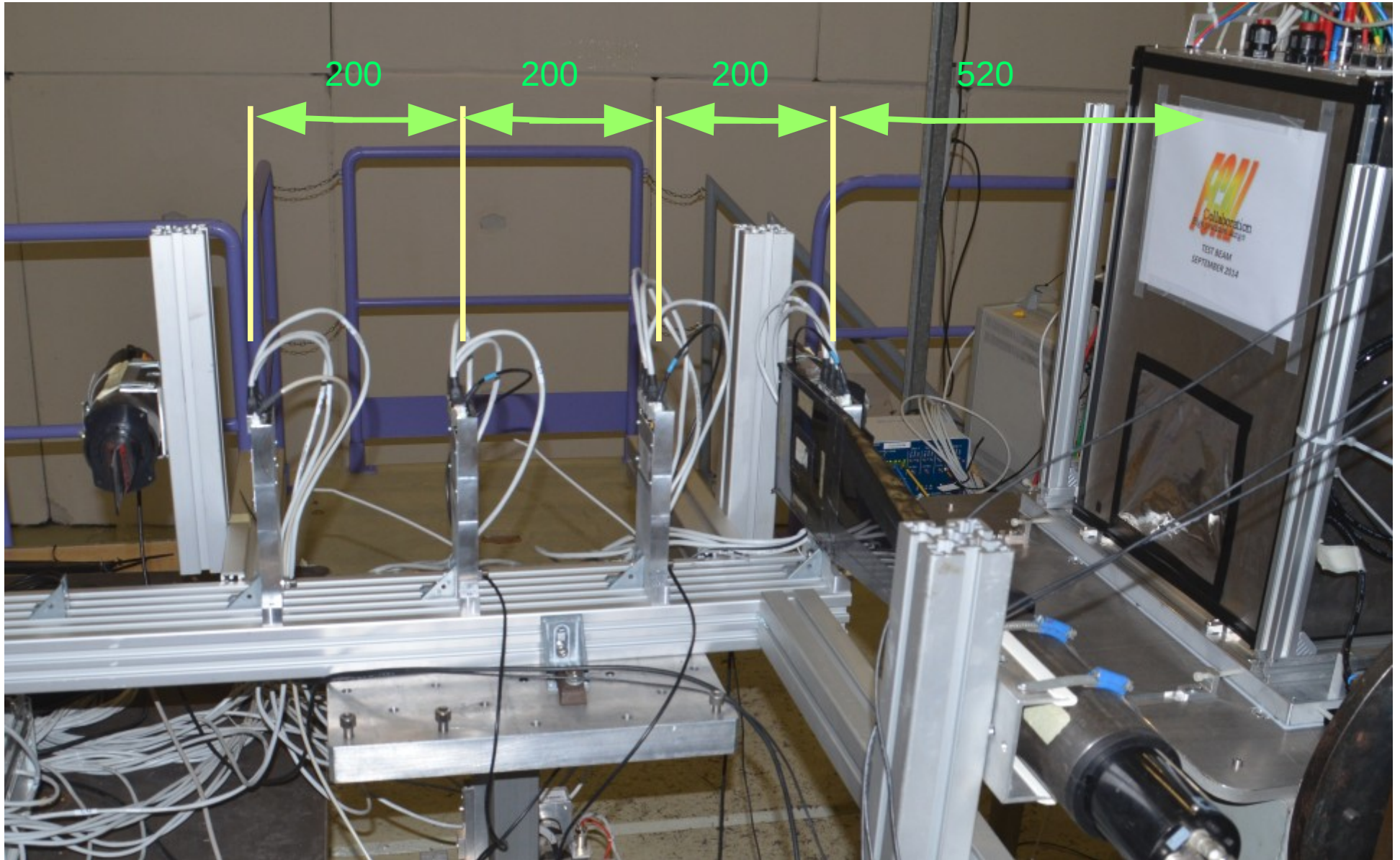


BT 2014 Telescope Data Reconstruction

O.Borysov

TAU. December 01, 2014

Telescope and LumiCal Layout



Output Tree with Telescope Data

```
fTelescopeTree = new TTree("ATelescope", "ATelescope");  
fTelescopeTree->Branch("NAllHits", &fNAllHits, "NAllHits/I");  
fTelescopeTree->Branch("AllHits", "std::vector< std::vector< TVector3 > >", &fpAllHits);  
fTelescopeTree->Branch("NTracks", &fNTracks, "NTracks/I");  
fTelescopeTree->Branch("TrackHits", "std::vector< std::vector< TVector3 > >", &fpTrackHits);  
fTelescopeTree->Branch("TrackCentr", "std::vector< TVector3 >", &fpTrackCentr);  
fTelescopeTree->Branch("TrackDir", "std::vector< TVector3 >", &fpTrackDir);  
fTelescopeTree->Branch("FrameId", "std::vector< Int_t >", &fpFrameId);  
fTelescopeTree->Branch("LumiCalPos", "std::vector< TVector3 >", &fpLumiCalPos);
```

Combining Frames

PXIeBoardReader board 0::GetNextDaqEvent() current frame 0 over 400 in current acquisition -1 over 374

PXIeBoardReader board 0: **Got frame 0 (absolute nb = 2953710)** in acquisition 0.

** board 0 : count 00000000 : AcqId = 0000 - FrameId = 0109 - #triggers = 0001 (or 0001)
trigger[0, in frame 0] at line 0367 (0367/0367 & frame 856557 & invalid 0), time = 63731

PXIeBoardReader board 0::GetNextDaqEvent() current frame 0 over 400 in current acquisition 0 over 374

PXIeBoardReader board 0: **Got frame 1 (absolute nb = 2953711)** in acquisition 0.

** board 0 : count 00000001 : AcqId = 0000 - FrameId = 0110 - #triggers = 0000 (or 0000)

PXIeBoardReader board 0::GetNextDaqEvent() current frame 1 over 400 in current acquisition 0 over 374

PXIeBoardReader board 0: **Got frame 2 (absolute nb = 2953712)** in acquisition 0.

** board 0 : count 00000002 : AcqId = 0000 - FrameId = 0111 - #triggers = 0000 (or 0000)

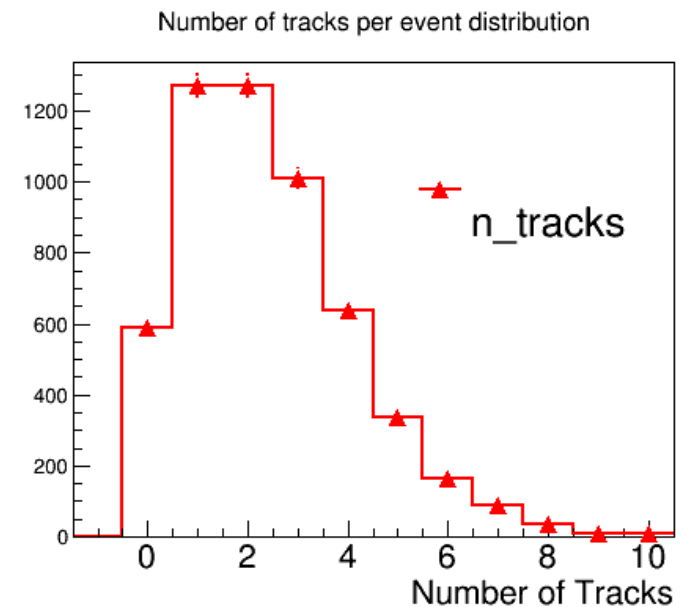
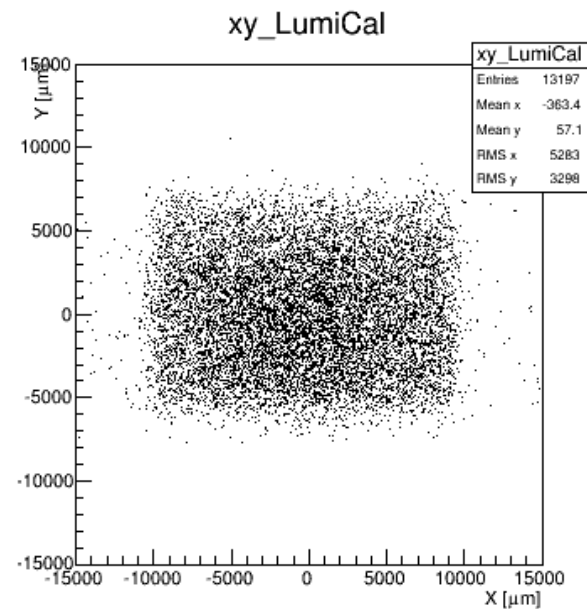
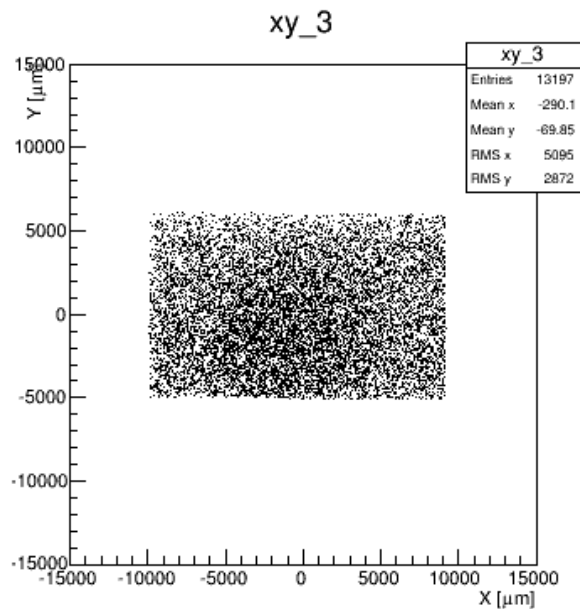
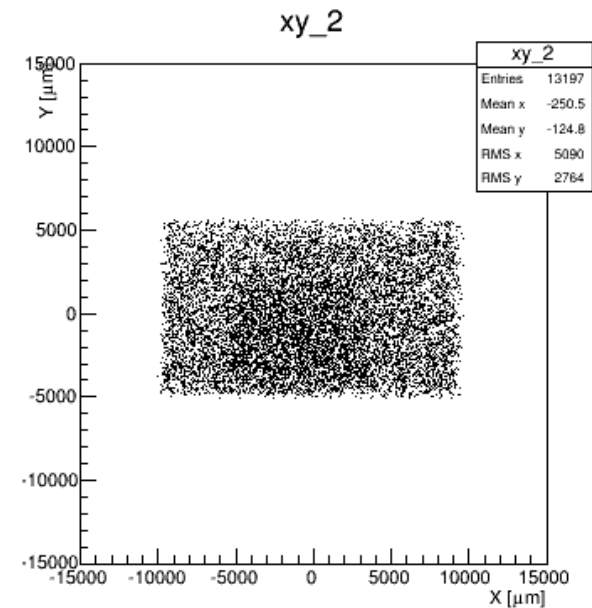
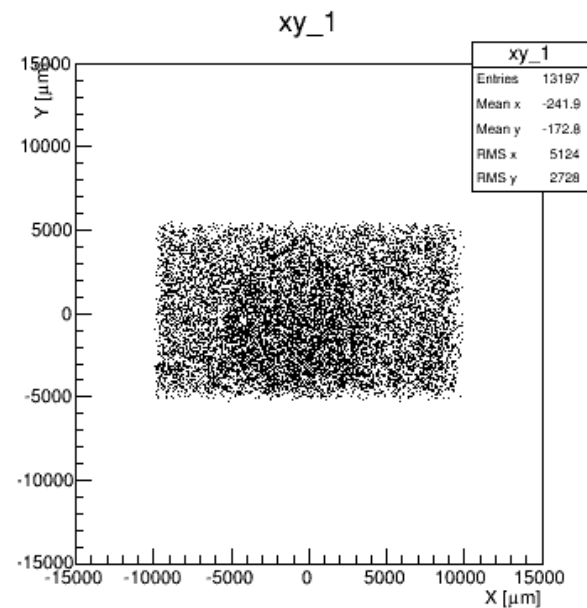
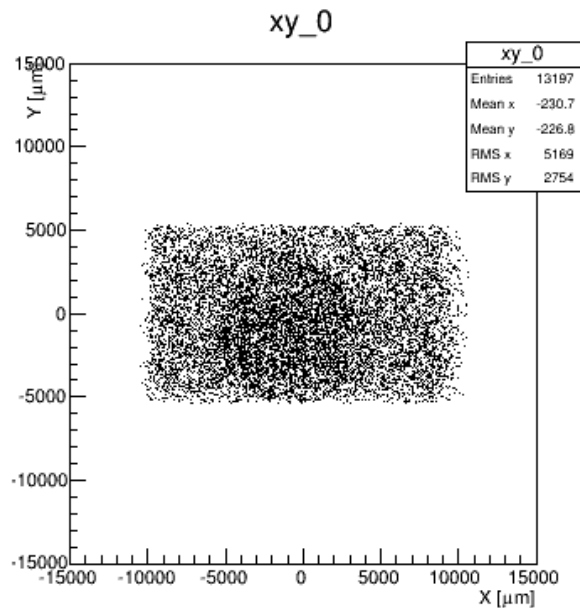
PXIeBoardReader board 0::GetNextDaqEvent() current frame 2 over 400 in current acquisition 0 over 374

PXIeBoardReader board 0: **Got frame 3 (absolute nb = 2953713)** in acquisition 0.

** board 0 : count 00000003 : AcqId = 0000 - FrameId = 0112 - #triggers = 0000 (or 0000)

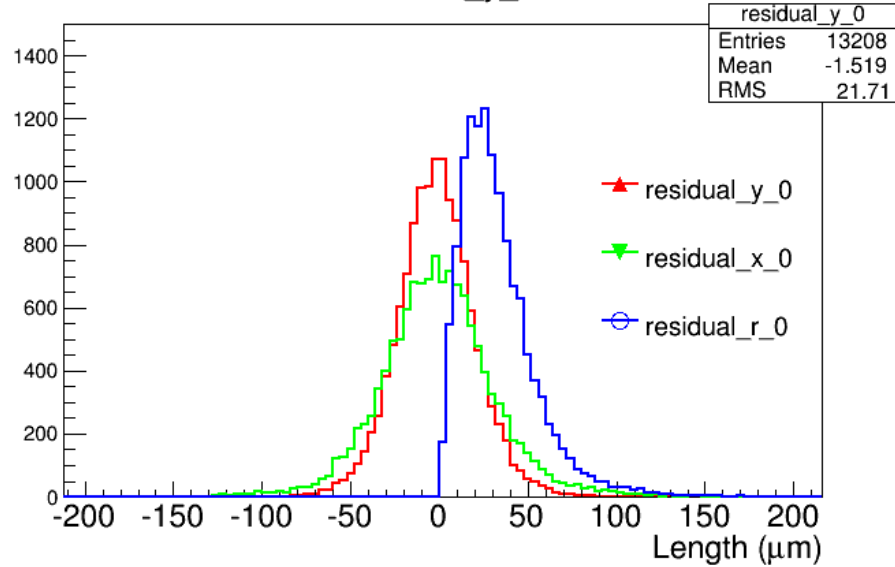
PXIeBoardReader board 0::GetNextDaqEvent() current frame 3 over 400 in current acquisition 0 over 374

High Intensity e, μ Run 231. Hits.

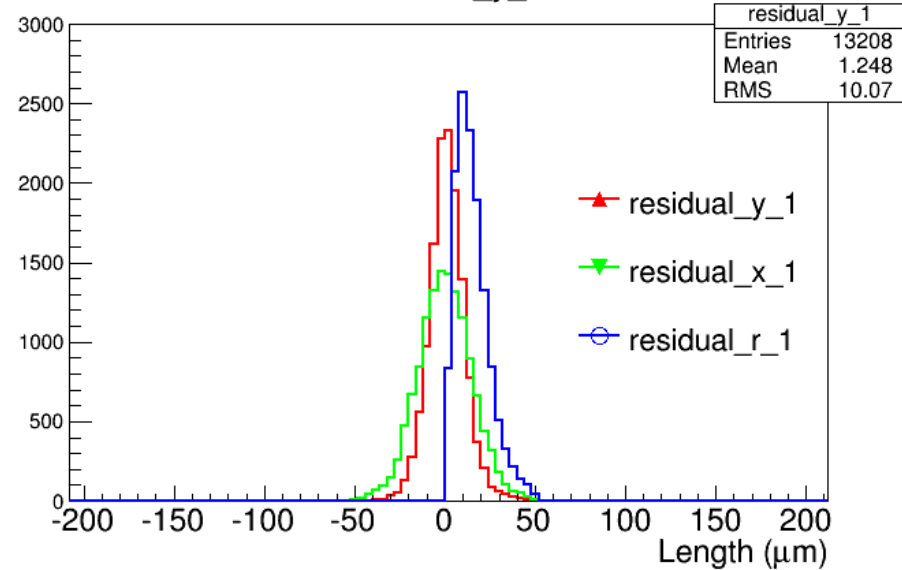


High Intensity e, μ Run 231. Residuals

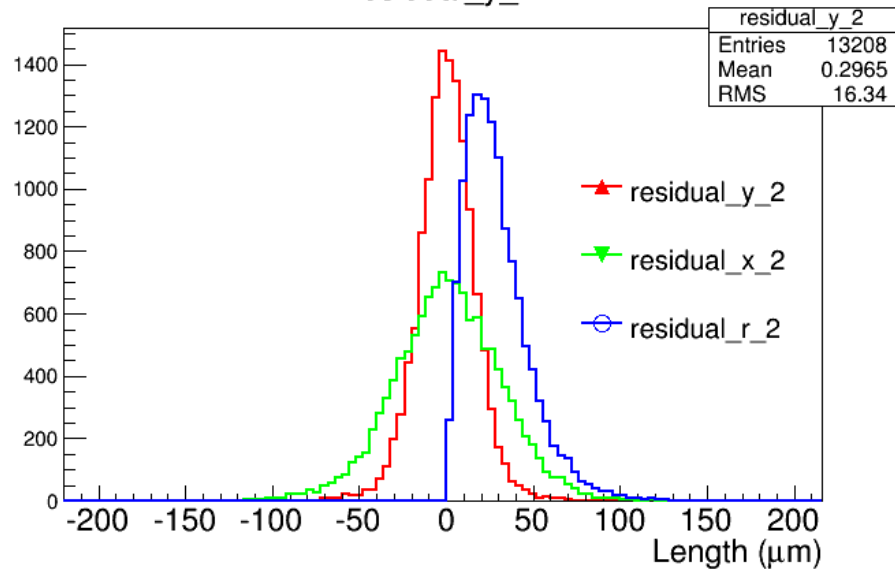
residual_y_0



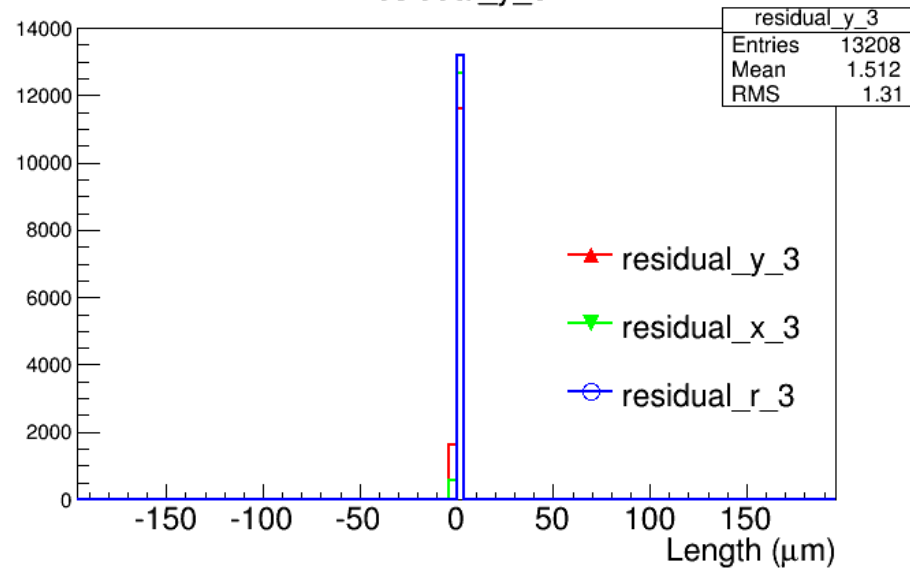
residual_y_1



residual_y_2

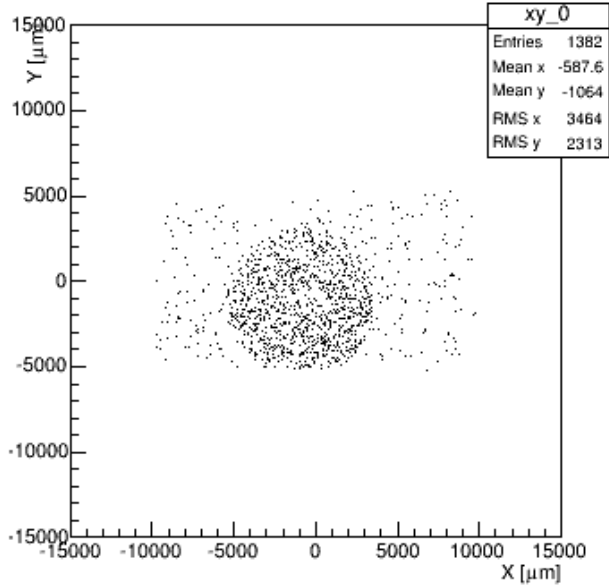


residual_y_3

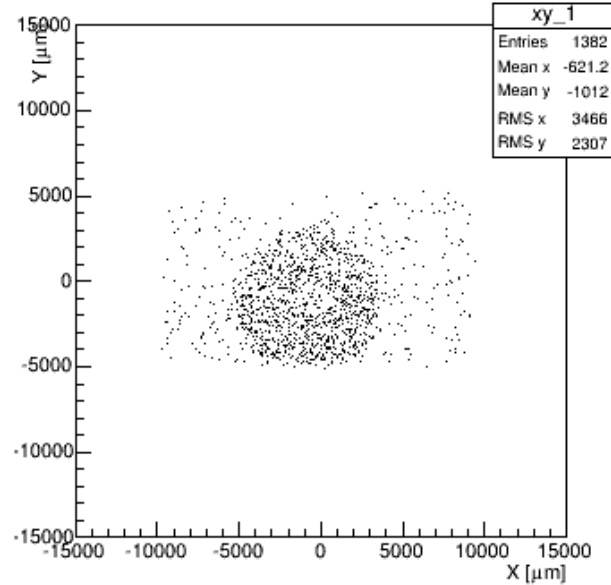


e, μ Runs 99, 180. Hits.

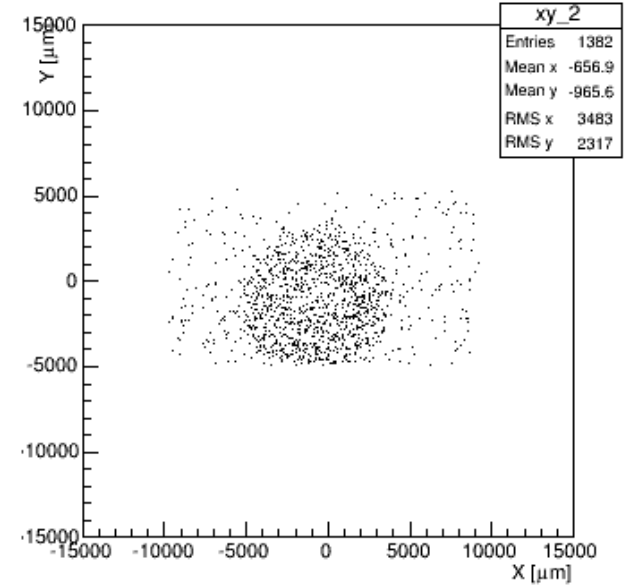
xy_0



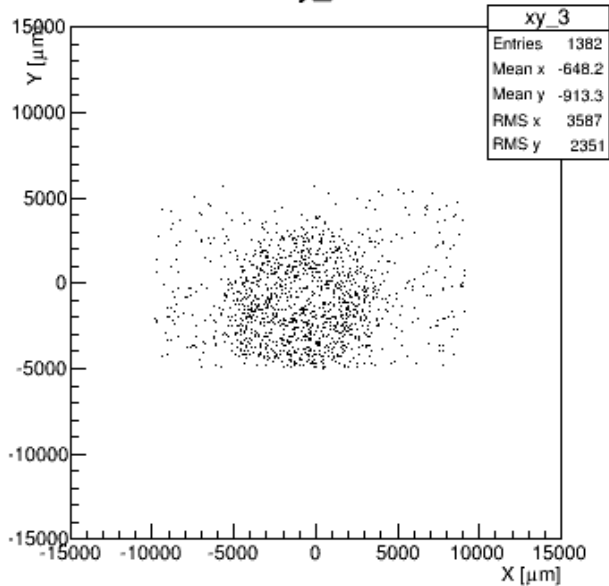
xy_1



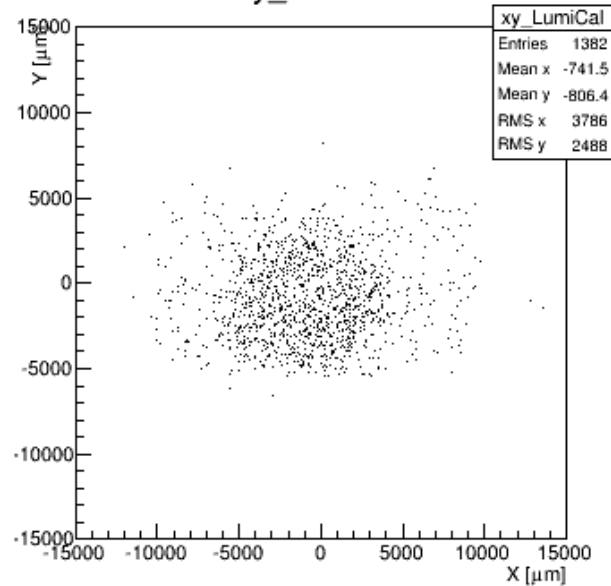
xy_2



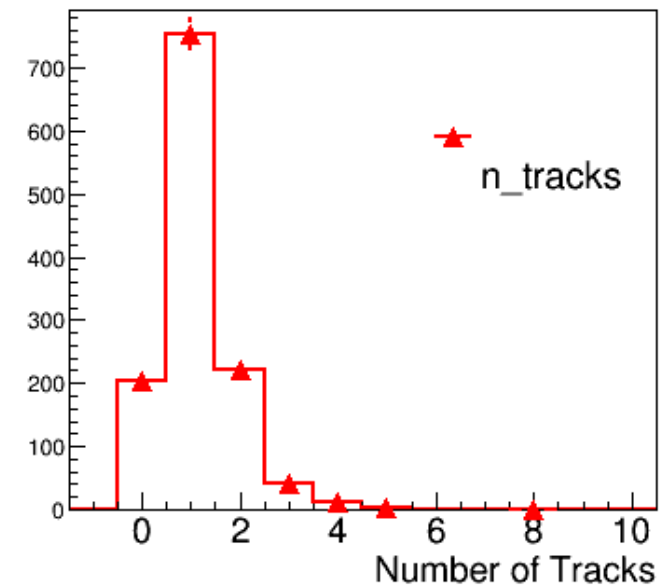
xy_3



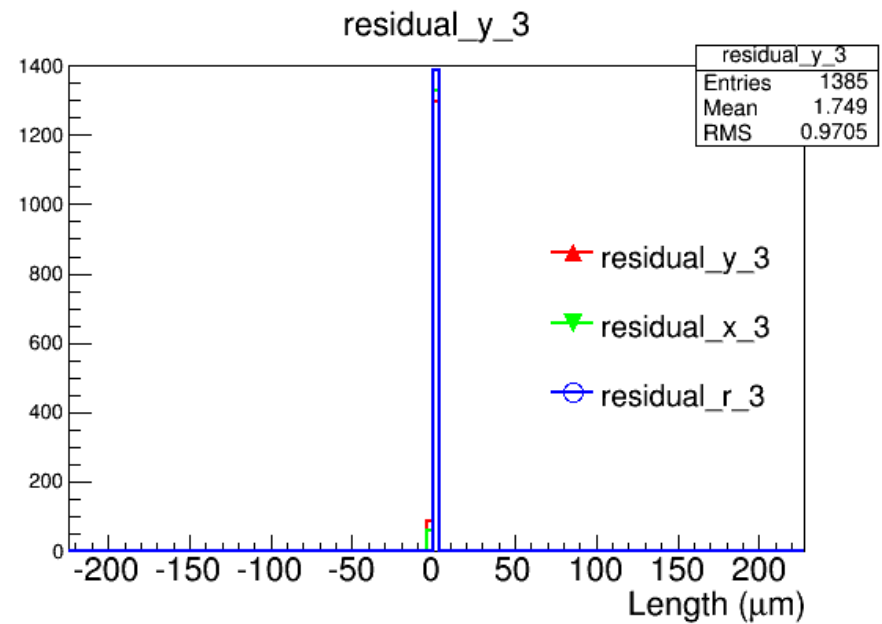
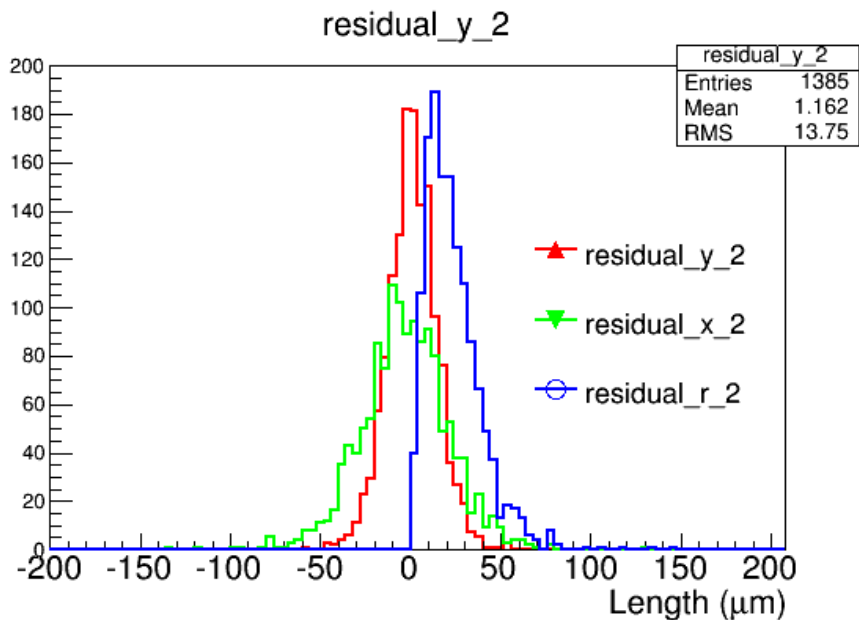
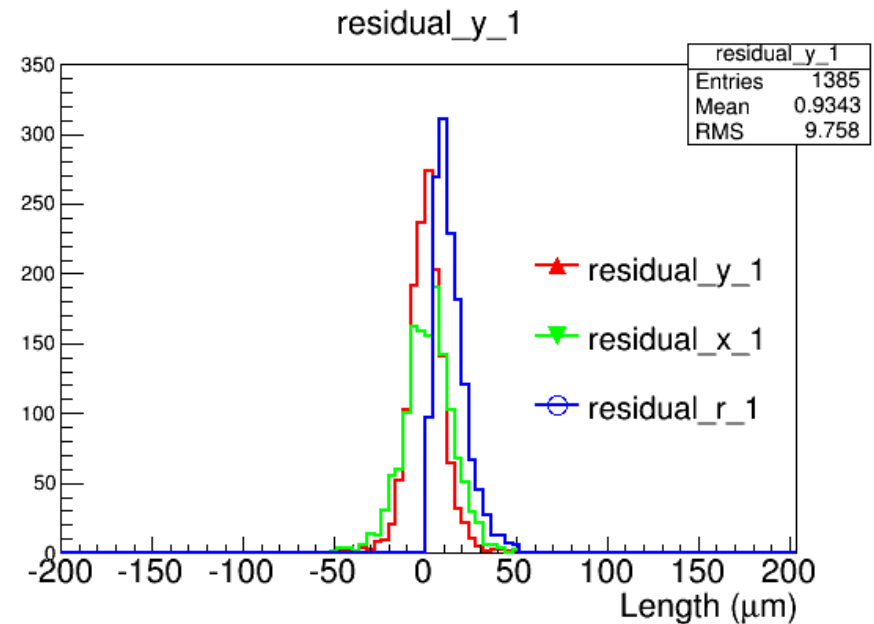
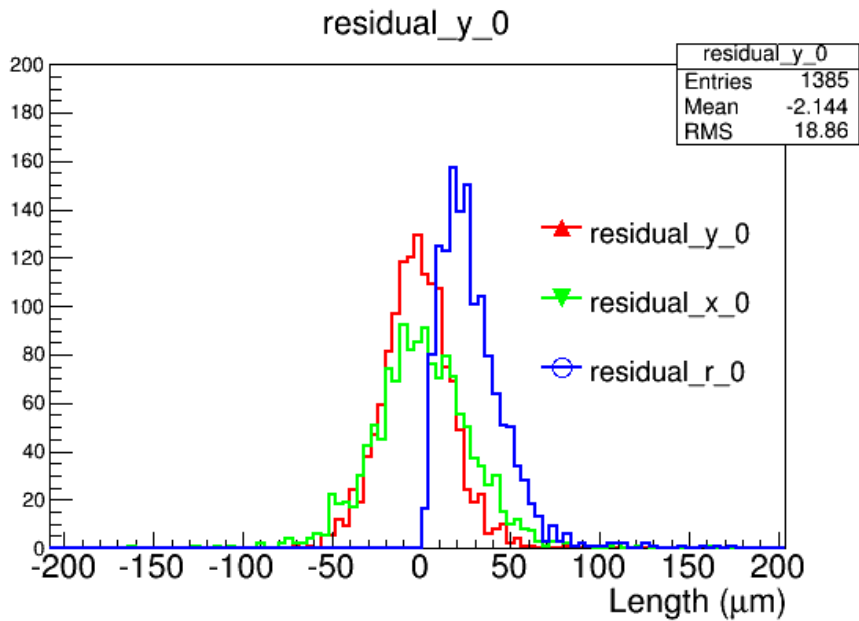
xy_LumiCal



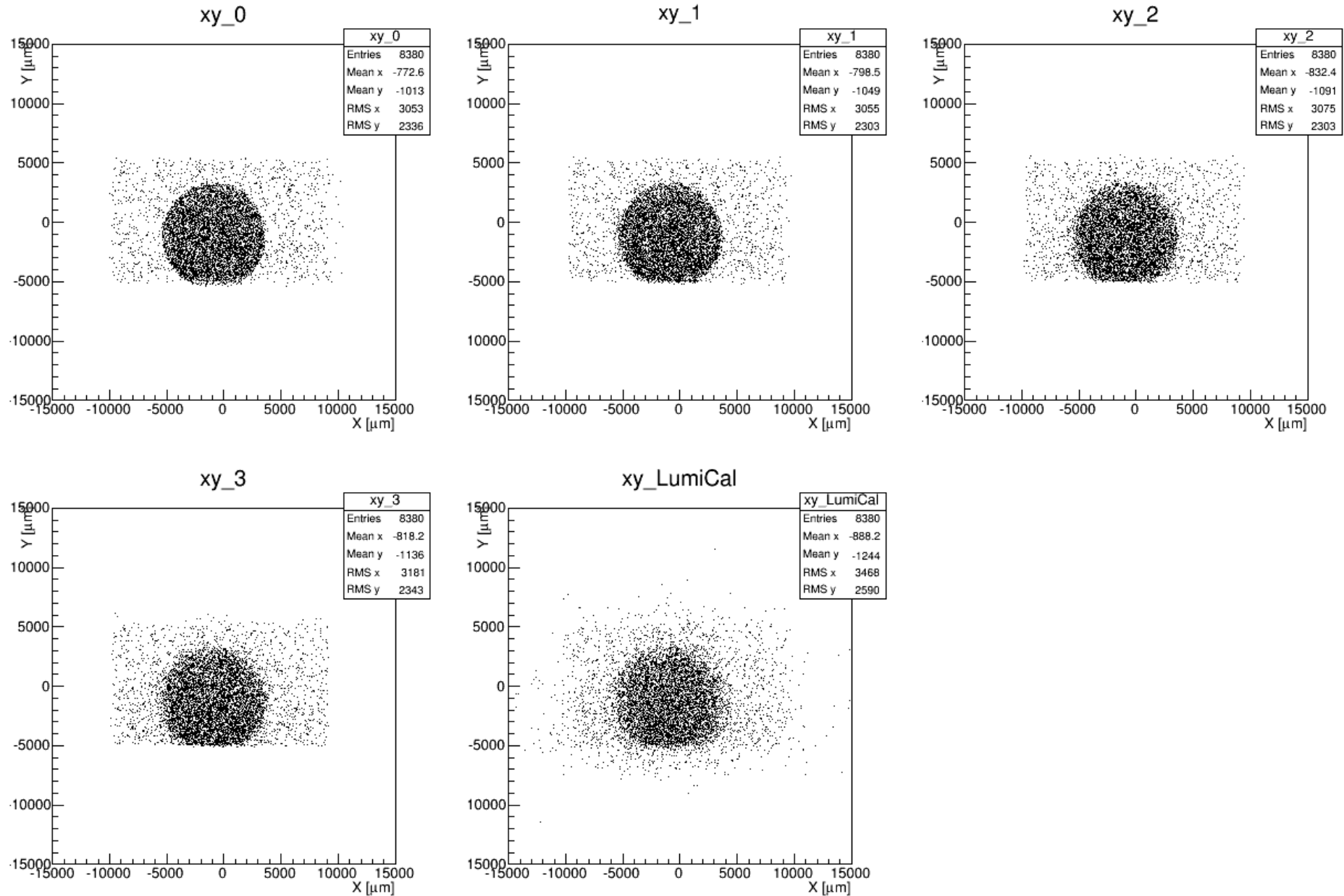
Number of tracks per event distribution



e, μ Runs 99, 180. Residuals.



Telescope Run 48 (w/o LumiCal). Hits.



Summary

- Hardware frame number from mimosa chip is available in telescope reconstructed tree.
- Reconstruction using TAF shows reasonable results, though there are still many questions to clarify.