

# Concluding discussion on Commissioning, Etmis and DPD

- Cosmic cleanup
  - It is important to develop cosmic finder/rejecters for the large  $E_t/E_{miss}$  events. (Cosmic + pp-collision overlap events are the potential background for the (exotic) searches.)
  - Some ideas were discussed (cluster  $E_m$  fraction, tracks, timing, energy deposit pattern)

A coordinate effort is needed on the development of the algorithm.

The mechanism to flag the cosmic (clusters) is to be proposed.

- How/which to use is physics dependent.
- Effect on  $E_{tmis}$  (in AOD)
- If cell data are needed for the tool, data sample should be prepared as a DPD.

- Cell masking
  - The scheme to mask the bad/dead calorimeter channels is developed.  
Lar/Tile CAL, Jet, Emiss dedicated cell mask

The mask for HLT ?

LVL1 <-> HLT <-> Offline consistency?

Isolated dead channel correction with the neighboring cells. All agreed?

- DQM
  - Jet/Emiss DQM is set up.
  - Close contact with the detector group and Egamma group is essential.
  - Green/Yellow/Red flag is set according to the detector flag (at the beginning)
  - Coverage (the size of the dead region) qualification is an issue

In both cases, it is important to gain experience with the real data taking. The cosmic run starting this week is a good opportunity. Check how much improved from the last year's runs and review before the collision data.

- ⇒ implementation in Athena is based on an association map
- ⇒ between reconstructed objects and their constituent CaloCells and/or TopoClusters.
- ⇒ the association map allows to remove overlaps at cell level

The set of METRefTools which access/fill the association map for each reconstructed object:

METRefEleTool

METRefTauTool

METRefJetTool

METRefMuoTool

METRefCellOutTool

Each RefTool :  
 loop on identified Reco Objects collections  
 for each Reco Obj backnavigate to its CaloCells  
 fill the association map with:  
 \*CaloCell, \*RecoObj, CaloCell weight  
 calculate **METRef\_obj**

METRefCellOutTool :  
 loop on all CaloCells in TopoClusters  
 not associated to reco object  
 fill the association map with:  
 \*CaloCell, \*TopoCl, CaloCell weight  
 calculate **METRef\_CellOut**

METRef\_Ele

+ METRef\_γ

+ METRef\_Tau

+ METRef\_BJet

+ METRef\_Jet

+ METRef\_Muo

+ METRef\_CellOut

+ MET\_MuonBoy + MET\_Cryo = **METRef\_Final**

⇒ cell weights depend on the type of the reconstructed object (e/γ, τ, b-jet, jet, μ ...)

⇒ particle identification driven by MissingET package jobOptions.

⇒ each contribution is individually available in ESD/AOD, degrees of freedom in physics analysis <sup>3</sup>

- ETmiss

- Nice summary of the current Emiss calibration flow.
- Roadmap from the first collision to  $100\text{pb}^{-1}$  was presented  
Minimum bias event  $\rightarrow$  Jet-jet  $\rightarrow$  W,Z  
Common analysis tools for Et miss study (METPerformance Package).

A great achievement of this Workshop!

Still more detailed description is required, in order to address concerns such as;

No double counting?

Consistent handling of Jets, electron, muons?

Minijet - Jet separation (calibration consistent?)

- Trigger/DPD

- Requirement on DPD : 1~2% of ESD.

You need to have a design to fulfill the requirement. But more important issue is to know numbers of events to achieve xx%-level calibrations. With the numbers and their data sizes, it is arguable if you want to take them in 50 days (i.e. prescale 50) or in one day with a known detector/beam condition.

The online prescale factors can also be reduced for the special run if formally request to trigger group/run coordinators.

- Trigger/Selection bias

The effect on the calibration should be checked seriously.

Some proposals emerged in this workshop are

No requirement on jets for gamma-jet study.

No CAL trigger requirement for the E/p study.

(Min.bias + offline tracking (or HLT?))

No CAL trigger requirement for low Et jet.

(Min.bias + offline jet finder (or HLT?))

- Event samples:

Many different samples (jet, gamma-jet, high-pt trk, W,Z) are required

Do you have a complete list? (high-pt photon, fwd jet...)

Do you need full ESD information? (data volume)

The requests for trigger and DPD should be made as soon as possible.

More manpower (for example, a contact for each data sample) may help.