



Monday morning ...



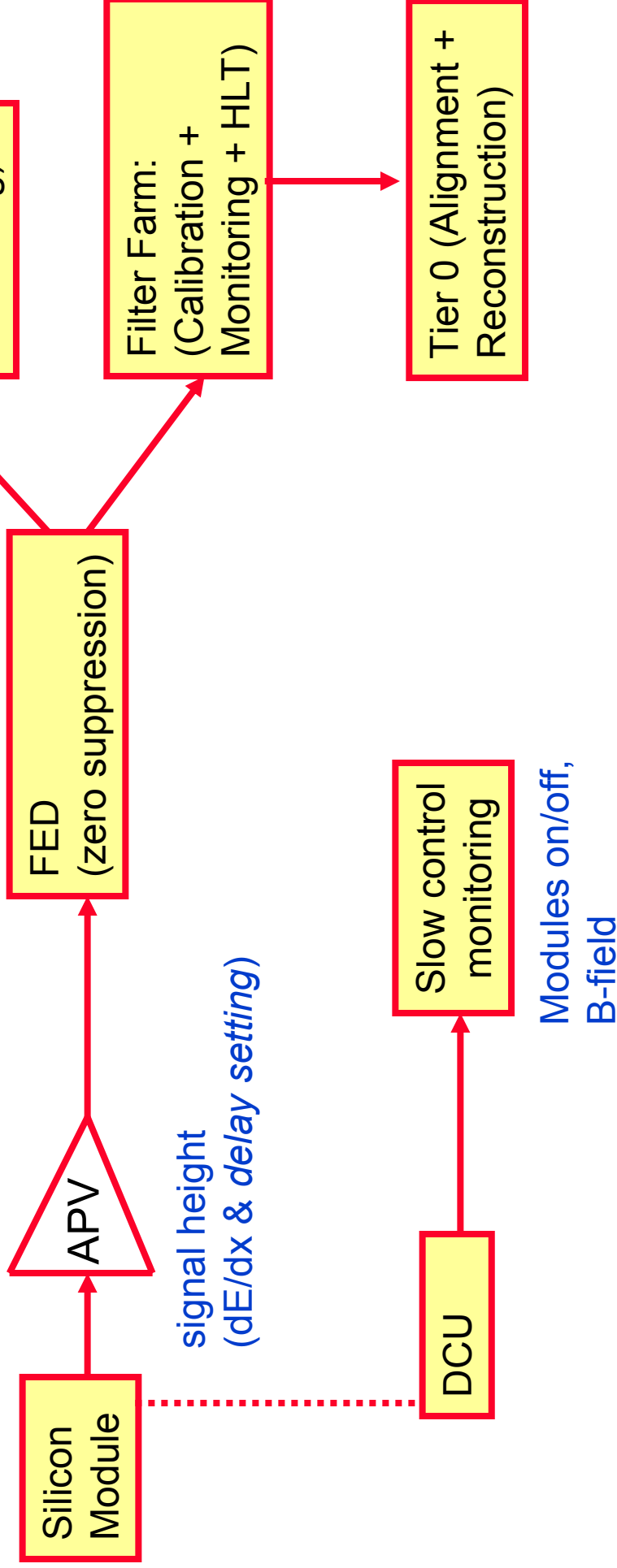
- Calibration (Ian)
 - Determination, monitoring & storage of parameters used for event reconstruction or downloaded to electronics.
- Alignment (Olivier)
 - The most difficult calibration !
- Monitoring (Ian + Guiseppe)
 - ORCA monitoring on Filter Farm, COSINE & CMS monitoring framework.
 - Monitoring with IGUANACMS event display. Web access.
- Coffee
- Discussion (Ian, Danek, Suchandra, Olivier)

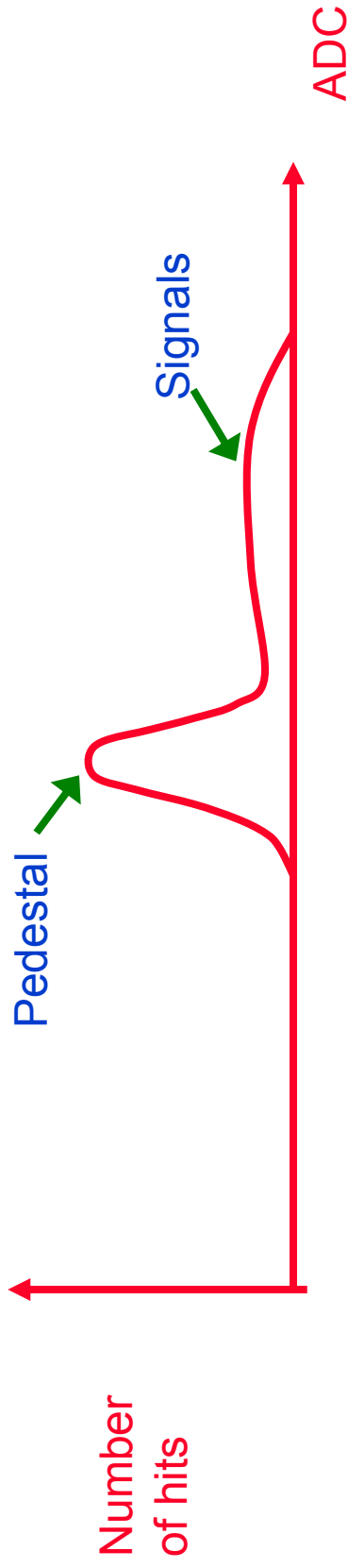


Conditions Data Read or Created by ORCA



~15k modules
 ~9M strips
 Alignment,
 hit resolution,
 Lorentz angle,
 b tag tuning





- Estimated by Algorithms exist in Tracker/ApvAnalysisConcrete
 - Easy, except must reject signal hits and subtract common-mode offset.
 - But too slow (~15 mins to calibrate Tracker).
 - Some bias from signal hits in Pb-Pb events (C. Roland to fix).
 - Exact number of events required not well determined.

- Calibration uses data read over S-Link (ORCA) or over VME.
- Calibrate between fills with ~3k raw data events.
- Monitor during physics (ideally random triggers or orbit gaps).



Signal Height of Tracker Hits



- Measure for known particle types (KO decay, γ conversion) vs. momentum for dE/dx .
 - *Any physics interest, as π -K separation $< 1\sigma$??? (Heavily ionizing particle searches)*
 - Needs many reconstructed events and changes only slowly.
 - so do on Tier 0/1 every month ?
 - Run by hand or automatically ?
- Measure on isolated high Pt muons vs. global delay setting of Tracker.
 - Synchronise Tracker w.r.t. LHC bunch crossing.
 - Done during Winter shutdowns etc.
- Monitor during physics (ideally on isolated high Pt muons)
 - (Loss of signal height implies trouble ...)

No official signal height calibration code exists.



Alignment Related Calibration



Responsibility of Alignment Group (see Olivier's Talk) ...

- Monitor mean & rms hit residuals / resolution during physics (Ideally on isolated fairly high Pt tracks and/or on laser beams). (Probably just on large structures like TOB, TIB, TEC ...)
- Monitor $K0$ & $Z0 \rightarrow |+-$ mass peaks during physics.
- Align (monthly?) on Tier 0/1 (?) after full event reconstruction? by hand/automatically?
 - Constrain with module positions and flatness from survey measurements (copied from Construction to Conditions DB).
 - Constrain with lasers, tracks, mass peaks etc.
 - Use special data stream/triggers/events/tracks? High Pt muons, halo muons?
 - Must also measure *Lorentz angle*. (From cluster width vs. track angle?)
 - Calibrate hit resolution parametrisation (+ interstrip couplings etc.) (*Responsibility of which group?*)



B Tag Calibration



Responsibility of b tag group ...

- Calibrate -ve impact parameter distribution (& monitor during physics)
- Calibrate (& monitor ?) tag performance on known jet flavour (mix).
 - $Z \rightarrow jj, W \rightarrow jj, t \rightarrow b, b \rightarrow l$? etc.

Open questions:

- Frequency of calibration (monthly ?)
- Done on Filter Farm or Tier 0/1 (depends on statistics required).
- Run by hand or automatically ?
- Special events/tracks required ?



Calibration DB Access



- Prototype Calibration DB exists for tests only. (Zhen Xie)
- Reconstruction algorithms that inherit from *RecAlgorithm* access it via *RecConfig* (RecTracks etc.)
- Otherwise, access DB directly via pointer. (Digis, RecHits?)

To do:

- Pedestals/noise/dead: Write from *ApvAnalysisConcrete* calibration.
We should test download to FED9U during system test ...
- Pedestals/noise: Read during zero-suppression (RawDigi → Digi)
- Noise/dead/resolution: Read during cluster reconstruction (Digi → RecHit)
- Dead/module off/B-field: Read during track reconstruction.
- Alignment/Resolution: Read/write from alignment code.
- b tag params: Read/write from b tag.
- Signal height: Read/write from dE/dx code.

Start when Calibration DB ready ...



Summary



ORCA must calibrate:

- Pedestals, noise, dead channels.
- Signal height (dE/dx needed?).
- Alignment, resolution parametrization, Lorentz angle.
- B tag parameters.

Questions: Run by hand? On FU? How often? Which events? CPU?

ORCA must also access slow control info:

- Modules on/off.
- B-field normalisation.

Task for later this year:

- Read (& maybe write) to Calibration DB.

Many groups share responsibility for this