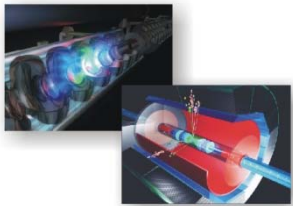




# Dual Read out Calorimeter in SLIC

July 24<sup>th</sup> 2007

- ❑ Status of cherenkov Calorimeter in SLIC
- ❑ SLIC installation on ILCSIM, how to run it
- ❑ Icioframe/Calohit/root installation on ILCSIM
- ❑ Available data sets on ILCSIM
- ❑ to be done

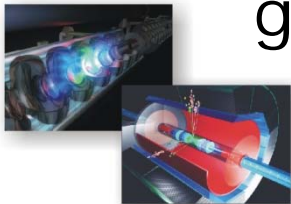




# Lead Glass Dual read out Calorimeter in SLIC

(**S**imulator for the **L**inear **C**ollider)

- Lead Glass Calorimeter with dual read out
  - Good EM Calorimeter
  - hadronic interactions: Dual readout to correct for energy lost in nuclear break ups. Achieve good energy resolution for hadrons. (similar to dream)
  - Longitudinal and transverse segmentation (PFA).
- Decided to put it into SLIC to become familiar with the framework → Benefits: event display, event browser, Visualization of geometry, xml geometry description, LCIO output.





# Lead Glass Dual read out Calorimeter in SLIC

Adding to SLIC required:

Adding optical physics processes.

Adding optical material properties (refraction index) →  
new version of gdml/fix bug in gdml. (thanks to Witold  
Pokorski)

- Create LCDD detector description.
  - Create new detector (SD) sensitive to Cerenkov light.  
(photons need special treatment)
  - Add LCIO output, Root output.
  - LCIO to Root converter.
- Thanks to Jeremy all this is now part of  
SLIC/SIMDIST!! (all but one file)



## Installation available on ILCSIM

/grid/app/CherSimDist\_current

Setup the environment:

source setup.sh (or source setup.csh for csh)

- **Calohit:** *lcioframe (lcio to root converter, root calohit/event classes, example scripts to access the .root files)*
- **example:** *example .lcdd detector descriptions and .mac macros*
- **root:** *Root installation compatible with Calohit*
- **scripts:** *scripts for batch processing (condor), grid will follow subito*
- **SimDist:** *slic,lcdd,lcio,geant4,lcphys, bdsim, gdml, mokka, xerces,clhep*
- **tmp:** *temporary files*



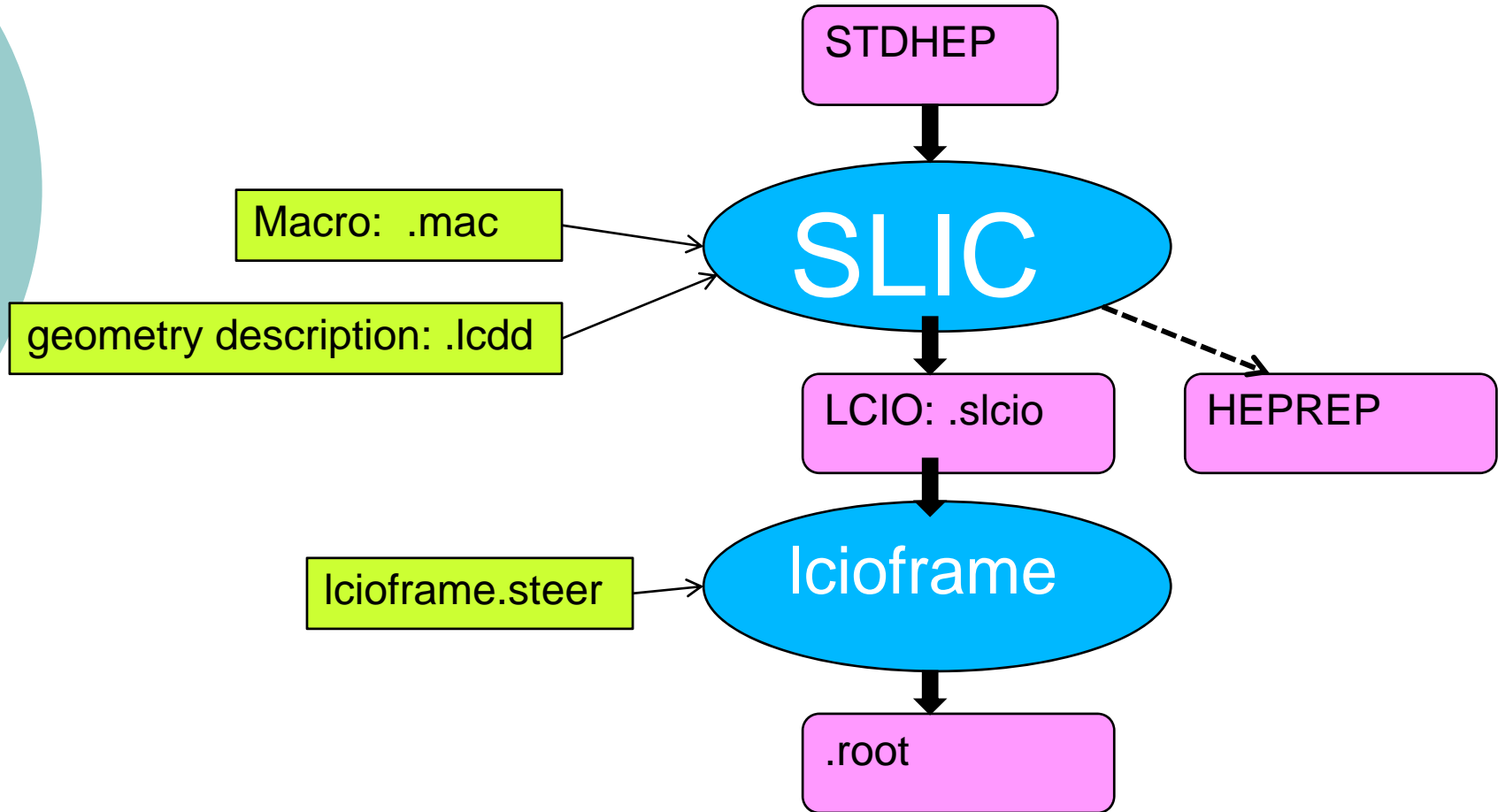
## Available data sets on ILC SIM

Various single particle files of different energies in Icio and root format

- `/ilc/detector/cherca/SLIC/`

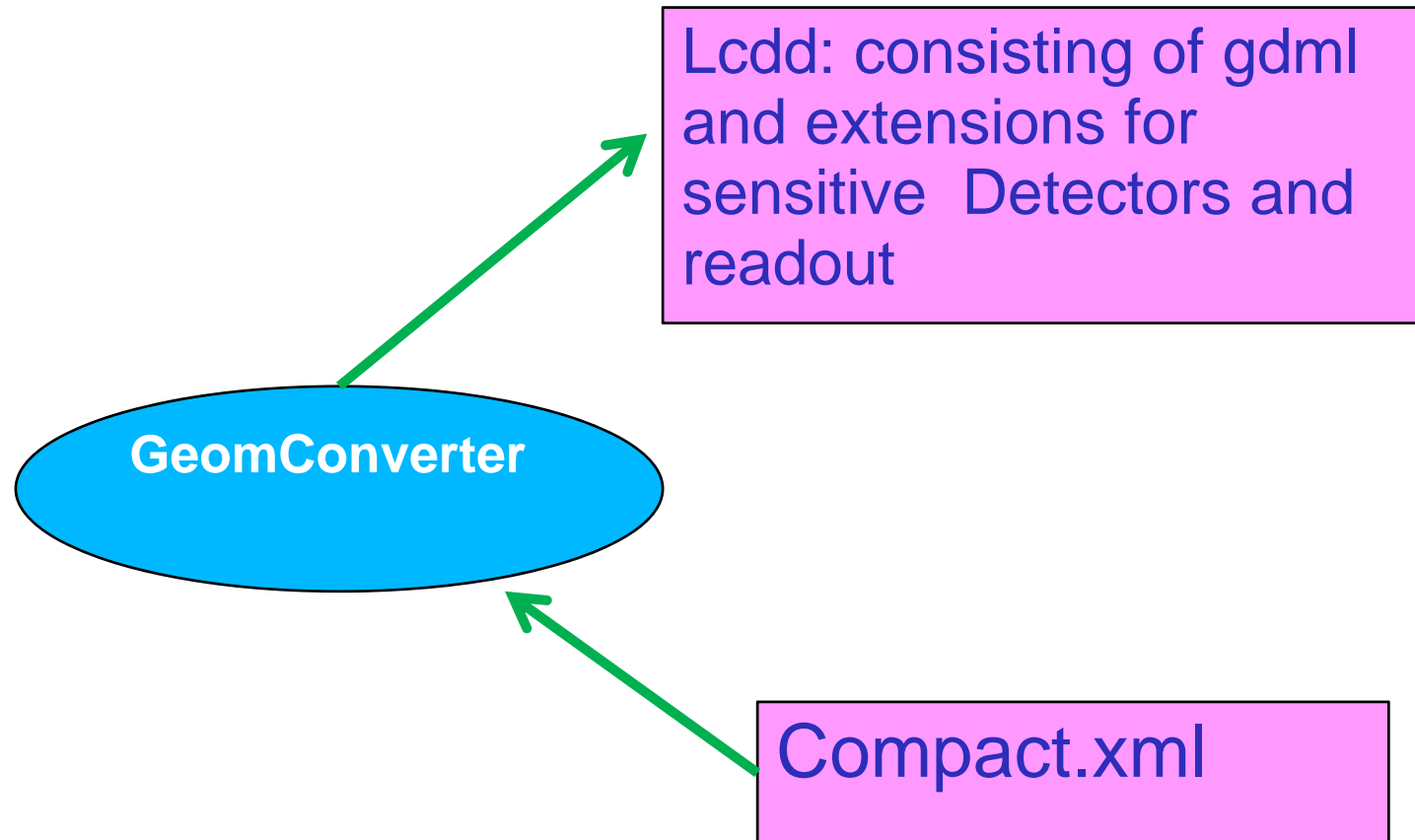


# Data flow



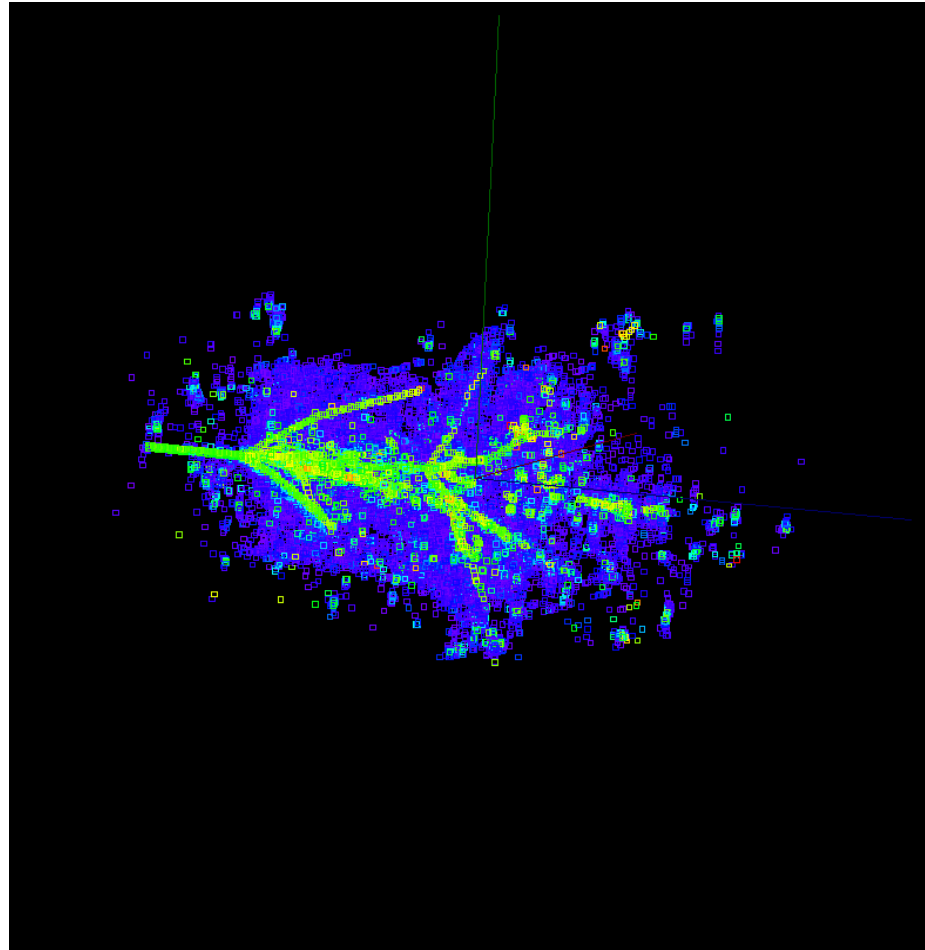


# Geometry description





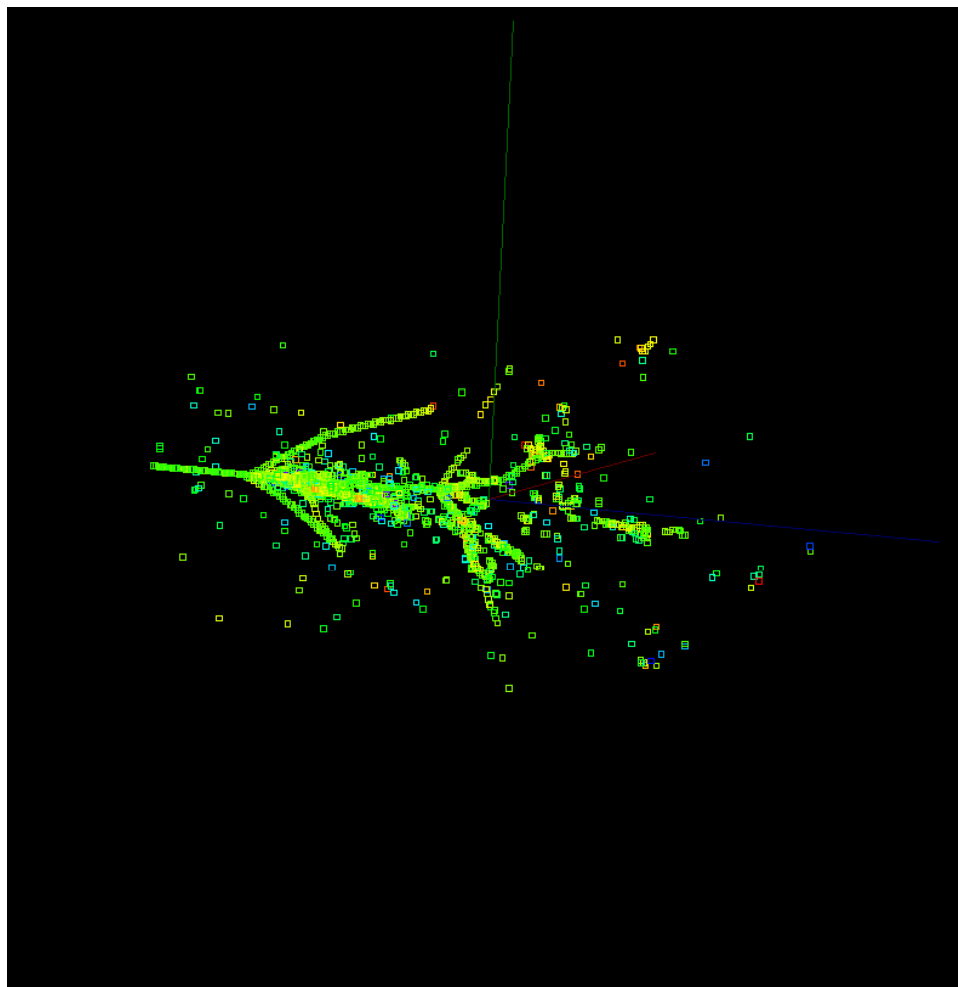
# 20 GeV Pion Cerenkov and Scintillator





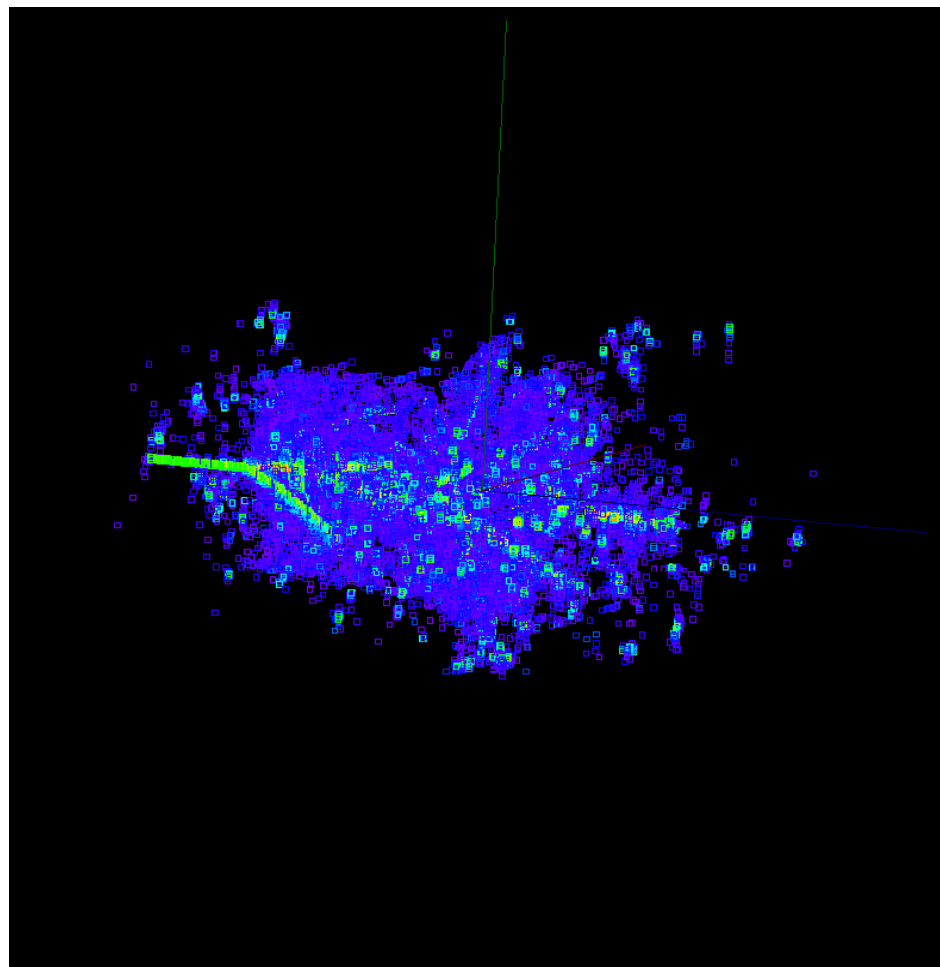


## 20 Gev Pion in Scintillator





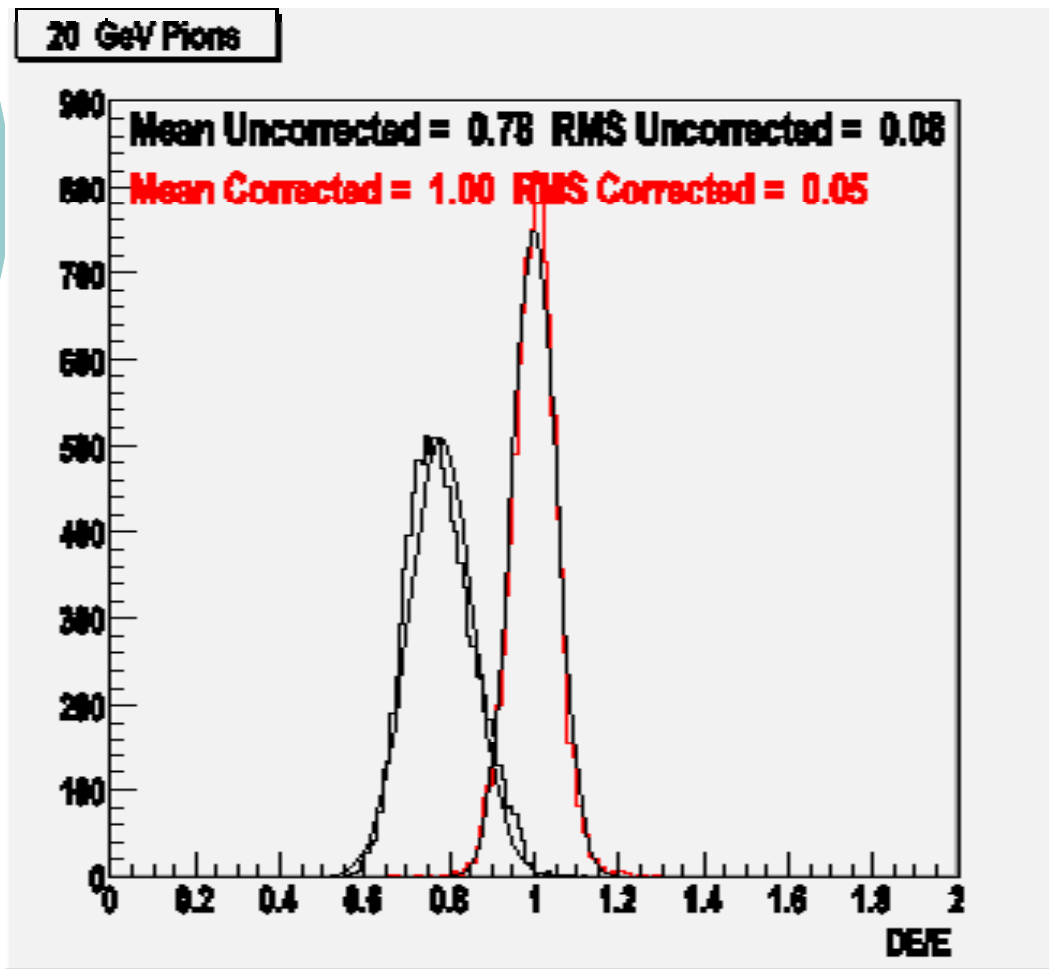
## 20 GeV Pion in Cerenkov





## To be done

- Compact description (currently lcdd)
- Having more than one sensitive detector per sensitive volume.
- Check that things make sense!





# Dual read out Calorimeter

