

EUDAQ - CALICE AHCAL

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AIDA²⁰²⁰

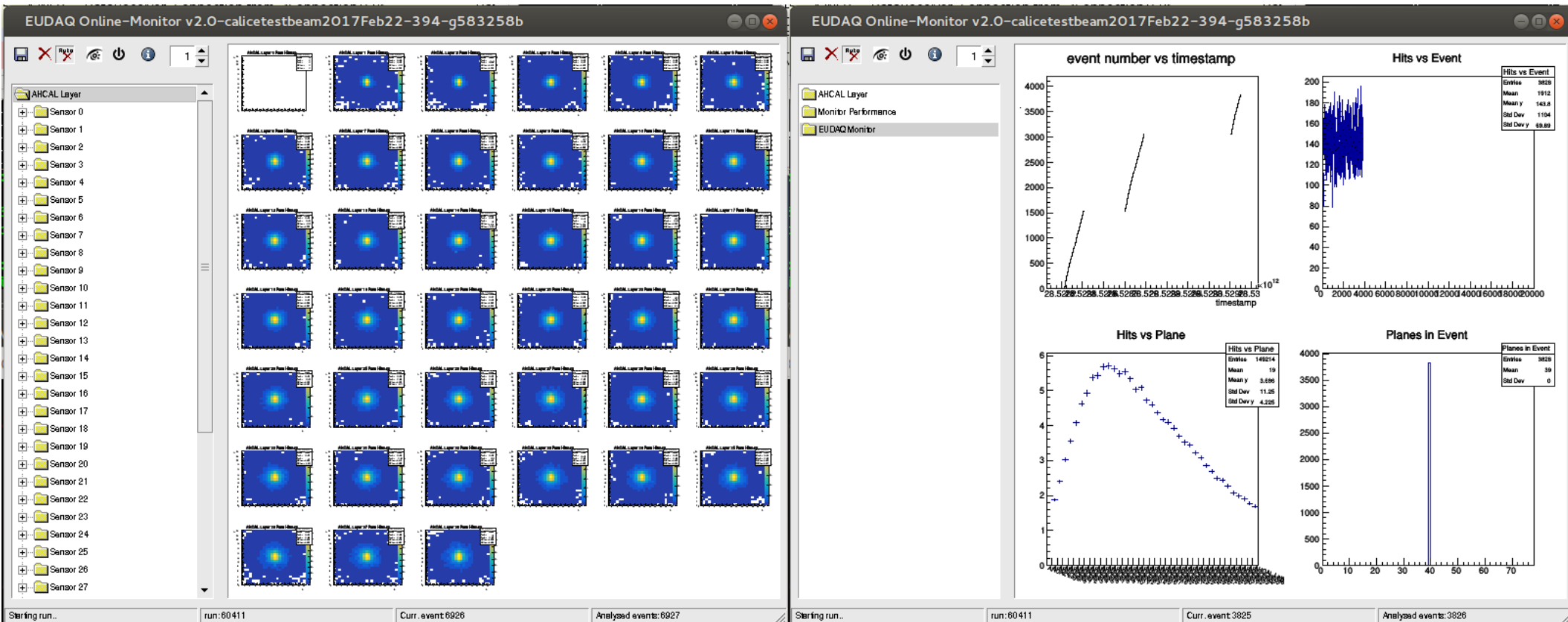
Calice AHCAL – user experience

- EUDAQ integral part of AHCAL DAQ – Producer receives data from low-level Labview via TCP
- Currently used version: 2.2.0 (used also 2.1, 2.0 in past years)
- Many **combined tests**: Hodoscope, ECAL (EUDAQ1), TLU, BIF (=Frankensteined mini-TLU), Mimosa, Alpide, DESY table, CMS-HGCAL, (DWC)
- EUDAQ producer: decodes the “**event**” from bulky data frame (16 ms) – big byte shuffling
 - Various “**event**” concepts implemented:
 - whole 16 ms readout frame
 - bxid window (200~4000 ns) – either trigger validated only or including noise
- Lots of **synchronization** concepts in combined data taking (all used):
 - Trigger Nr, Timestamp (40 MHz), Internal chip format: Readout cycle Nr + BXID
 - Dedicated DataCollectors often needed
- **Important features** (AHCAL perspective):
 - Run control: automatic restart (autopilot, calibration runs, reprocessing) – works mostly well
 - Multiple collectors – works well (unless overdoing with >20 connections)
 - Online monitoring: yes, our “pixels” are 3x3 cm² !
 - Hitmap, correlations, # of hits vs layer, hitmap X&Y profiles, evt# vs timestamp
- **Wishlist**
 - Combined running: Continuous crosschecking of trigger timestamp differences
 - doable with custom EUDAQ online monitoring?
 - Direct streaming to DQM4HEP – with controllable persistence

End of presentation

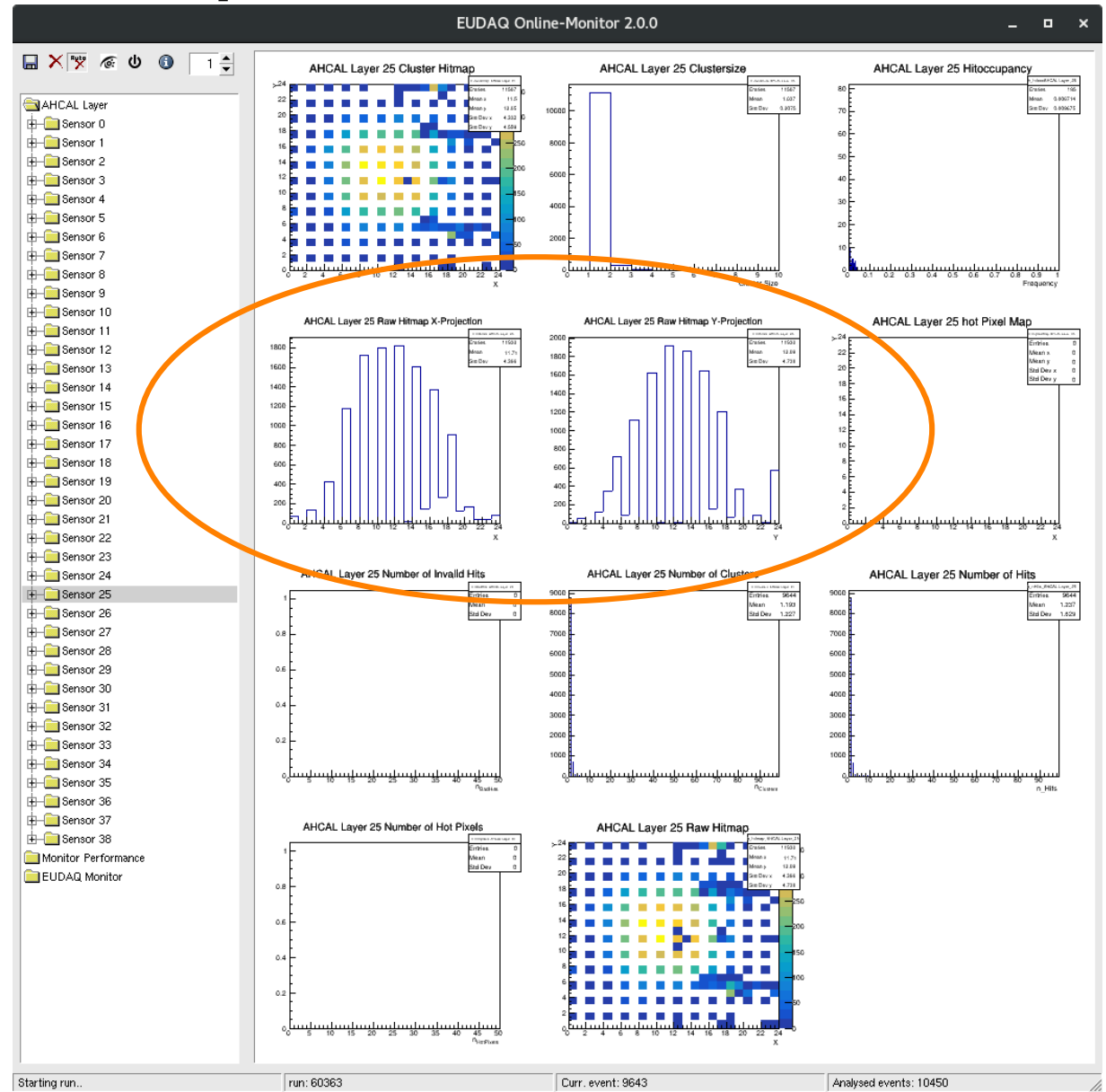
Bonus: Screenshots for inspiration

AHCAL standalone Onlinemonitor example 1

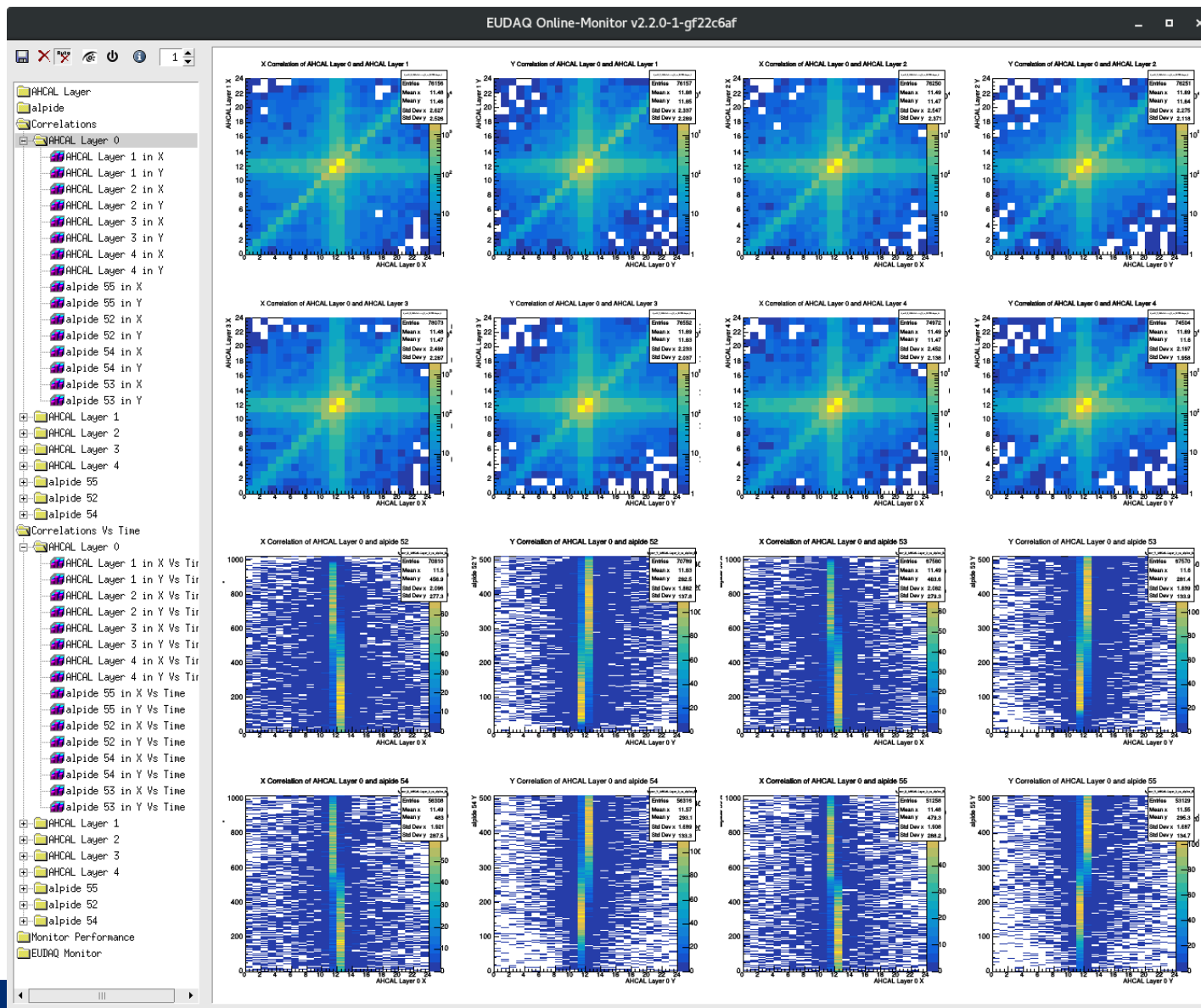


AHCAL standalone Onlinemonitor example 2

- Beam alignment



AHCAL with ALPIDE



Cosmics AHCAL self-correlation

