

# Validation of 4.8 calorimeter simulation

Wojtek Fedorko, Shabnaz Pashapour  
Pierre Savard and Pekka K. Sinervo

## Outline

- ◀ What we do
- ◀ Electron plots
- ◀ Pion plots
- ◀ Status report



# What we do

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- ▶ Simulate and reconstruct MC events using standard executables and tclfiles
  - ▶ electrons with Pt 10, 20 57 and 120 in all directions, aiming at towers (28,03) and (40,03) and shooting to 3 towers in eta and phi
  - ▶ pions with Pt 10, 20 57 and 120 aiming at towers (28,03) and (40,03)
  - ▶ low-pt pions for Gflash validation (reconstructed by the single track analysis study by Sarah Demers)
- ▶ Compare each release with the previous release(s)
- ▶ Have the plots available at:  
[http://helios.physics.utoronto.ca/~shabnaz/sim\\_val](http://helios.physics.utoronto.ca/~shabnaz/sim_val)
- ▶ Have a look at the plots and report any differences/problems



# Electron plots

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- ▶ Et, Pt, Et/Pt Had/Em - central
- ▶ Et, Pt, Et/Pt Had/Em - wall
- ▶ chi-squared for best matching CES strip/wire clusters, delta z/r-phi
- ▶ Best matching CES clusters energies
- ▶ Number of EM objects, number of wire/strip clusters, Eta Detector
- ▶ Energy in tower (28,03) (electron fired in the centre of a tower)
- ▶ Energy in tower (40,03) (electron fired in the centre of a tower)



## Pion plots

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- ▶ E, EM, Had, Had if  $EM < 0.06\text{GeV}$ , EM fraction - tower (28,03)
- ▶ number of surrounding non-zero energy towers, energy of surrounding towers - tower (28,03)
- ▶ energy of surrounding towers ctd. - tower (28,03)
- ▶ same plots for tower (40,03)
- ▶ plots for Gflash validation (borrowed the scripts from Soon Yung Jun)



# Status report

- ▶ Compared pions in release 4.8.2 and 4.6.2      OK
- ▶ Couldn't reconstruct electron events in release 4.8.2
  - ▶ trying to find out the problem
- ▶ Compared electrons in release 4.8.4pre1 and 4.6.2
  - ▶ those plots we could get looks OK
  - ▶ some jobs crashed at simulation, I'll try to find out why
  - ▶ ProductionExe crashed due to DB access (last night)
  - ▶ I'll try to get the other plots, now that the problem is fixed