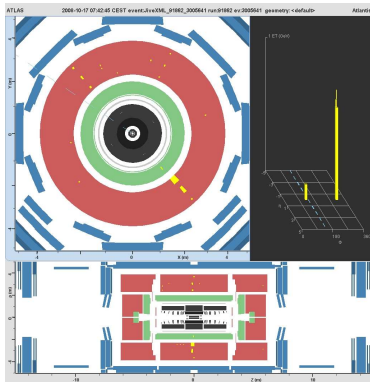


DISCUSSION ON COSMICS DATA STUDIES



ATLAS Tau Workshop Copenhagen, April 16th 2009

STUDYING COSMICS DATA IS INTERESTING !!

- This is the First Data we ever saw in ATLAS

We Should Use It!

- Unique Opportunity to Test our Algorithms
 - Check for Bugs/Glitches that became not Apparent Running on MC
 - Test Stability under Realistic Detector Conditions, e.g.
 - Pixels/SCT off
 - Noise in the Calorimeter
 - Parts of one Detector Component Malfunctioning (HEC!)
 - ...
- Finally: We might even be Measuring Something
 - Muon Fake Rate in τ Reconstruction
 - ...

MANPOWER

- Interest in Tau Group Unfortunately Limited
- Two Groups Working on Cosmics
 - Saminder, Rachid (Toronto)
 - Anna (Crakow)

We Could Use more Participation Here!

PLANS FROM PHYSICS COORDINATION/MANAGEMENT

- Plans not yet Clear
- Publication Plans Could Span from
 - No Publication on Cosmics at all
 - One Combined ATLAS Publication (not likely – CSC!!!)
 - Two Publications
 - One from Detector Systems plus...
 - ... one from Combined Performance
 - ...
- Dedicated P1 Meeting Last Week
(Project Leaders + CP Conveners + Management)
 - Generally little Participation in Cosmics Studies
 - Communication between Detector Systems and CP Groups Needs Improvement

Quantities Concerning Seeds

- # Seeds for each Category
- Calorimeter Seed: $E/\eta/\phi$
- Track Seed: $E/\eta/\phi$
- Track Quality Criteria
 - # b Layer Hits
 - # SCT Hits
 - # Hits on Track
 - # TRT Hits (also HTH)
 - d_0/z_0 of Track
- Cluster Quality Criteria (Separately for LArg/Tile)
 - # Cells
 - # Clusters / Candidates
 - Energy of Cells in Cluster
 - Energy of Cluster

Quantities Concerning Candidates

- # Candidates
- Candidate $E/\eta/\phi$
- # Track of Candidate

Now Split in Two Bins at
 $p_T = 20 \text{ GeV}$

Identification Quantities

- Calo Safe Variables
- Calo+Track Safe Variables
- Variables Used in LL2008
- ...?

ULTIMATE GOAL

OBTAIN MUON FAKE RATE IN TAU CANDIDATES

OTHER THOUGHTS

- Publication from Tau CP Alone doesn't Make Sense since we Heavily Rely on other CP Groups
- Acceptable to Contribute Cosmics Results from Regions of Phasespace
- ...