

Perfect Pattern Recognition Particle Flow Reconstruction

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What does it do?

- Input: Full detector simulations (SLIC)
- Output: Collection of ReconstructedParticles
- Original intent: Examine the potential of a PFA for a detector

How does it do it?

- For charged particles that are “trackable”, define Tracks and smear parameters (MCFast).
- Define a set of “reconstructable” particles (avoid double counting)
- For “nontrackable” particles, assign energy deposits in the calorimeters (cheat) and do neutral particle reconstruction using those deposits.

How realistic is it?

- Tracking: The tracking is parameterized as in the FastMC. However, full detector effects (interactions and decays) before the calorimeter are taken into account in deciding which particles are actually tracked.
- Neutrals: No parameterization. Perfect pattern recognition (no confusion term), but actual detector responses used for energy and direction. So most of the nasty nonlinear, nongaussian effects are included.

ReconstructedParticle

- Please use it!
- If we present a full PFlow reconstruction tomorrow, next month, or later your analysis programs will not have to change.
- Either the FastMC or the PPRPflow output a list of ReconstructedParticles.

Usage

- In cvs,
org.lcsim.contrib.Cassell.recon.Cheat
contains CheatReconOutputExample.java.
- This example does the PPR
reconstruction, writes the output to disk,
and contains examples of accessing
information from ReconstructedParticle.