


ECal Simulation Current Status and Workplans

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ECal Simulation Studies


Particle flow relies on hardware&software, so must understand both

- Full detector simulation (MOKKA)
  - Active contributions from A. Lucaci and D. Jeans, new driver exists, database entries still missing
  - Starting point `ILD_o1_v05`, replace ECal with new driver
    - ★ Only single silicon cell size for all layers possible (need this changeable?)
    - ★ Database entries still missing in central DB
    - ★ Adapt for deeper HCal to reach highest CLIC Jet energies (max energy=?)
  - PANDORAPFA: J. Marshall, M. Thomson involved in study, want to understand behaviour of algorithms and ensure they are robust
  - Can run simulation on Grid
- Stack simulation (SLIC): Still issue with GEOMCONVERTER to study two-particle separation in stack with SLICPANDORA
- Fine grain ECal simulation: F. Simon and associated project student, evaluating shower radii, etc.
- Work on scintillator strip ECal models presented by K. Kotera et al.; now presenting in these meetings. Still significant effort to resolve any differences between these studies and recent full simulation studies in Cambridge.

Future Plans


- Sweep through (some combinations of) the different ECal parameters to gain understanding of the requirements.
- Full simulation studies with initial parameter values motivated by stack-based simulations.
- Aim to develop candidate ECal models and see if or how PF algorithms need to be changed for optimal performance.
- Performance evaluated by
  - Single particle energy resolution
  - Two particle separation
  - Jet energy resolution (contributions to confusion seem particularly useful)
  - Tau reconstruction performance (Need volunteer)
- Other volunteers would be useful to help with the investigation of ECal parameter variation. Tools being used have all been packaged up nicely, for reuse.
- Previous studies of ECal parameters might have to be re-evaluated due to better understanding of PF algorithms and calibration