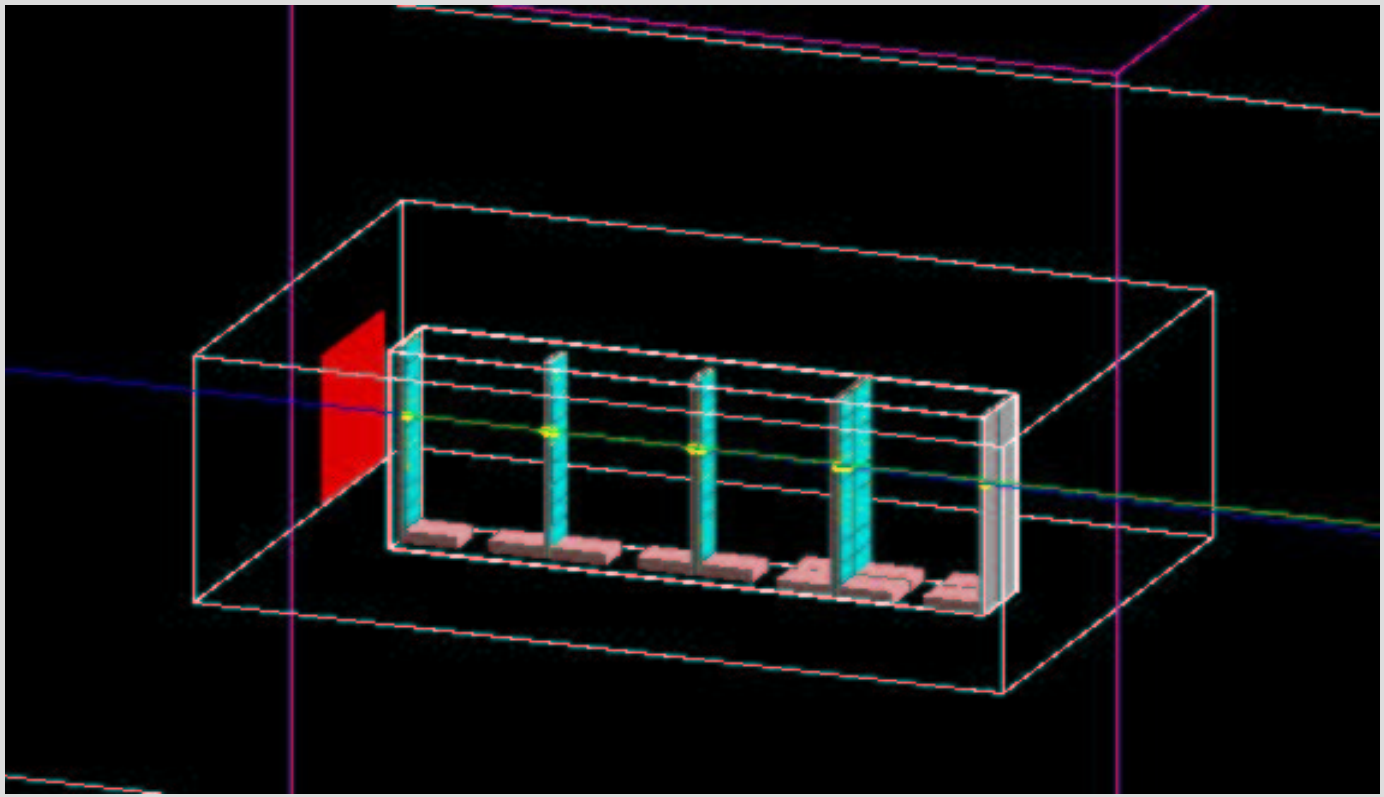
September '04 test-beam
Sim/Rec/Scan/Align Status report



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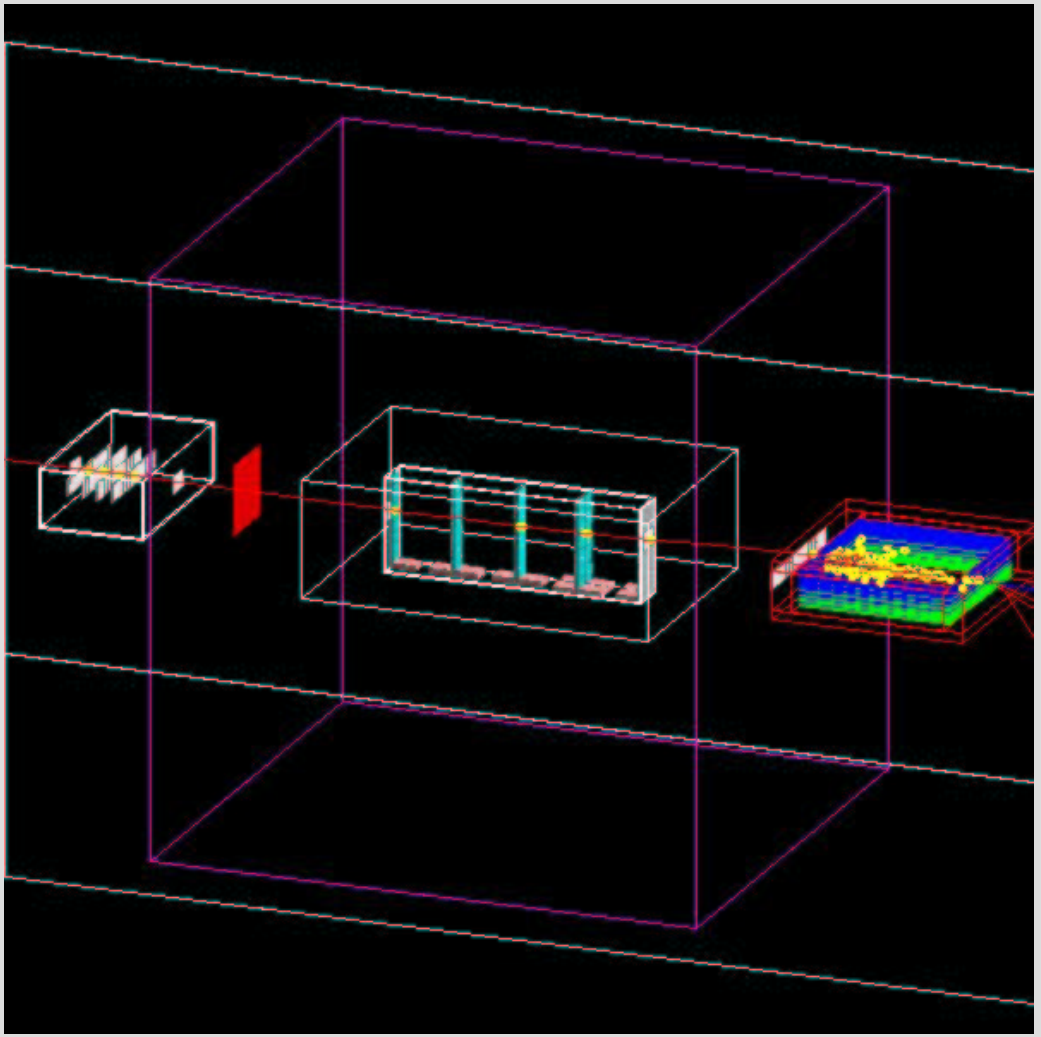
Outline

- General status
- Ongoing issues
- Outlook

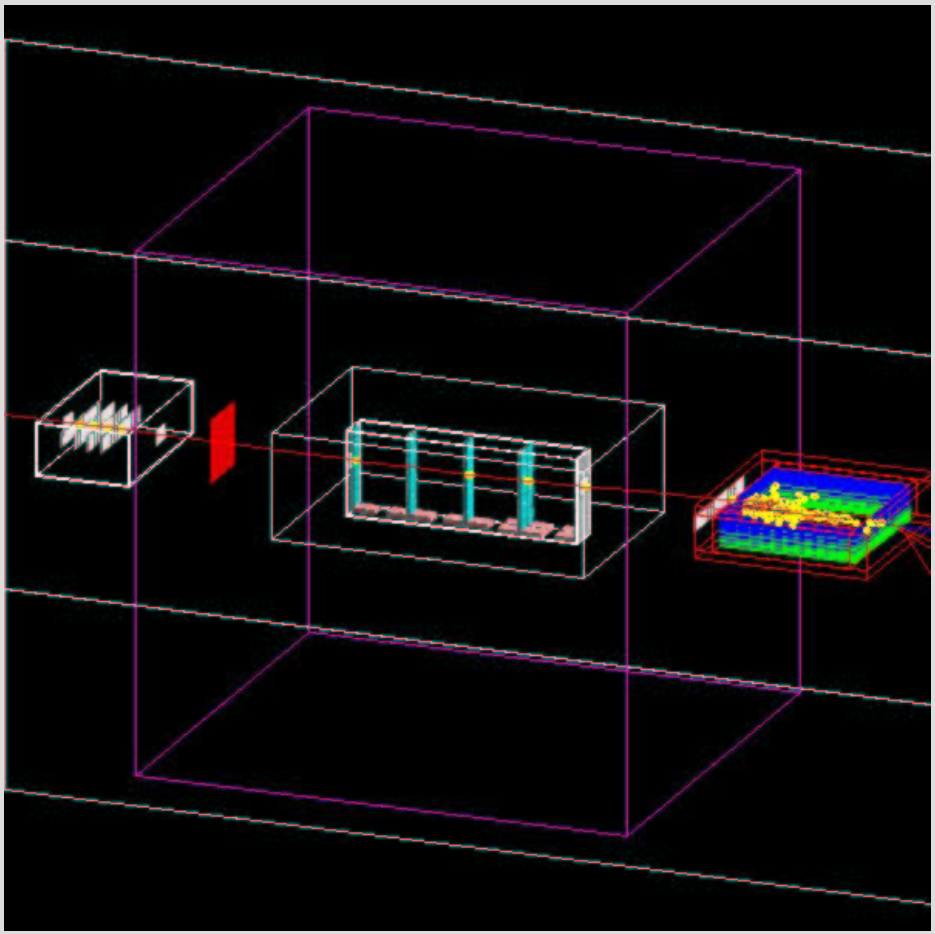
General status

- Simulation (GEANT4):
  - Downstream ladder in
  - Simulation of ECAL in (Corinne Goy)
  - Batch version for massive production (static executable)
  - Option to write just digitizations (less disk space needed)

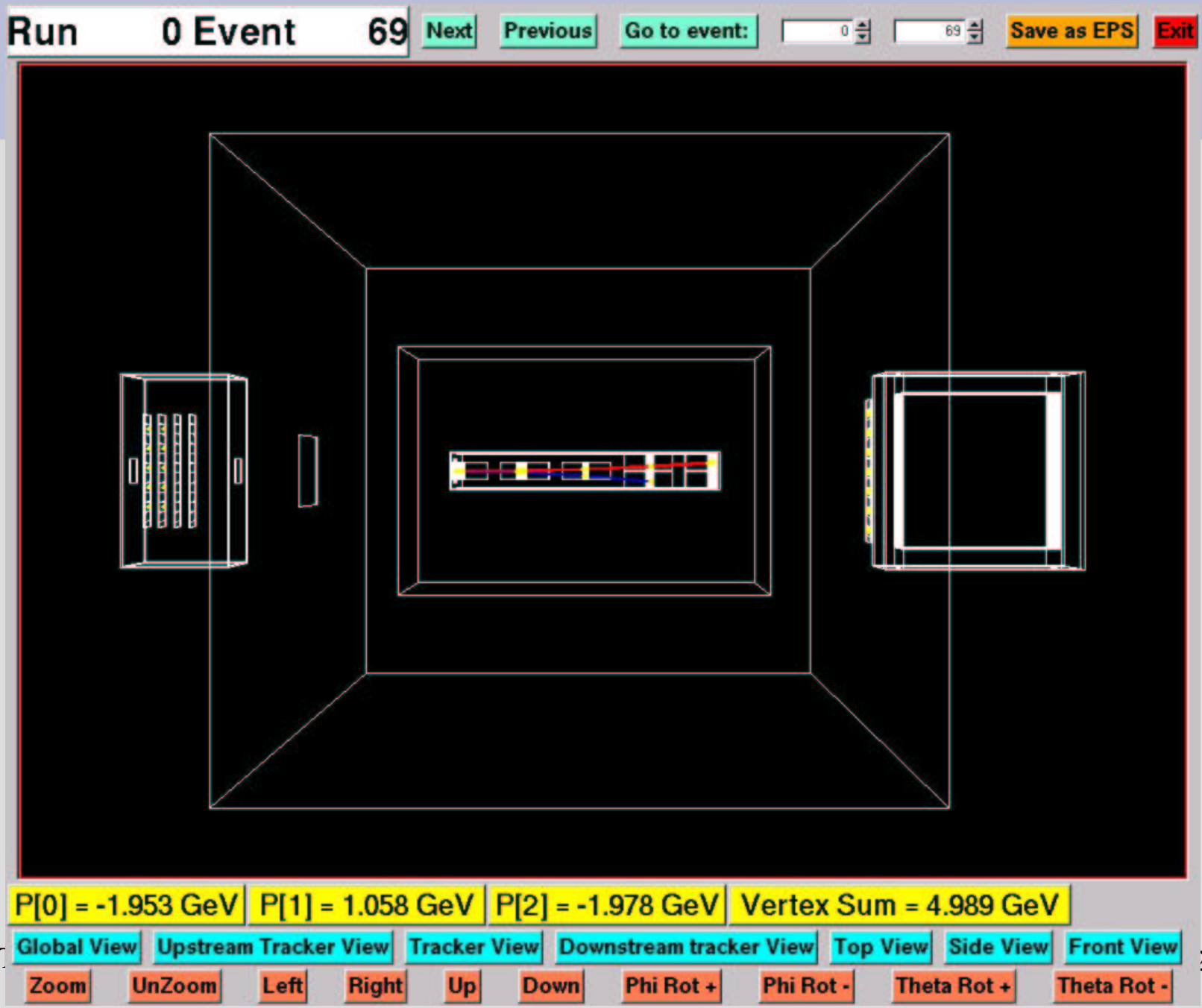


General status

- Reconstruction (ROOT):
  - Cleanups here and there. ECAL in (Corinne Goy)
  - Improvements in datacards (shell capabilities if input is interactive)
  - Batch job macro for massive production (using static version)
  - Root class TB04List to select the output objects to write (see “root/example_select_entries.C”)



Scanning program (TB04Scan)



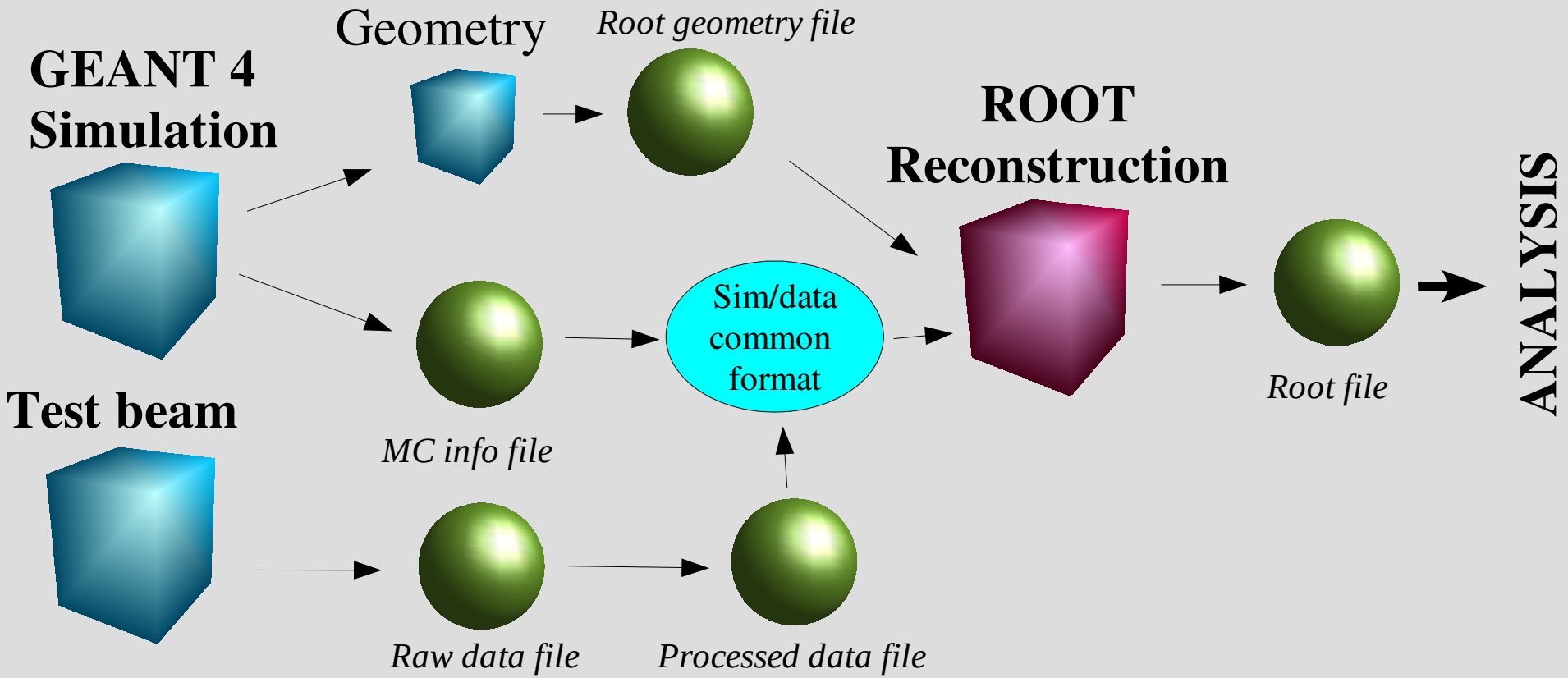
Scanning program (TB04Scan)

Ongoing issues: Alignment program (TB04Align)

- **First version already exists, but still under development. It reads in reconstructed ROOT files**

- **Main aim: Align all ladders (upstream + central + downstream):**
  - ➔ First ladder FIXED (we need a fixed reference)
  - ➔ $\underline{Pos'} = \underline{LadderCenter} + \boldsymbol{R}\,(\underline{Pos} - \underline{LadderCenter}) + \boldsymbol{T}$:
    $\boldsymbol{R}$ = TRotation(rotz*roty*rotx), $\boldsymbol{T}$=TVector3, to be determined
  - ➔ Minuit minimization, track hits stored in memory (fast)
  - ➔ Possibility to input any alignment file to the procedure
  - ➔ Datacards available (with interactive shell capabilities)

Ongoing issues



Ongoing issues

TB04RawCluster (tentative):

```
unsigned int   Status;  //: Status
int LadderID;           //: Ladder identifier
int Length;             //: No. of strips in raw cluster
int PositionFirst;      //: Channel of the first strip w/ signal
vector<int> ADC;        //: ADC counts for each channel w/signal
float CommonNoise;      //: Common noise used for the cluster
...
```

Plan: use RawClusters as input for both simulation and reconstruction.

Task 1: the simulation should create RawClusters from MC hits
Task 2: write interface between raw data format and RawClusters

Ongoing issues

- Implement reading of final record structures (Nacho + input from Daniel). Some reading of calibration files will also be needed.
- TB04Align: finalize, test and debug.
- TB04Sim: Reduce/optimize the MC particle information. Implement KeV to ADC conversion (from Lin).
- TB04Rec: implement reading of alignment input file, matching Central tracks to upstream track and downstream hits,...
- TB04Scan: Add some ECAL visualization (energy).

Ongoing issues. Outlook

- Mass production of simulations (it may help to fix running priorities). Save static code executables in a public place?

- User feedback welcome. TB04Sim, TB04Rec and TB04Scan, are available. For instance:

cvs -d :pserver:cvs@pcamscie1.cern.ch:/dataamscie1/CVS -z3 co TB04Scan

- Technical issue: we should know at some point the computer infrastructure in X7 -> installation of software + test of it.