NICADD/NIU plans for LCD/NLC

Dhiman Chakraborty

11-Dec-2001

- Digital HCAL and E-flow algorithms
  - Proposal submitted (jointly with UTA) for feasibility study of digital hadronic calorimetry and use of E-flow algorithms with LCD as a case study.
  - Acquire/develop simulation software.
  - Build prototype: scint (NIU)/MSGC (UTA).
  - Contribute to worldwide NLC studies.

Near-term plans (Jan workshop)

- Study shower containment. Working together with Fisk et al. on leakage into muon system.
- Preliminary studies of a digital algorithm (at least simple cell-counting).
- For both, use single pion samples at discrete energies (2-200 GeV) uniformly distributed all over the barrel calorimeter. Requirements on segmentation, depth etc. decided, samples are being generated.

Near-term plans (Jan workshop) [contd.]

- Full software suite including event generation (Pandora-Pythia), detector simulation (GISMO), reco+analysis (JAS) ported to NICADD (thanks, Rob!).
- Presentations:
  - E-flow/segmentation – Vishnu Zutshi
  - DHCAL proposal, leakage studies – Dhiman
  - Software porting experience – Rob McIntosh

Long-term plans

- Need ability to define more complicated detector geometry (granularity as function of depth, hexagonal cells,...).
- Will collaborate in switching to GEANT4.
- Optimization of detector geometry, E-flow algorithm(s).
- Prototype: simulation (Spring ’02), construction (Summer-Fall ’02), beam-test (mid-2003?).
- Linux farm? (depends on experience, demand)
- Additional members interested in muon system.