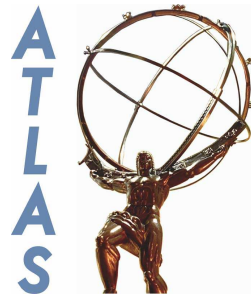


*Outline for the TileCal Calibration
Workshop Talk:
Optimal Filtering -
General Aspects*



Ximo Poveda
TileCal Valencia Meeting
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Talk Outline

- Optimal Filtering basis:
 - Extensive description and justification of the algorithm
- Implementation in Athena
 - Reconstruction algorithm, weight calculation
 - Which package to use? Are they up-to-date?
- Performance of the Algorithm at Zero Luminosity:
 - Commissioning real data \equiv big τ , 9 samples
 - Comparison: OF2 with iteration vs Fit method
 - Data from M5, with bad channel masked
 - Full ATLAS simulated data at Zero Luminosity $\equiv \tau \approx 0$ ns , 7 samples
 - Comparison: OF2 with 0 iterations vs Fit Method + ManyAmps
 - MC sample (single π at 50 GeV)
 - Plots for pedestal-like and signal-like events



Talk Outline

- Performance of the Algorithm at Low Luminosity:
 - Details on the ATLAS pileup simulation
 - Comparison: OF2 with 0 iterations vs Fit Method + ManyAmps; OF2(δ) vs OF2(Correlations)
 - MC sample (single π at 50 GeV) + MB pileup
 - Plots for pedestal-like and signal-like events at Zero Luminosity.
- Future plans and conclusions



Questions from the conveners

- **Sensibility of the algorithm to wrong peak time**
 - To be seen with OF2 with 0 iterations, but it will behave like ManyAmps
- **Changing noise during a run + luminosity changes during run**
 - OF2(δ) vs OF2(Corr) differences
- **PileUp noise**
 - Will be treated extensively
- **Is ByteStream send/stored? What to do offline?**
 - To be discussed
 - At CERN people doesn't believe that raw data will always be sent...
 - They are worried about sending raw data when reconstruction is bad
- **Which OF to use? How to choose best method?**
 - OF2. OF1 doesn't estimate properly the pedestal, even for electronics noise.
- **Differences FIT – OF?**
 - At the 1‰ level with 9 samples. To be seen with 7 samples
- **CIS calibration for Fit valid for OF?**
 - If such a small difference, same calibration can be used
 - Furthermore, CIS cannot be reconstructed with OF due to the leakage pulse
- **Should TB data be reconstructed?**
 - TB data is not ATLAS like ($|\tau| \gg 0$)
 - We also have the commissioning for that