

# Update on $dE/dx$ of DCH

M. Rama

fast simulation meeting, 5 June 2009

# What's changed

- The previous version saved the  $dE/dx$  information at the PacSimHit level
- Now  $dE/dx$  is stored at the reconstruction level
  - $dE/dx$  (DCH) is computed in `PacTrkHitViewDch::getHitInfo(...)`, who fills the measured  $dE/dx$  (and its error) as measured by a given DCH cell. An equivalent modified `PacTrkHitViewSi::getHitInfo(...)` is in place, which doesn't do anything for the time being (for what  $dE/dx$  is concerned)
  - The measured  $dE/dx$  is currently stored into `PacHitOnTrack`
  - In case of a merged hit, look for the two parent hits and sum the associated pathlengths.

# What's changed (II)

- In the current scheme the track measurement of  $dE/dx$  is performed in `PacMicroAdapter::buildPidQual()`, performing the truncated mean of the `(dE/dx)_hits` of the track
  - This part can be moved to a lower-level reconstruction level, so that the  $dE/dx$  is a property of the track independent on Beta
  - At present the `(dE/dx)_hits` distribution is Gaussian. Therefore the main effect of the truncated mean is to reduce the size of the `(dE/dx)_hits` sample
- The  $dE/dx$  resolution per unit length and the truncation fraction are provided via xml in the `<measures>` block which defines the other DCH cell properties (spatial reso, cell width, efficiency etc.)
- Plan: commit the code in the next few days