Brief report for MAPS ECAL simulation: Status and plans at Birmingham

Yoshinari Mikami
University of Birmingham

23rd Jan. 2007
at Imperial College London
CALICE UK meeting

MAPS ECAL simulation status

- MAPS ECAL geometry model (using thin epitaxial thickness layer and adding non-sensitive Si thickness volume) is implemented in full detector model LDC.
- Some basic studies are performed (which are before charge diffusion is implemented).
  - Cell size dependence
  - Si thickness dependence
  - Incoming energy dependence
  - Energy resolution
- Linearity before charge diffusion is confirmed.
  - → Geant4 modification looks worked well.

MAPS ECAL simulation plans

- Implementation of dead area.
- Using Anne-Marie's codes for charge shearing compensation and her codes for implementation of Giulio's sensor simulation which take charge diffusion.
- Energy/Angle/Position resolutions study which are after implementation of dead area and charge diffusion.
  - ➔ Comparison between analogue and digital sensors.
- Devoting on a MAPS clustering algorithm development.
  - ➔ e.g. Requiring high density with cylinder based topology.
- Beam background study for MAPS ECAL. (Owen and Nigel)
- Study of MAPS ECAL performance with physics events.