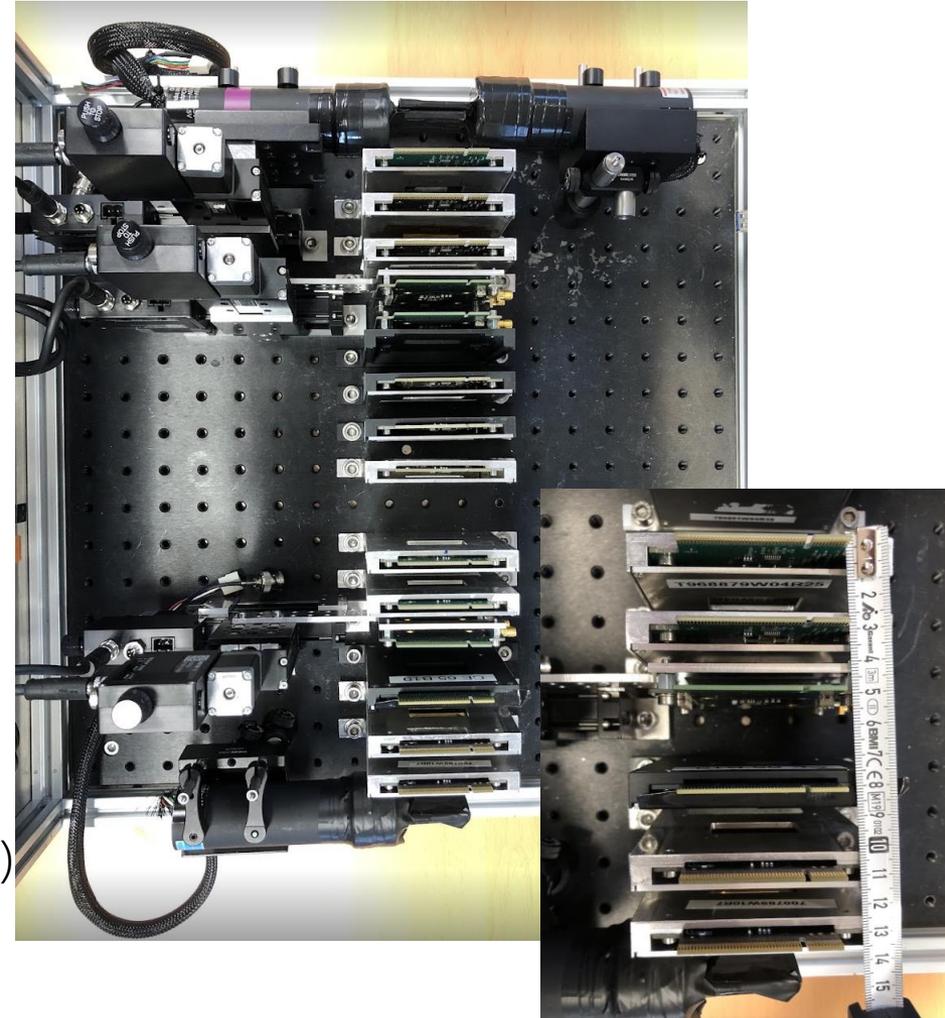# Beam test @ DESY (2021 Dec.)

Jerome Baudot, Szymon Bugiel, Serhiy Senyukov, **Yitao WU**

2021.12.09

Beam setup

- DESY T22
- Beam
  - Electron 5.4 GeV (or 1 GeV)

- **Telescope**
  - Trigger: Scintillators / **DPTS**
  - 2 REFS + DPTS + CE65 + 2REFS

- Data taking
  - Dec. 2 -4
  - A4: ~66k hits on DUT
  - B4: ~73k (5.4 GeV) + 220k (1 GeV)
  - C4: ~95k hits
  - D4: ~2.5k hits

- **Event from EUDAQ2**
  - RAW event format FIXED after run485105326
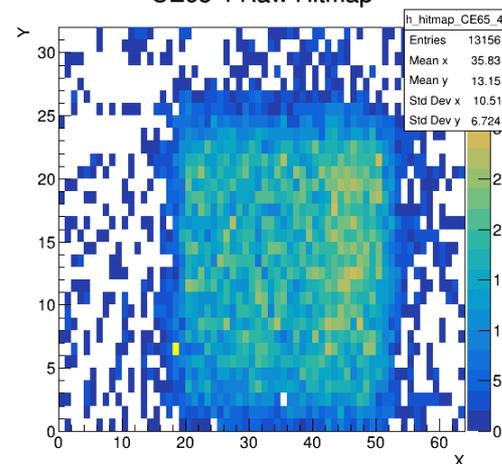 - Same as CE65Event (frames, raw_amp)

- Hits
  - $Signal\ pulse \equiv ADC_{last-frame} - ADC_{1st-frame}$
  - Cut: [1500, 2000, 500] (avg. from dryrun)
  - No charge information,
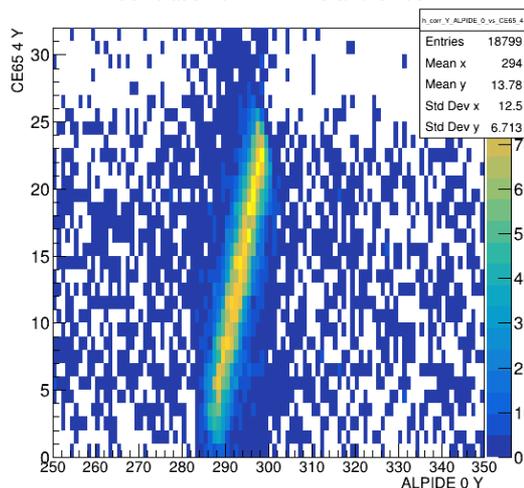 - For alignment during beam

- Example – B4
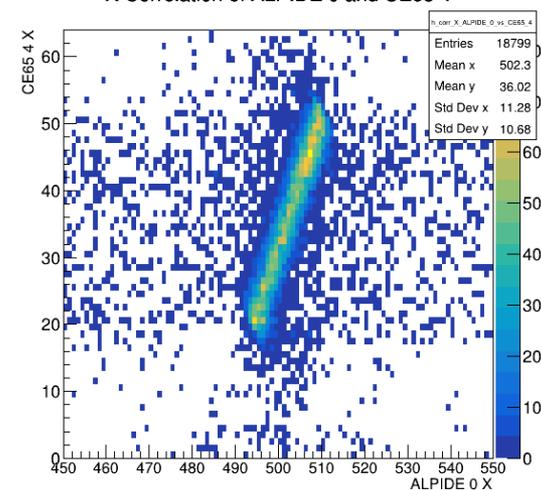 - Run 486172701
  - DPTS trigger
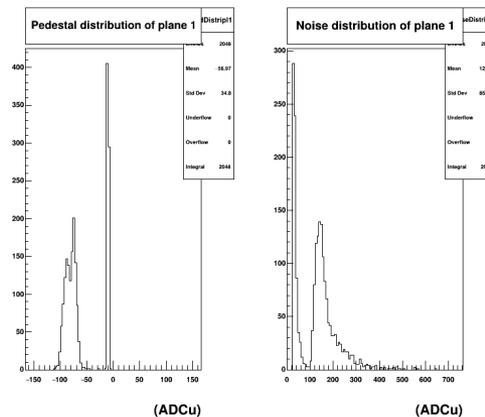 - 15k events

CE65 4 Raw Hitmap

Y Correlation of ALPIDE 0 and CE65 4

X Correlation of ALPIDE 0 and CE65 4
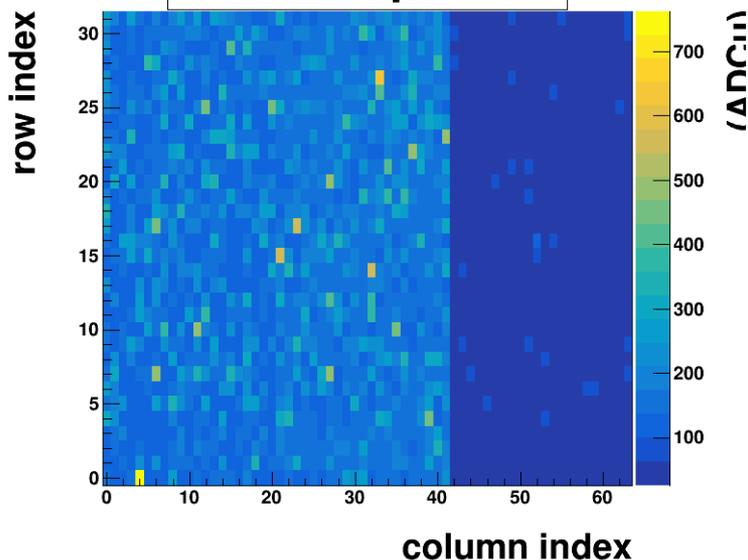
Noise map

- B4 dry-run 483152900
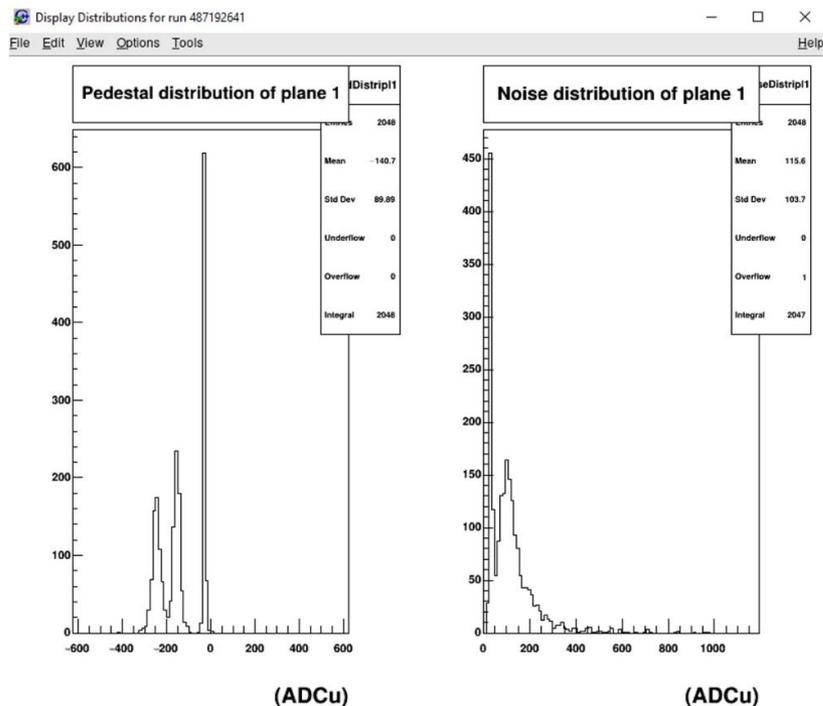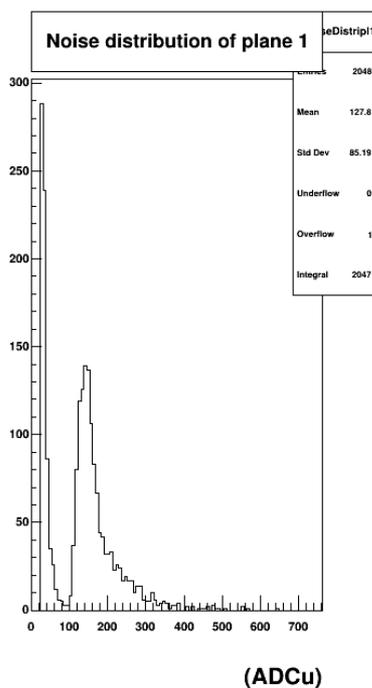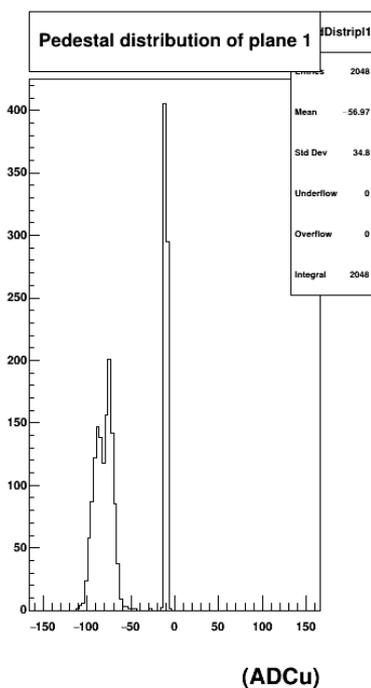 - InitialNoise: 2500 events

- Comparison of dry-run & beam run
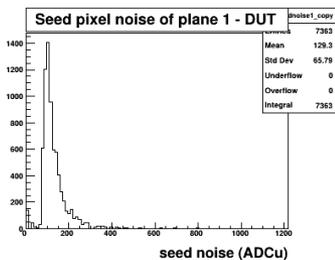
B4 dry-run 483152900
  InitialNoise: 2500 events
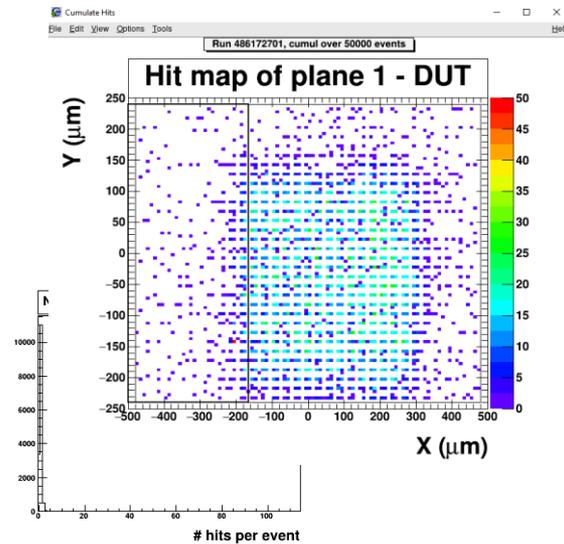
B4 – run 486172701
  15k events, DPTS trigger
  ~13k hits (~0.8 hits/ev.)

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- B4 – run 486172701
  - 15k events, DPTS trigger
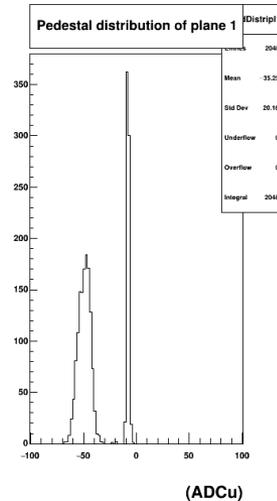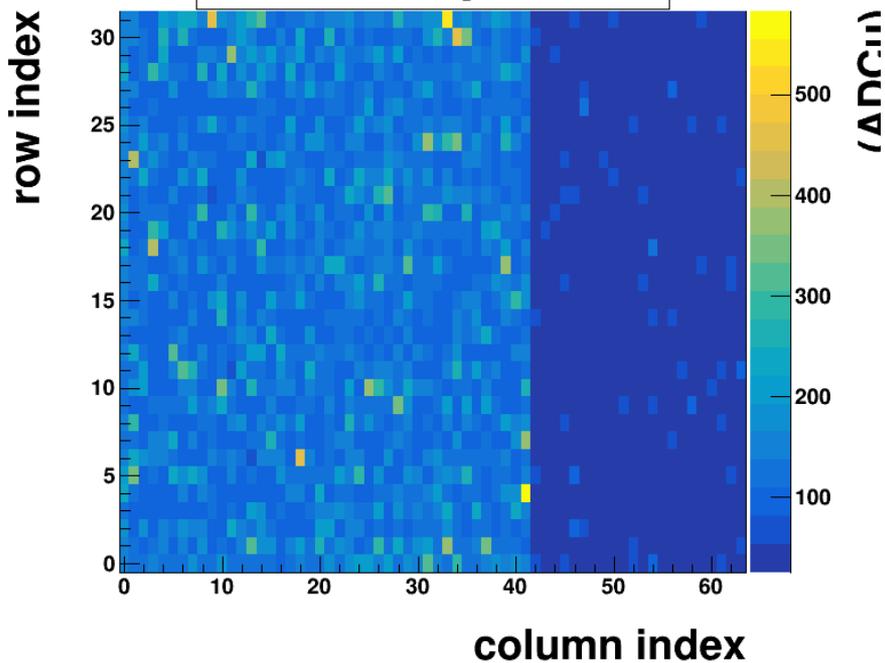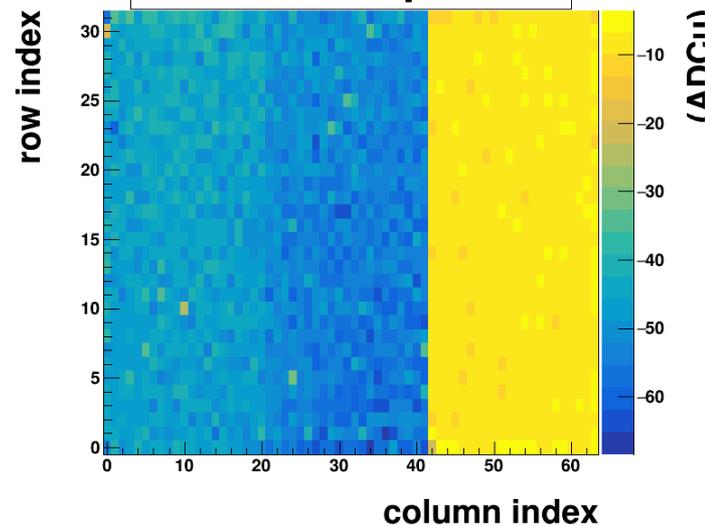 - ~13k hits (~0.8 hits/ev.)

TAF on sub 1

Next
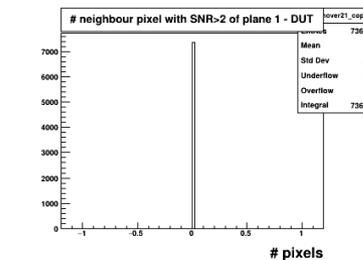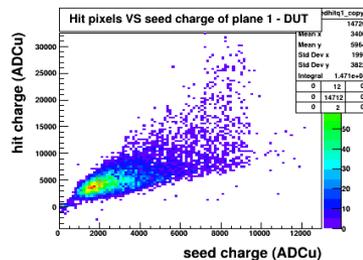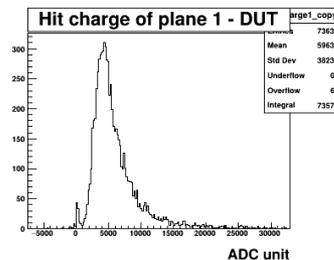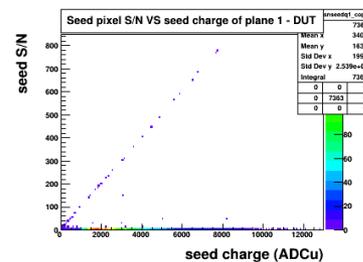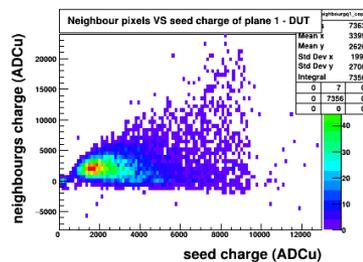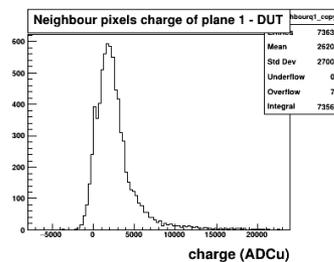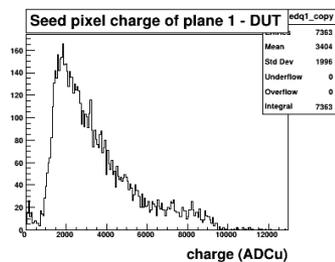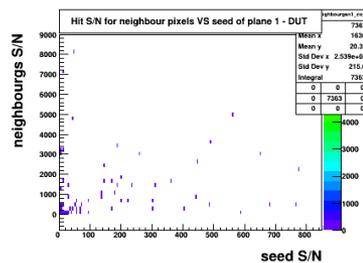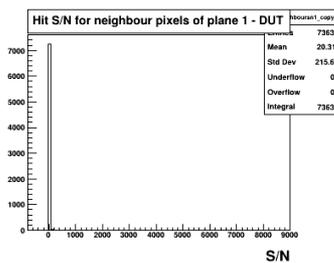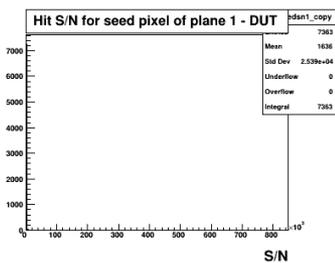
- CE65
  - Noise stability
  - Clustering

- Corryvreckan
  - Alignment of referecnes
  - ? DUT implementation for CE65
  - ? Association & Tracking

Noise map

- A4-3 beam-run 486122612
  - InitialNoise: 2500 events
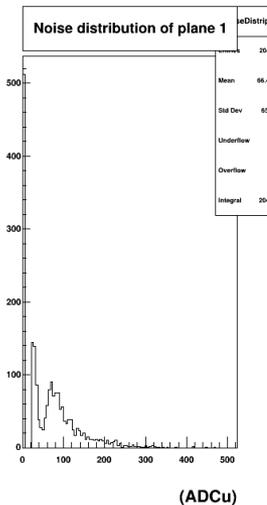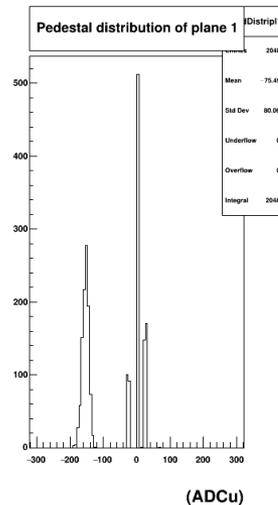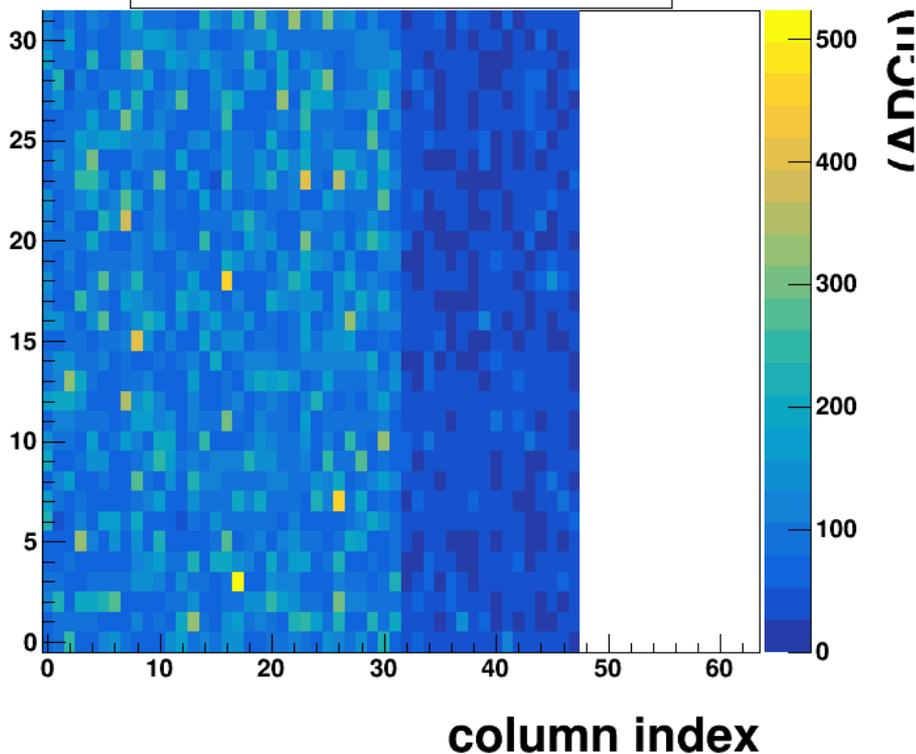 - Trigger: Scin. coin. ~1% eff.

Noise of plane 1
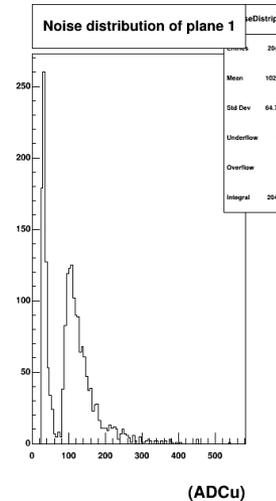
Pedestal of plane 1

Noise map

- D4-17 dryrun 487221431
  - InitialNoise: 2000 events

Run 486172701, cumul over 50000 events

Hit map of plane 1 - DUT