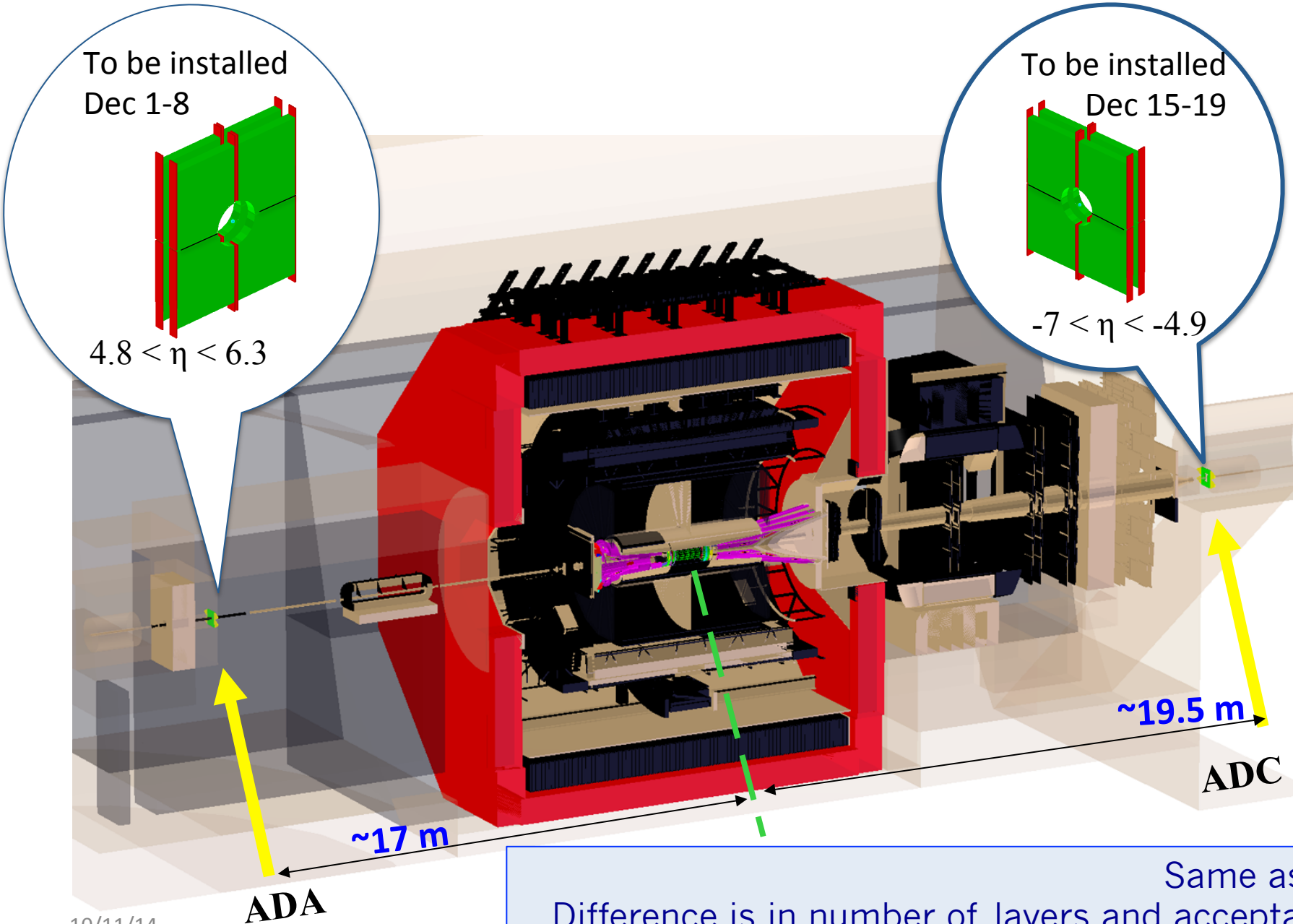
Alice Diffractive Detector

M.Poghosyan for the ALICE-AD group

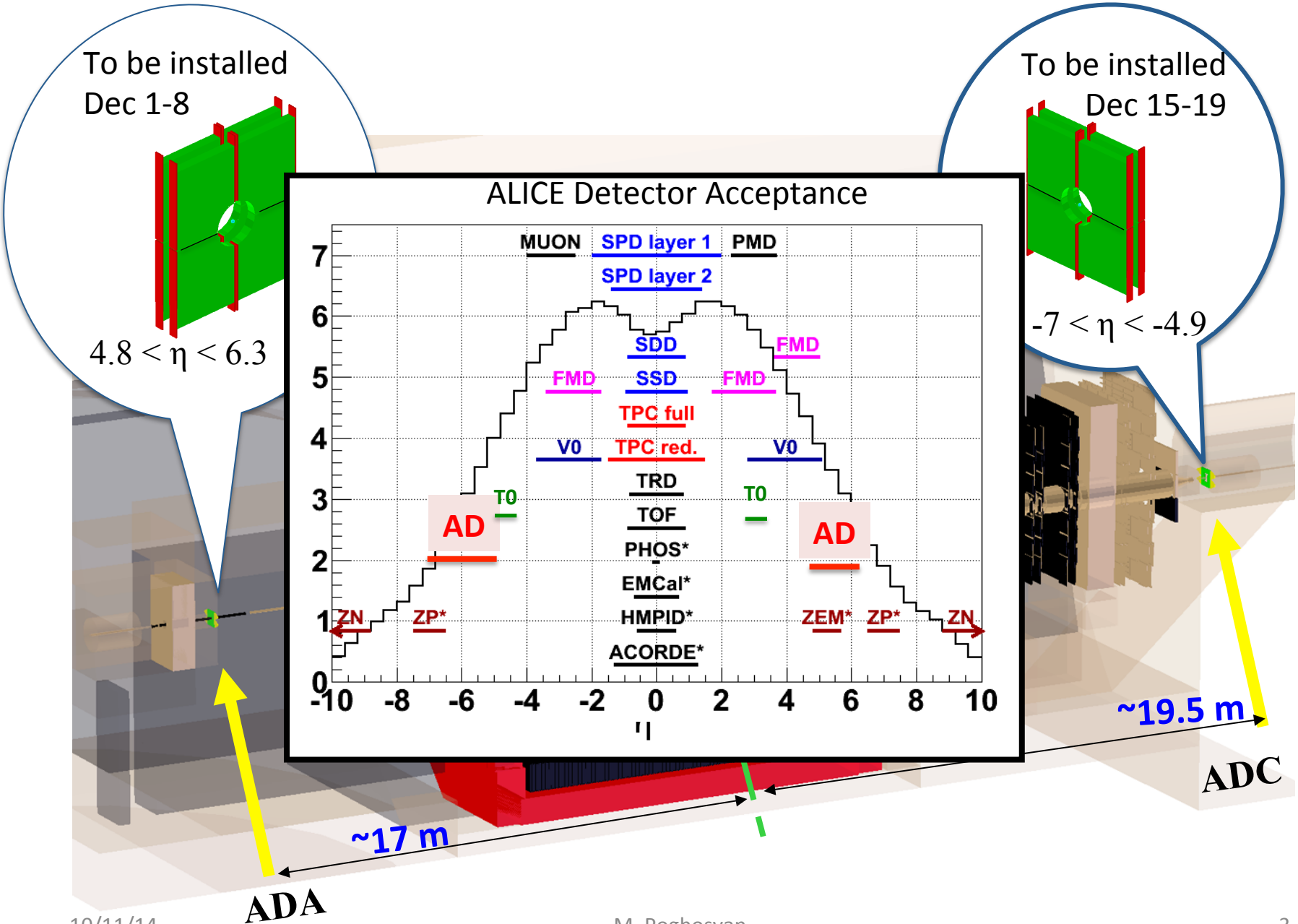
ALICE Offline week
20/11/2014

ALICE Diffractive Detector



Same as V0
Difference is in number of layers and acceptance

ALICE Diffractive Detector

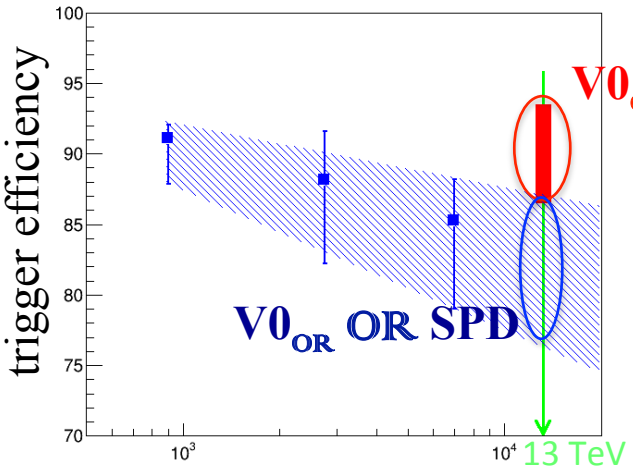


Purpose

Enhance ALICE capabilities for studying diffractive processes

Compensate for the efficiency decrease

Mbor effic. increase by ~10% and uncertainty reduction by a factor 2



- Trigger efficiency decreases with increasing collision energy
- Get sensitivity to small masses (extrapolation to small masses is the main source of uncertainty)

Triggers:

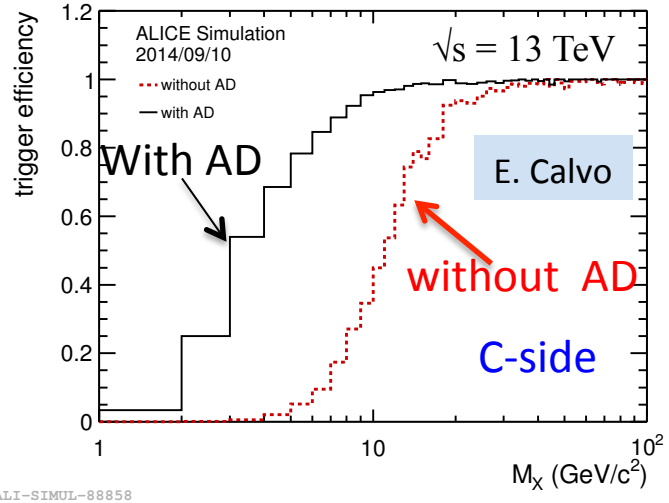
MB_{AND} : (ADC || V0C) & (V0A || ADA)

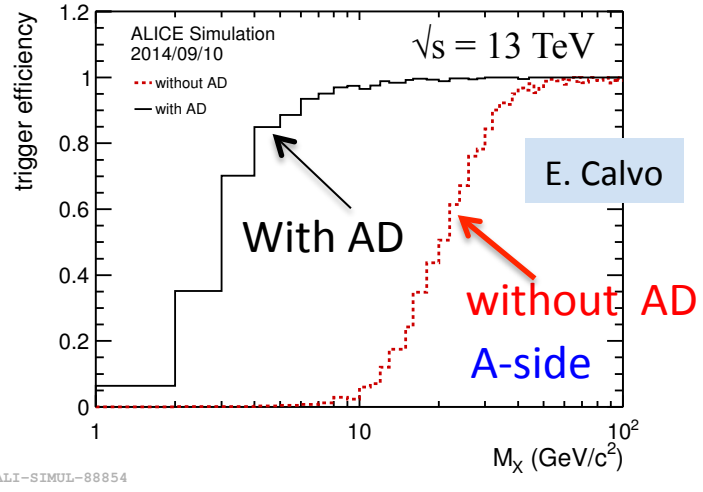
MB_{OR} : ADA || V0A || SPD || V0C || ADC

Double-Gap: SPD & !(ADA|| V0A || V0C || ADC)

Plan is to have AD in L0 (and/or L-1) trigger

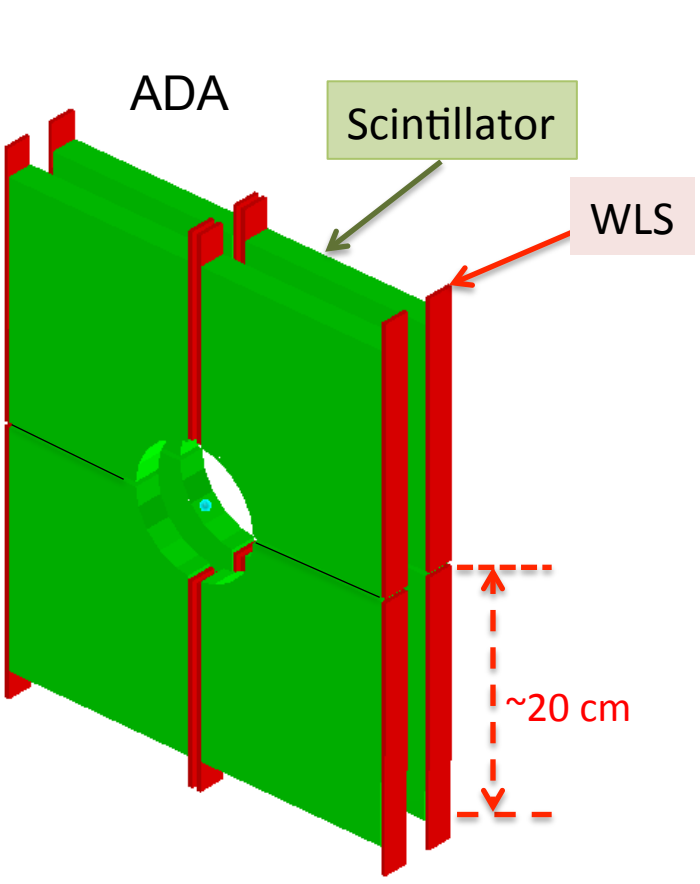
Better way of tagging SD, DD and CD events (higher purity)

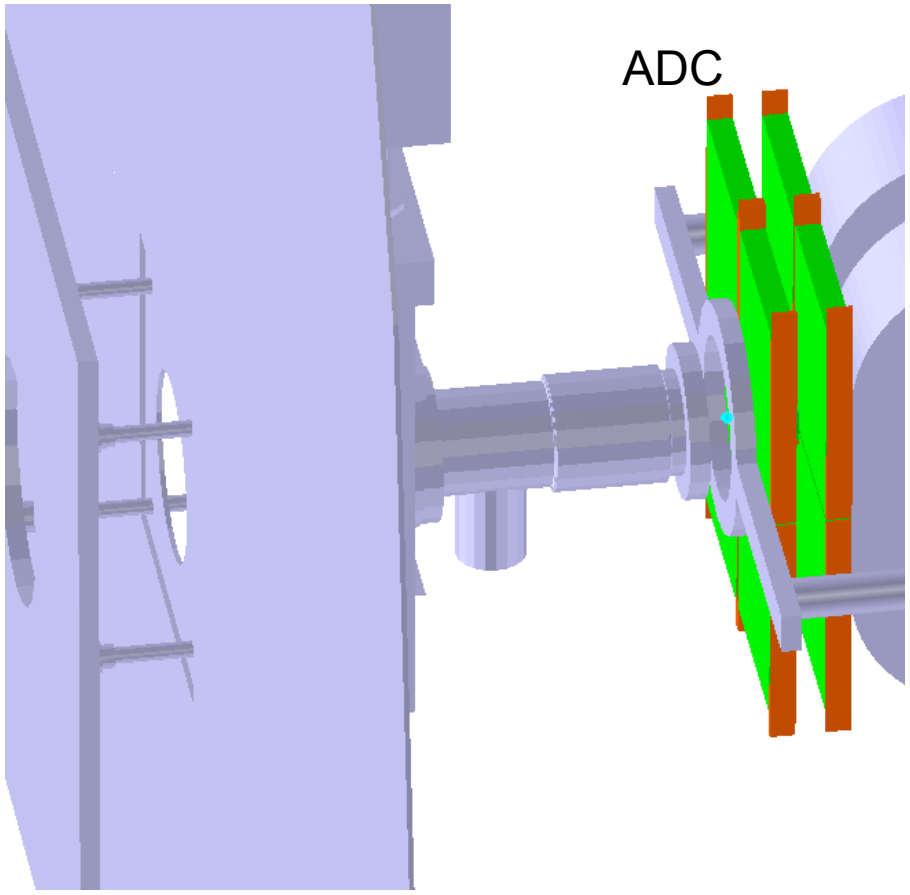




Simulations

Ernesto Calvo

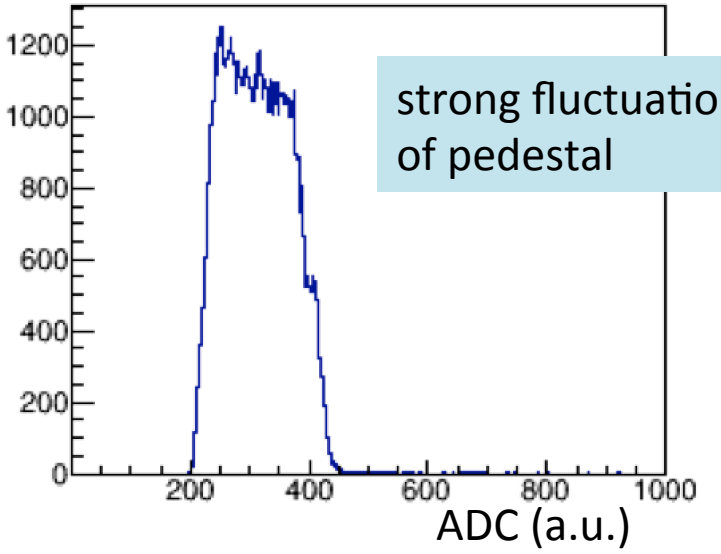




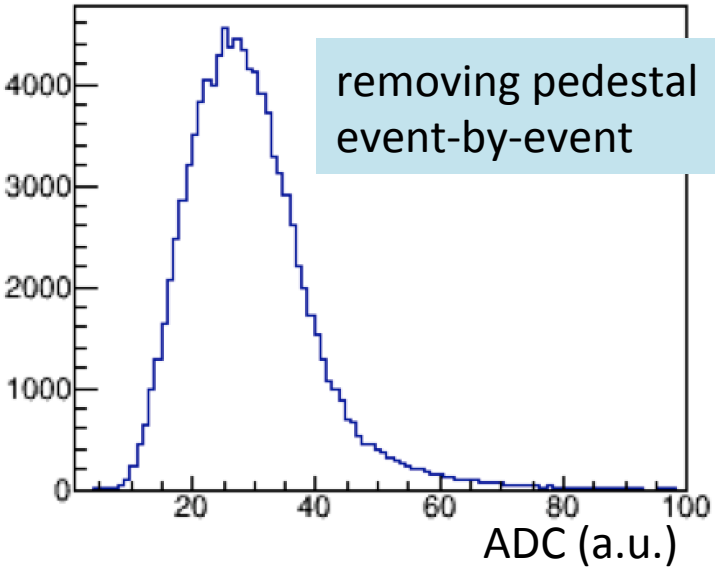
Material budget simulated in detail by Ernesto Calvo
Final detector geometry implemented. 20 new composite objects added. No overlaps.
overlap with ZDC mother volume found. Fix sent to ZDC for verification.
Efficiency calculation with final geometry in preparation (no significant change)

Charge measurements

Test beam data (Oct 10-17)

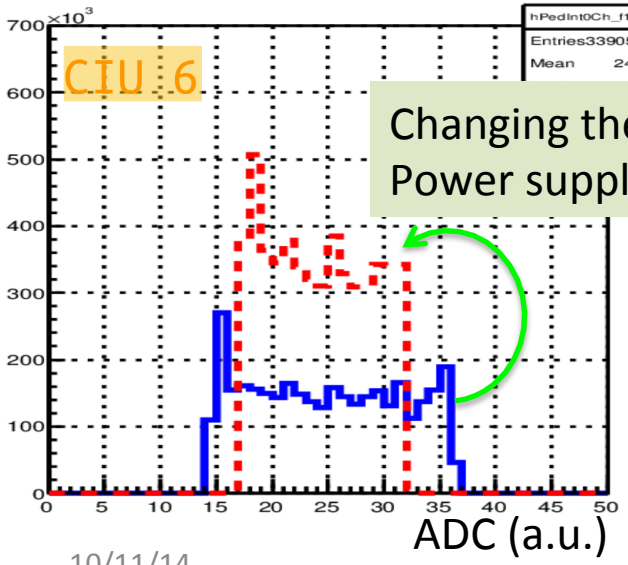


strong fluctuations of pedestal



removing pedestal event-by-event

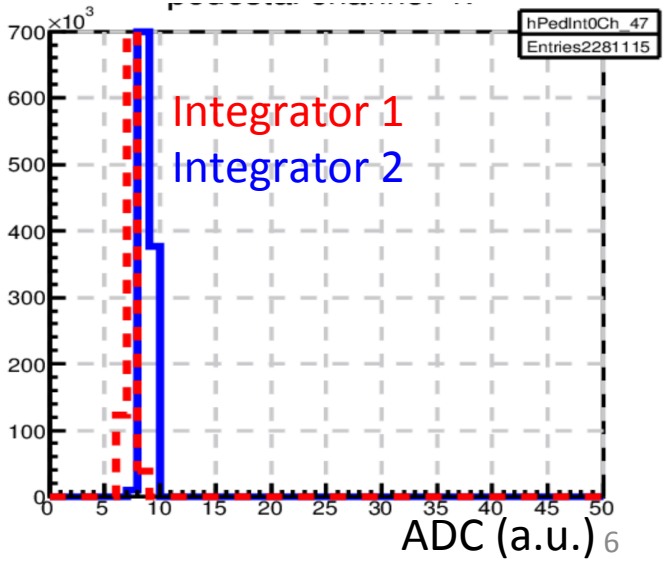
In the lab (after test beam)



Changing the Power supply

Changing the crate and **grounding**

now!



Software status

Michal Broz
Ernesto Calvo
Mario Rodriguez

- **Route from DDL raw data to Digits ready**
  - RawStream – decoding raw data format
  - Digit – implemented
  - Reconstructor – creating Digits using RawStream
- **Shuttle tools – almost ready (tested locally)**
  - Preprocessor – creating and storing calibration in OCDB, done
  - DCS data – aliases are in place (to be implemented in DCS)
  - Calibration object and OCDB – done
  - Pedestal DA (detector algorithm) – exists locally, to be included in AliRoot and DAQ
- **Geometry description in aliroot**
  ready/to be verified by ZDC

Exists in ppbench/Config.C
current status: Int_t iAD = 0;

- **Simulation of signal (Digits)**
  - Implemented in detail, various parameters need to be (fine) tuned
  - Digits->Raw Data conversion ready
- **ESD**
  - Object exists. Under discussion what to store in.
- **QA and AMORE – ready**
  - QA implemented for Hits, Digits and Raw Data

Conclusion

AD repeats all what V0 does

Goal – increase (L0 and/or L-1) triggering efficiency

If no unexpected problems arise, AD will be ready for the start of Run2