(An attempt at) Finding real muons in Run II

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Commissioning meeting

Outline

- Getting a working run configuration
- Reconstructing muons in real data
- Event tagging
- Creating d0ve displays
- Pictures!
- Conclusion

Run configuration

- Documentation describing common problems etc: http://annwm.lbl.gov/~leggett/D0/runcfg.shtml
- Crash when trying to build rcfg from RawDataChunk in t150 - reported
- Need to use rdc_run_config_mgr to build from RDC:

Edit fwk RCP:
RCP runconfig = <run_config_mgr rdc_run_config_mgr>
Add Register_rdc_run_config_mgr to OBJECTS file
Rebuild executable

- For SMT, things get worse- get “real-data cable-map” and build run config by hand… (ask expert)

Reconstruction

"Online reco" (L3)

- Use tsim_l3

- Or use only pkgs you need:
- in l3fmuo_test L3TMuoLocalTestPkg does local tracking in muon sys

Offline reco

- Use d0reco

- unpack_reco
- muo_hitreco
- muo_segmentreco
- muo_trackreco
- see muon ID webpage

t01.50.00 should work - that's what I used

Event tagging

- Anywhere you have access to the tracks (L3TMuoLocalTestPkg::processEvent or muo_trackreco::processEvent), insert this:

```
processEvent( edm::Event evt) {
(…)
vector<Track> trk_vec;
vector<Track>::iterator trk_iter;
for(trk_iter=trk_vec.begin(); trk_iter!=trk_vec.end();
   trk_iter++) {
   int n_segs = trk_iter->getSegmentVector().size();
   if(n_segs>1) {
        Tag mytag = Tag("hasMultiSegmentMuonTrack");
        evt.tag(mytag);
   }
}
}
```

Writing out tagged events

- Use WriteEvent package, similar to ReadEvent
- Add it to your fwk rcp and OBJECTS file
- In WriteEvent.rcp:
  - Specify filename and tags to be written out:

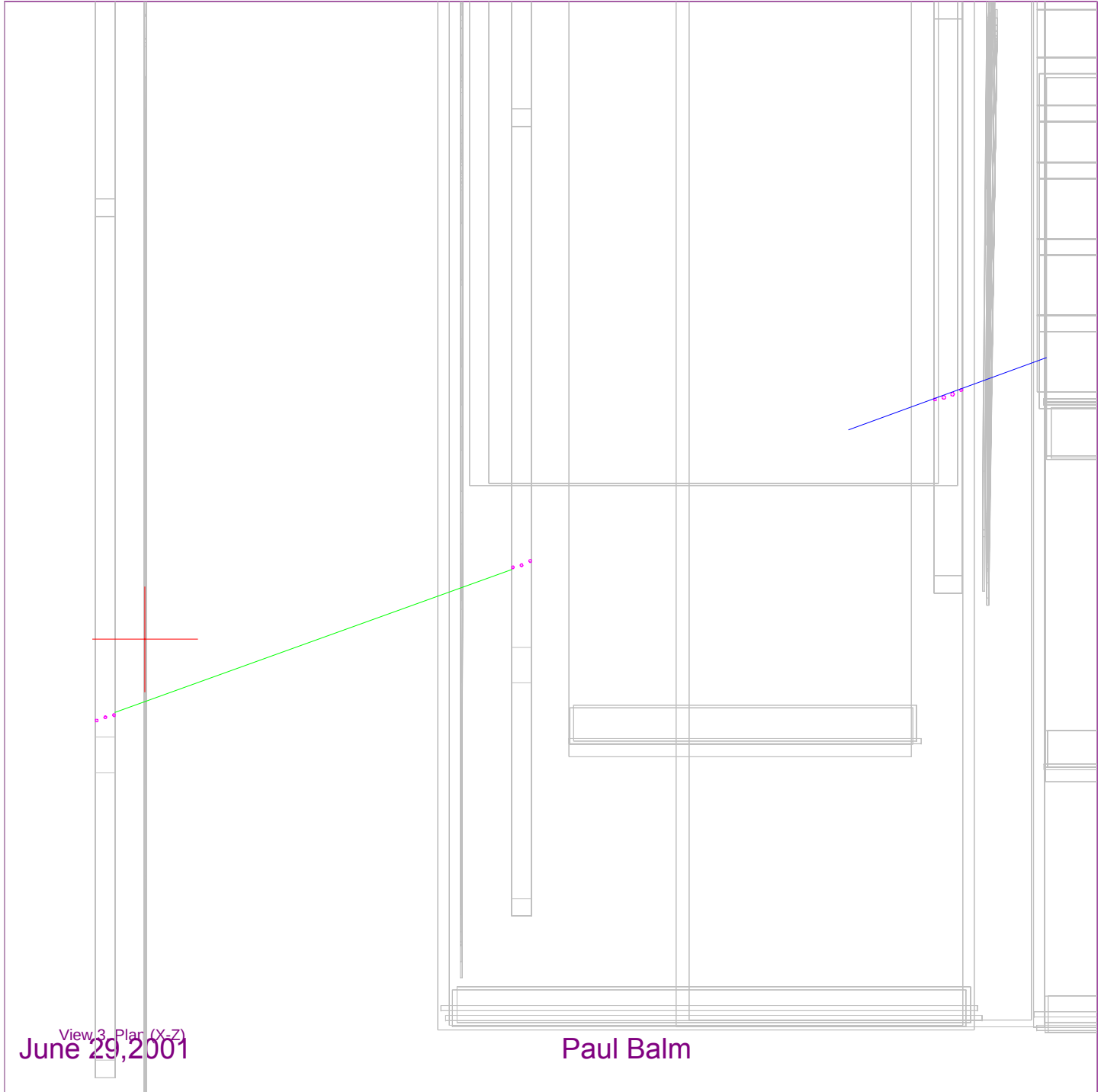
```
string OutputFile = "stage-124137-
      raw.multisegmuontrks.ev“


string WriteEventTags =
      ("hasMultiSegmentMuonTrack")
```

Creating d0ve displays

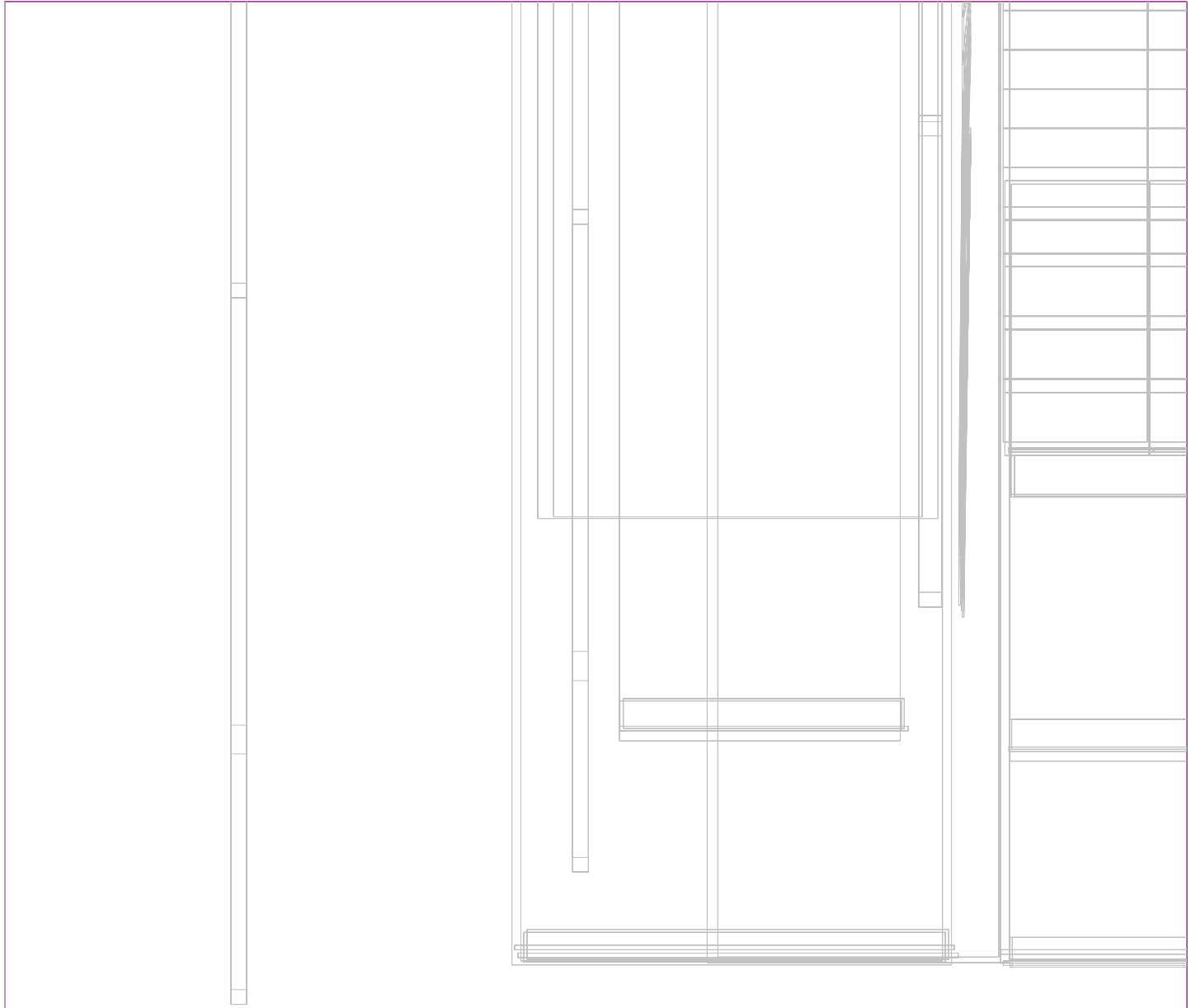
- d0ve_alldis
  - display all subdetectors - see control room
  - t01.50.00 version (sometimes?) crashes on CFT geometry problem- just remove the CFT part from fwk rcp

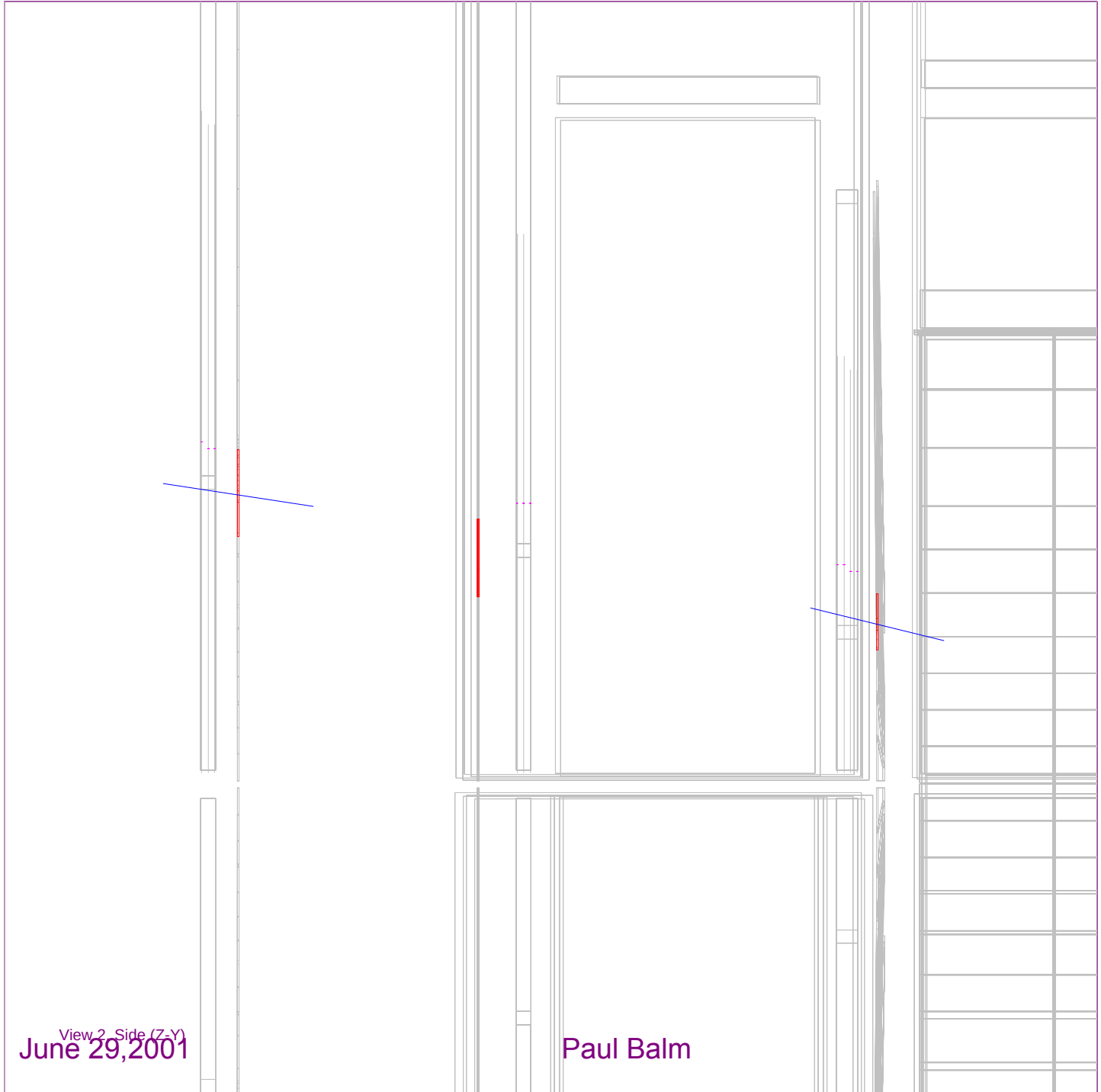
- d0ve_l3
  - display results from L3 tools
  - limited number of tools can be displayed

www-d0.fnal.gov/~balm/muon/L3Display.html

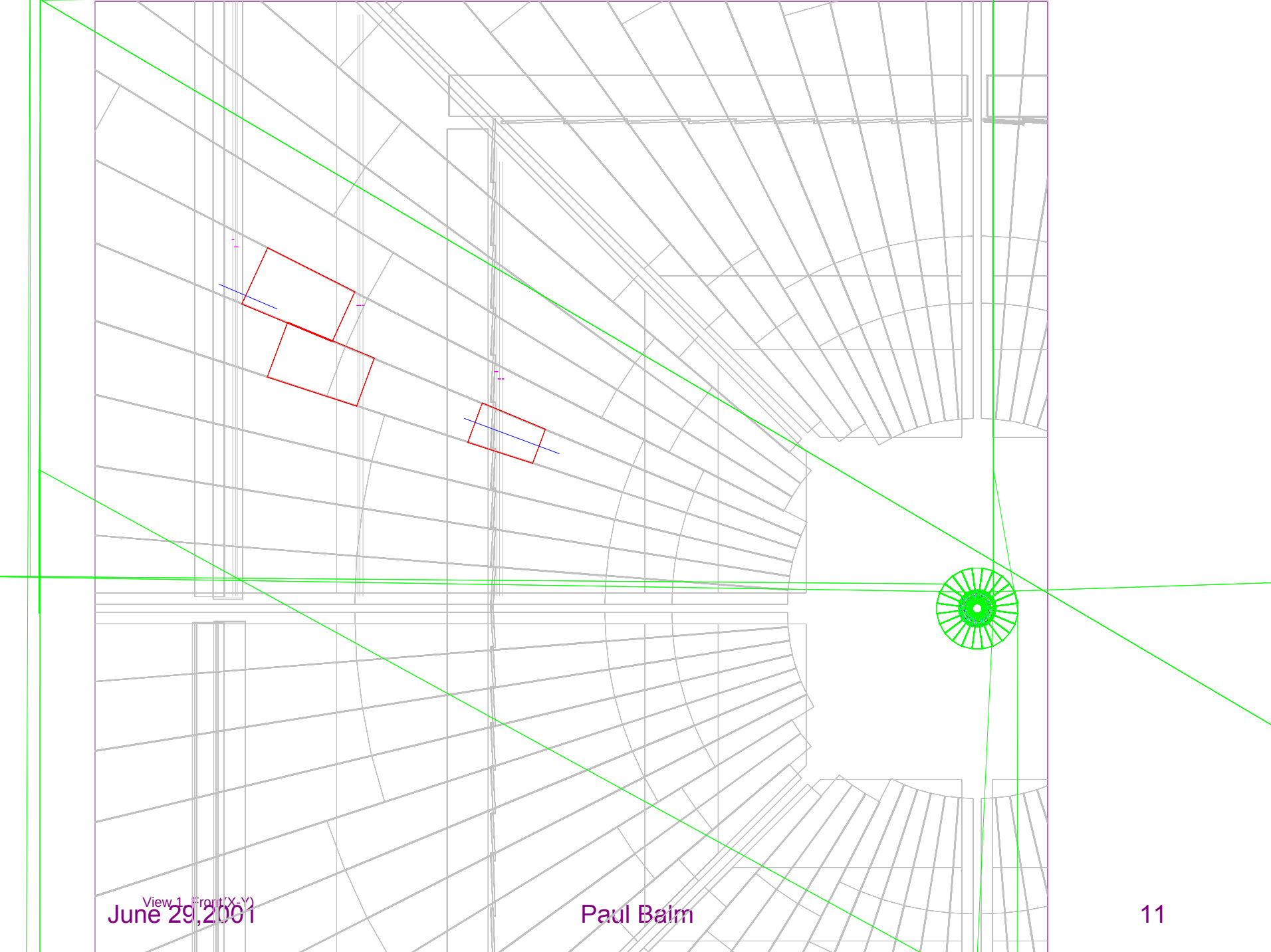


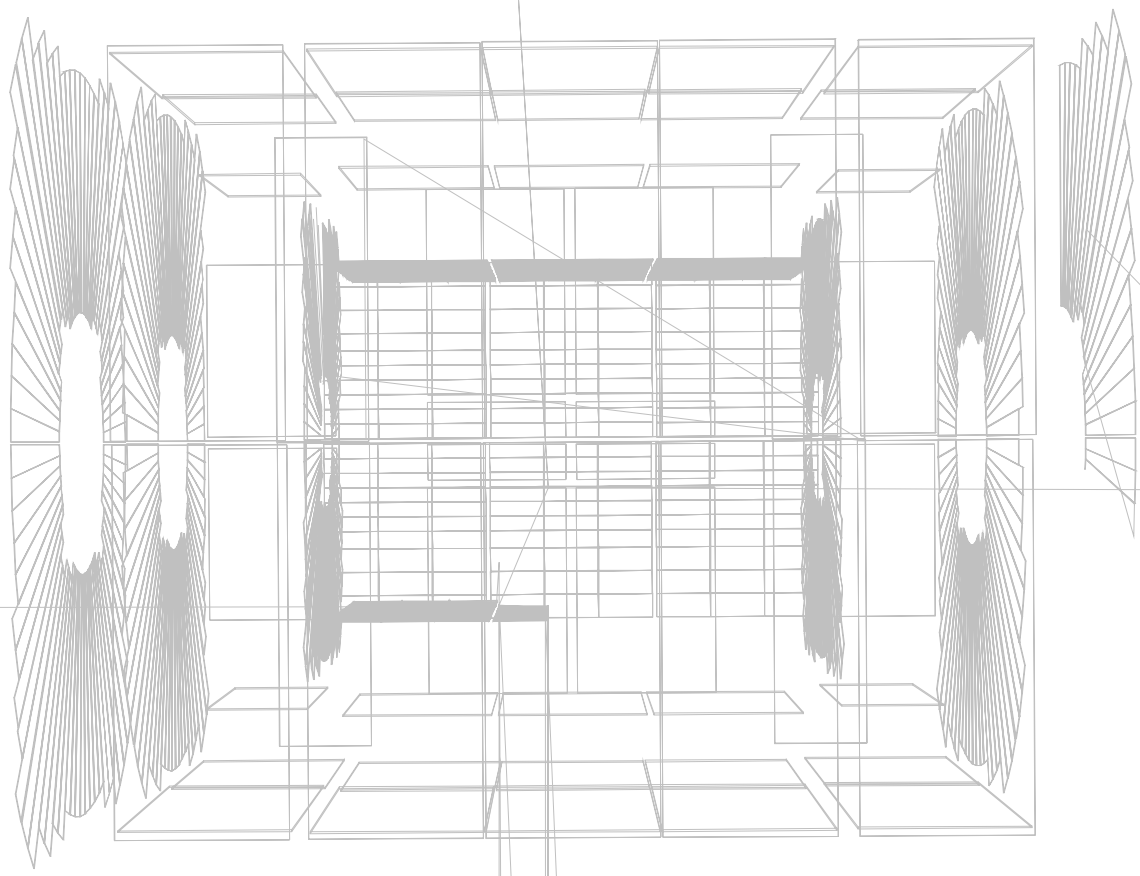
View 3 Plan (X-Z)





View 2 Side (Z-Y)


View 1 Front(X-Y)



View 4, General

being worked on (getting into the database)

Reconstruction and DQM work

About the event shown:

Given the status of the subdetectors (calo, CFT, SMT), it's hard to get confirmation

The muon system info isn't going to get much better than this

This talk is available at