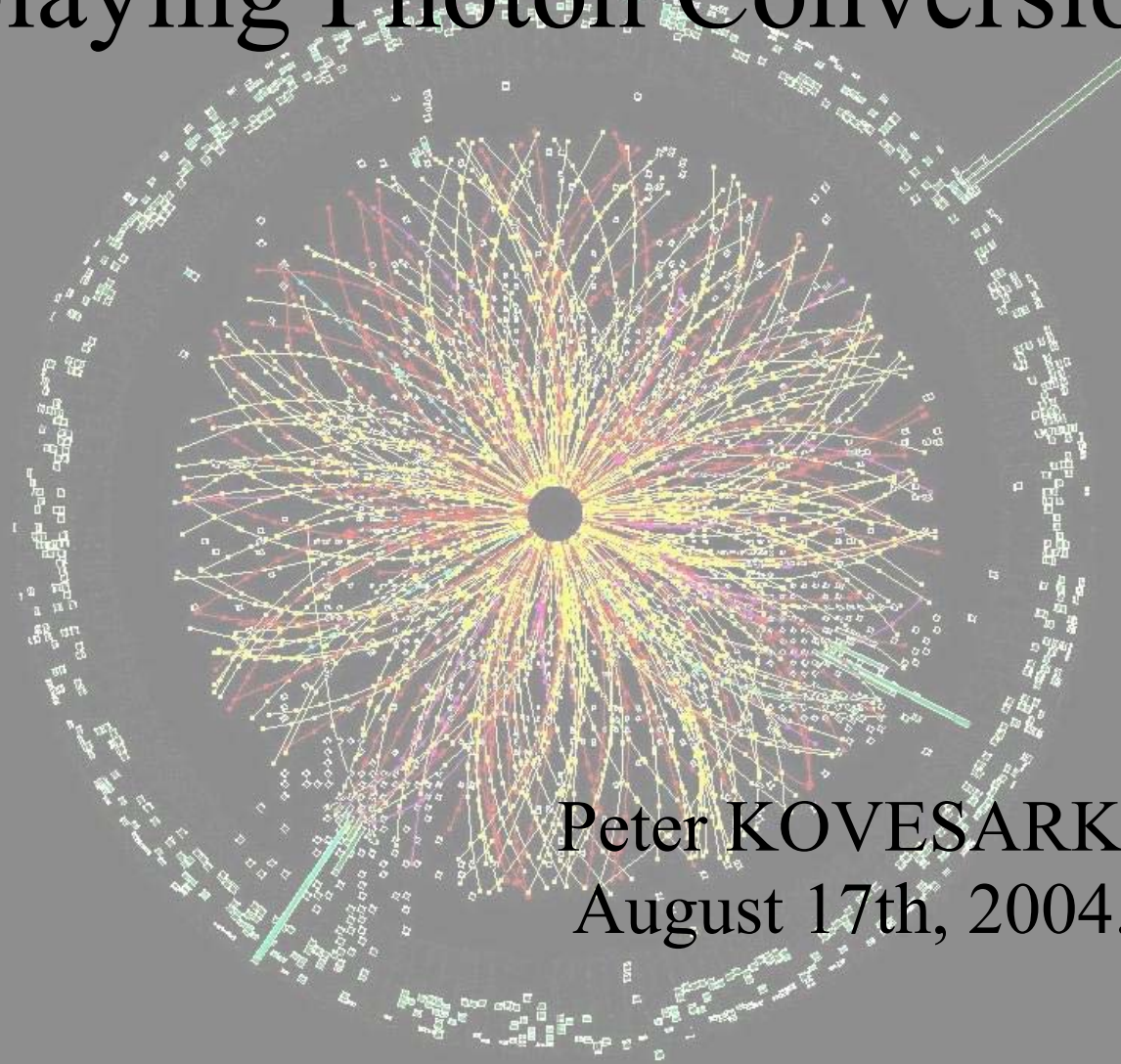


# Displaying Photon Conversion



Peter KOVESARKI  
August 17th, 2004.

# About IGUANA

IGUANA stands for

Interactive Graphics and User ANALisys

- Being developed in C++, using SCRAM
- Uses OpenInventor
- Uses Qt

# About IguanaCMS

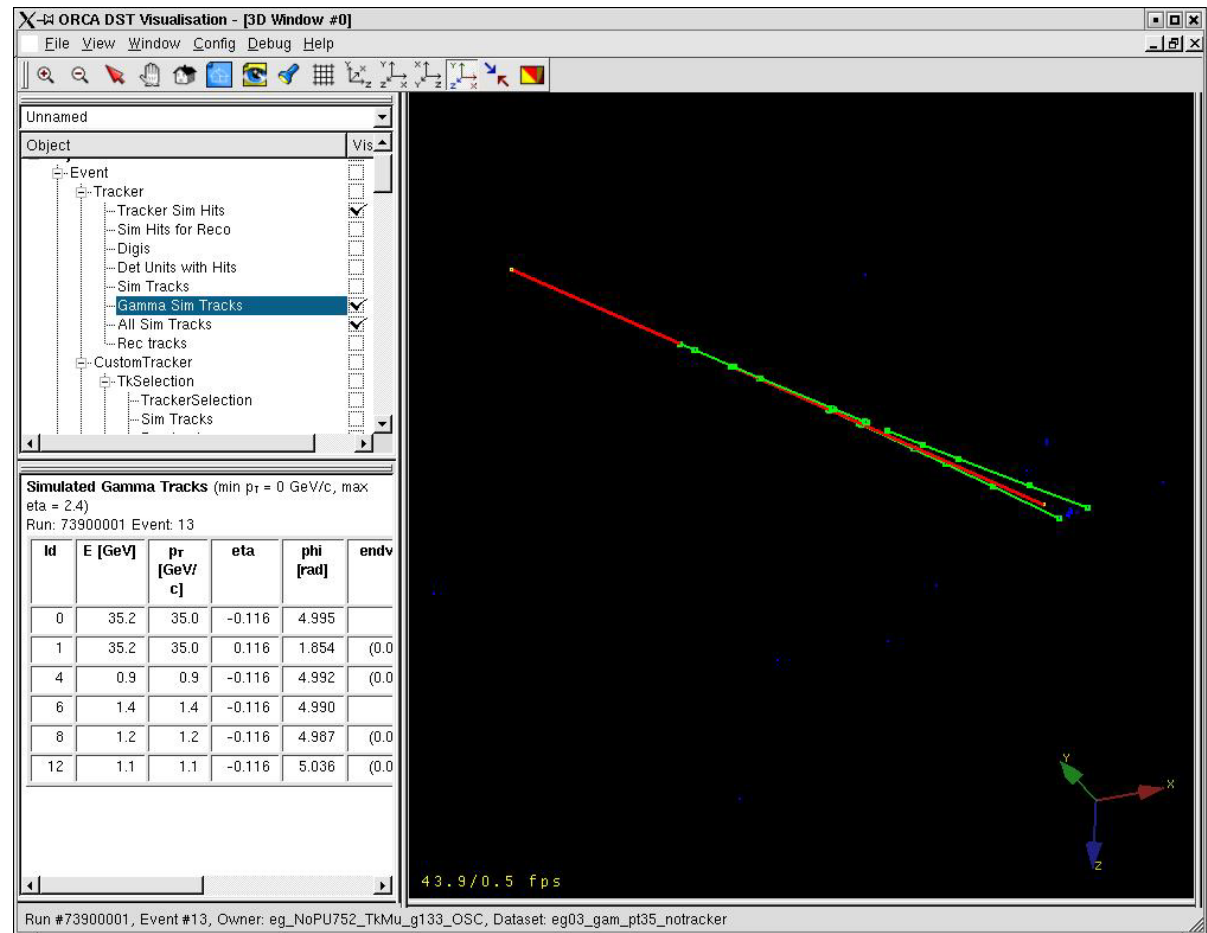
## IGUANA for CMS.

Uses the IGUANA framework to visualize events in CMS for monitoring (in the LHC era) and offline analysing. It is an aid for

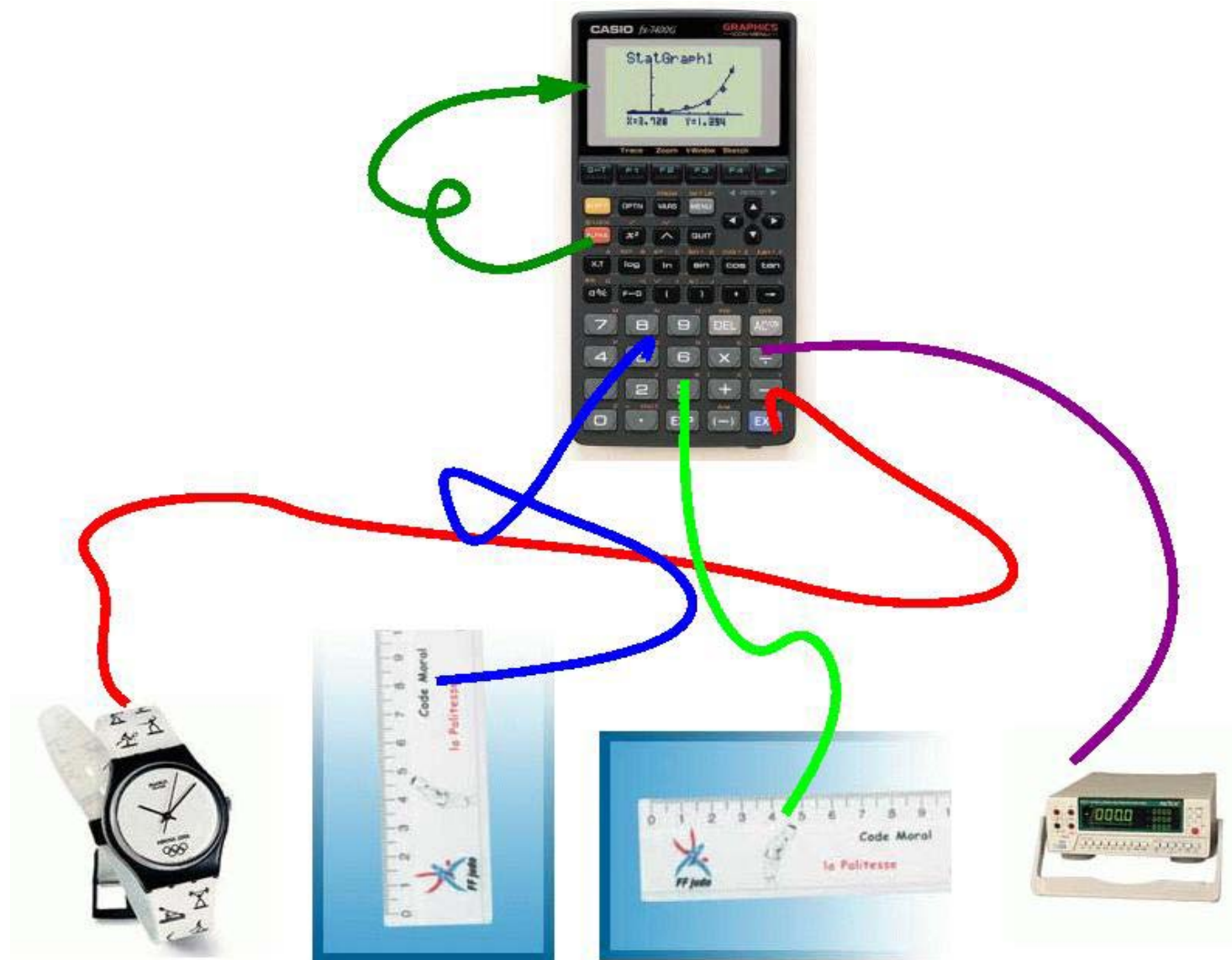
- COBRA  
(Coherent Object-oriented Base for Reconstruction and Analysis)
- ORCA (reconstruction)
- OSCAR (simulation)

# My problem...

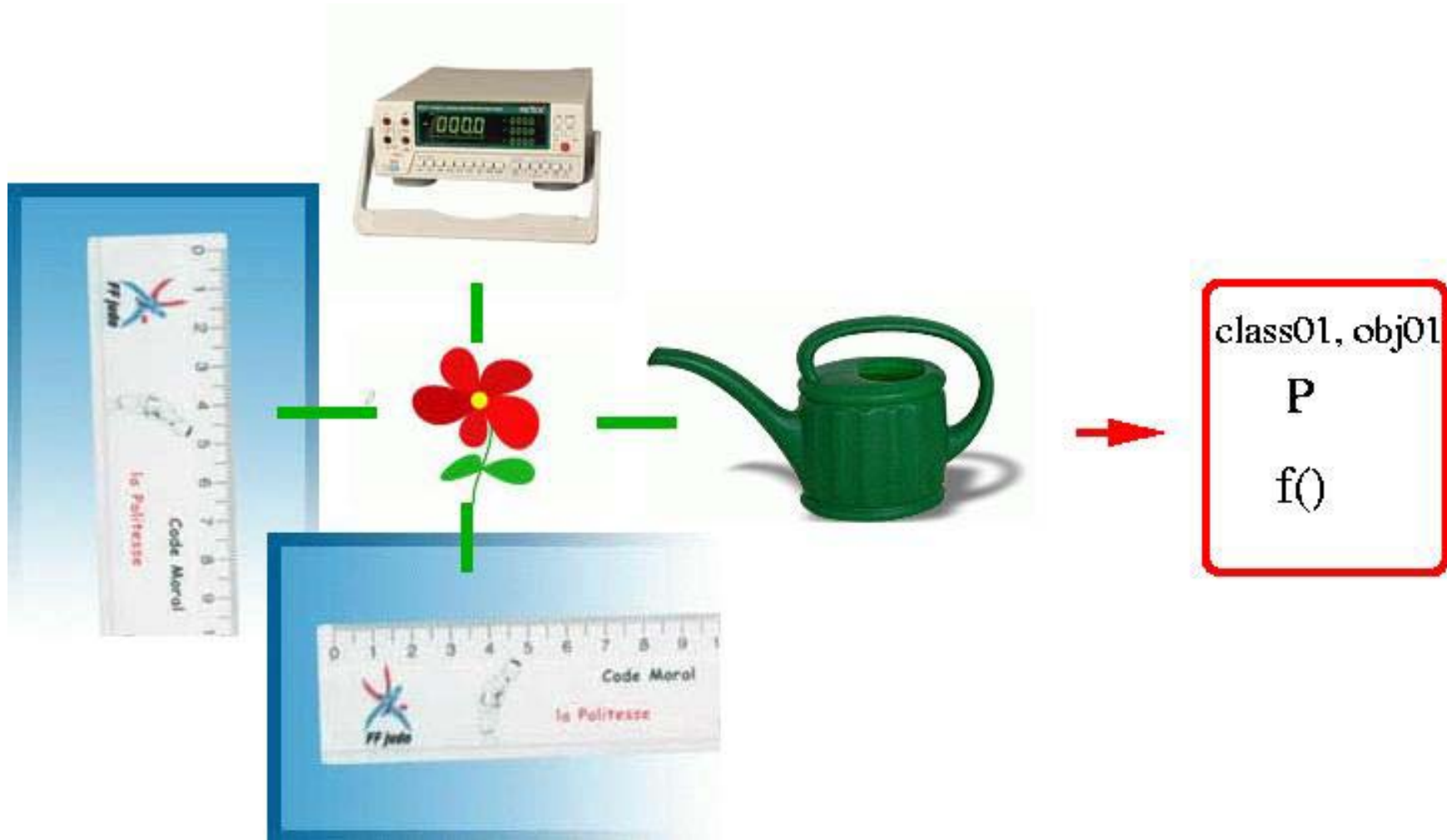
- Detailed display of photon conversion in Tracker for ECAL studies

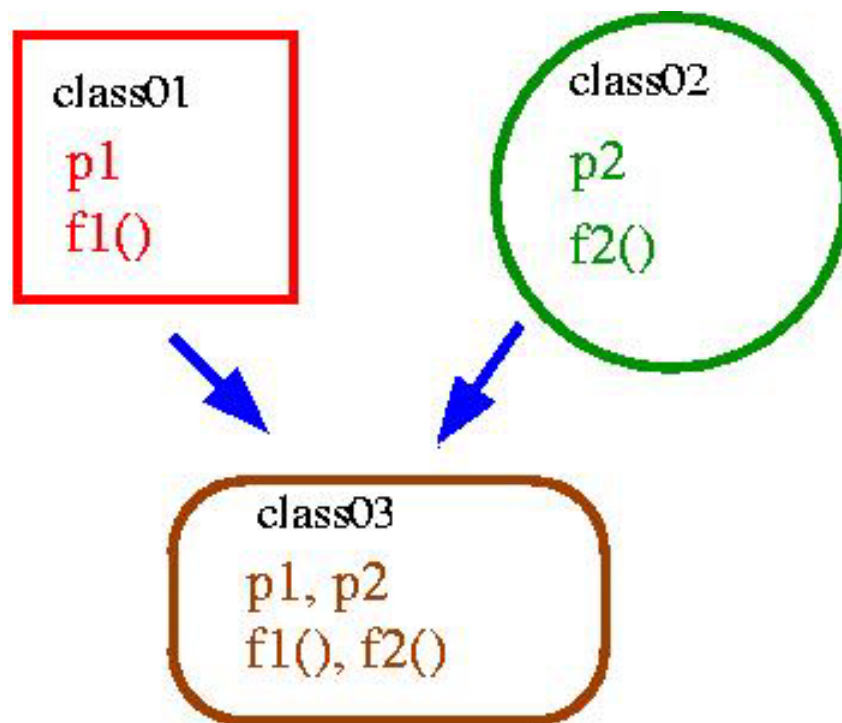


# The Concepts of ANSI C and C++



# The Concepts of ANSI C and C++





class01



class02



class03



# So back to the problem...

The screenshot shows the ORCA DST Visualisation software interface. The main window displays a 3D visualization of the detector structure, which is a large, curved, cylindrical-like structure. A green track is visible within the detector, and a red track is visible outside. The interface includes a menu bar (File, View, Window, Config, Debug, Help), a toolbar with various icons, and a tree view on the left showing the object hierarchy. The tree view is expanded to show 'Gamma Sim Tracks' selected. Below the tree view, there is a table of simulated gamma tracks with columns for Id, E [GeV], pr [GeV/c], eta, phi [rad], and endvertex po [cm]. The table contains 7 rows of data. At the bottom of the window, there is a status bar showing 'Run #73900001, Event #13, Owner: eg\_NoPU752\_TKMu\_g133\_OSC, Dataset: eg03\_gam\_pt35\_notracker' and a FPS indicator '1.2/0.4 fps'.

Unnamed

Object Visibility

- Objects
- Event
  - Tracker
    - Tracker Sim Hits
    - Sim Hits for Reco
    - Digis
    - Det Units with Hits
    - Sim Tracks
    - Gamma Sim Tracks
    - All Sim Tracks
    - Rec tracks
  - CustomTracker
    - TkSelection
      - TrackerSelection
      - Sim Tracks
      - Rec tracks
    - Tk2DMap
      - TrackerMap

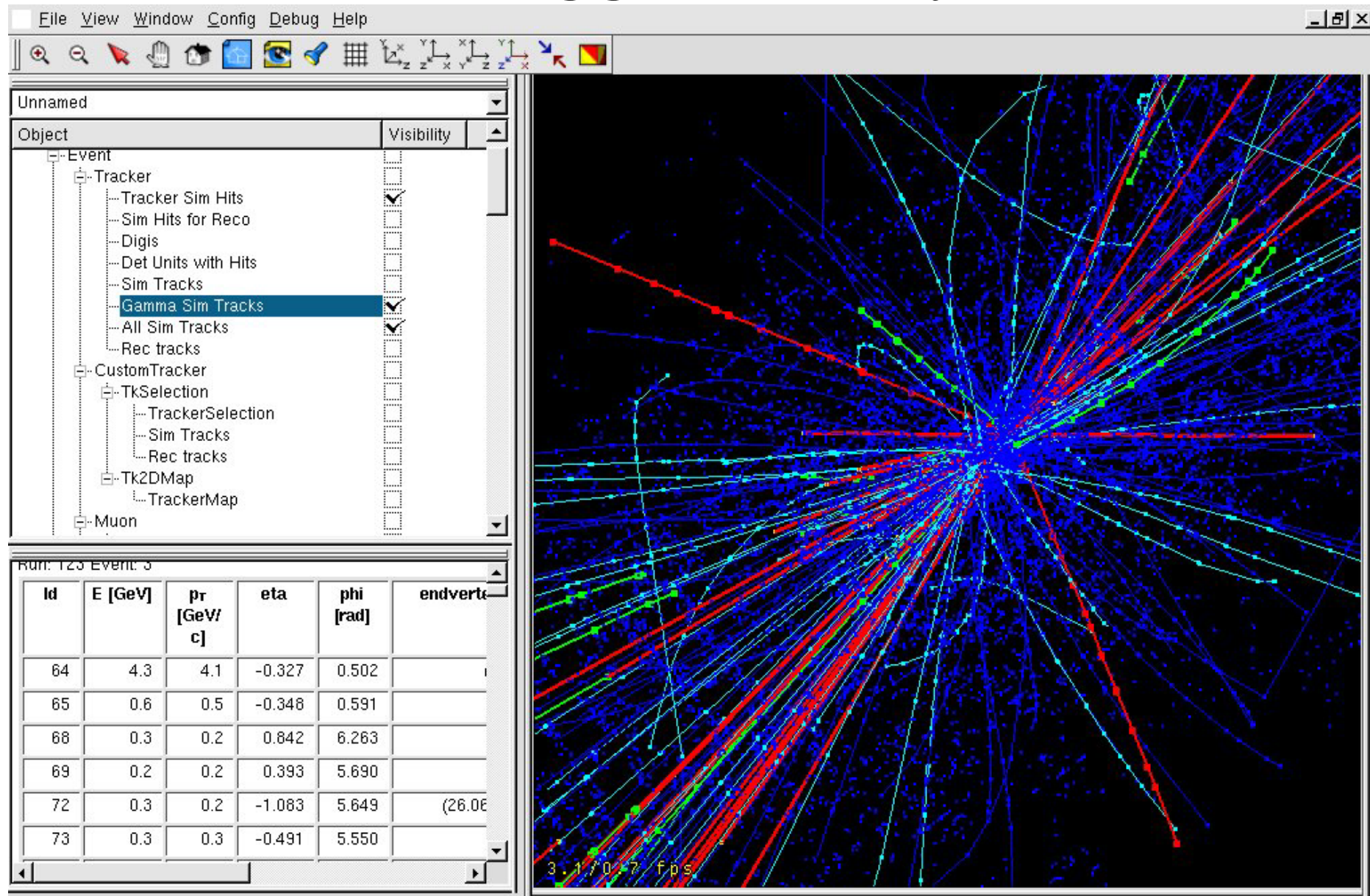
Simulated Gamma Tracks (min  $p_T = 0.03$  GeV/c, max  $\eta = 2.4$ )  
Run: 73900001 Event: 13

Id	E [GeV]	$p_r$ [GeV/c]	$\eta$	$\phi$ [rad]	endvertex po [cm]
0	35.2	35.0	-0.116	4.995	
1	35.2	35.0	0.116	1.854	(0.000,0.000)
4	0.9	0.9	-0.116	4.992	(0.000,0.000)
6	1.4	1.4	-0.116	4.990	
8	1.2	1.2	-0.116	4.987	(0.000,0.000)
12	1.1	1.1	-0.116	5.036	(0.000,0.000)

1.2/0.4 fps

Run #73900001, Event #13, Owner: eg\_NoPU752\_TKMu\_g133\_OSC, Dataset: eg03\_gam\_pt35\_notracker

# Find the Higgs-boson yourself



Run #123, Event #3, Owner: StW813DST2x1033, Dataset: h300eemm

# Conclusion

- IGUANA is a useful framework