

SOFTWARE FOR DETECTOR OPTIMISATION STUDIES IN EP-LCD

Software R&D First Lightning Talks Session

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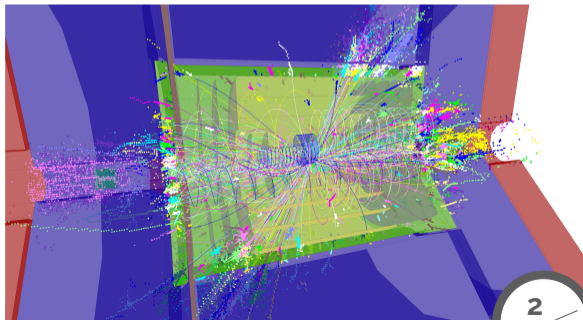
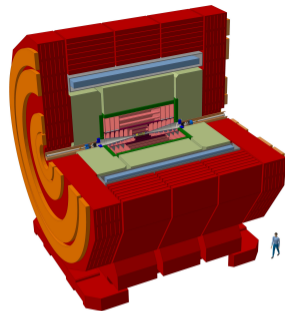
On behalf of the EP-LCD Group

Who we are

EP-LCD

1 staff, 3 fellows + help of collaboration members for software and computing

- ▶ **Optimisation studies**
 - ▶ geometries and technologies
- ▶ **Physics benchmarking**
 - ▶ evaluate optimized design for physics performance
- ▶ Developed for **CLIC** detector and physics and successfully applied to **FCCee,hh**



Complete Experiment Software Suite

► iLCSoft

- Sim/Reco Analysis framework
- LCIO persistency model

► DD4hep

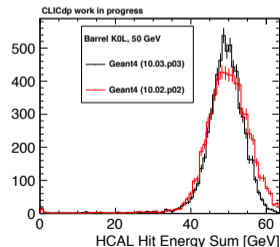
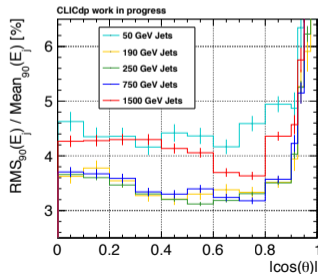
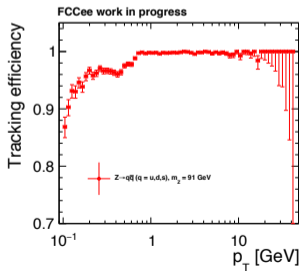
- detector description framework
- Adopted by ILC, FCC
- Evaluated by CMS, LHCb, EIC

► Full detector simulations

► Tracking (pattern reco. and fitting)

► Particle flow in highly granular calorimeters

► Flavour tagging



Complete Experiment Software Suite



- ▶ DIRAC extension for linear colliders
- ▶ Data Catalog
- ▶ Workload Management System
- ▶ Production System
 - ▶ > 350 M sim&reco events
 - ▶ more then 7 PB
- ▶ Multi VO Support
 - ▶ VOs: ILC, Calice, (FCC)
- ▶ Broad DIRAC user base LHCb, Belle II, CTA, BES, EGI, Auger...

Where are we heading

- ▶ **Developments towards interchangeability of components**
 - ▶ evaluate/validate new tools
- ▶ Transition to Gaudi[Hive], PODIO...
- ▶ **Framework to check and validate developments**
 - ▶ simulated hits, tracking performance, energy deposits, jet energy resolution...