Test beam analysis software update

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Software status, remaining to-do items

Reference tracker:

Ready to go, initial version of plotting macro (see slide3)

LAPPD:

Offline analysis chain ready to go, but output quality check needs to be done again

Output tree:

```
// Set Cluster Tree
T2->Branch("EvtNumber",  &EvtNumber, "EvtNumber/I");     // event number
T2->Branch("nclus",   &ncluster, "nclus/I");             // number of clusters
T2->Branch("x",       cl_x,      "x[nclus]/D");          // xpos, center-of-gravity method
T2->Branch("y",       cl_y,      "y[nclus]/D");          // ypos, center-of-gravity method
T2->Branch("amp",     cl_amp,    "amp[nclus]/D");        // amplitude
T2->Branch("led",     cl_led,    "led[nclus]/D");        // use leading edge discrimiator for time measurement
T2->Branch("centID", cl_centID, "ch_centID[nclus]/I");   // central pixel
```

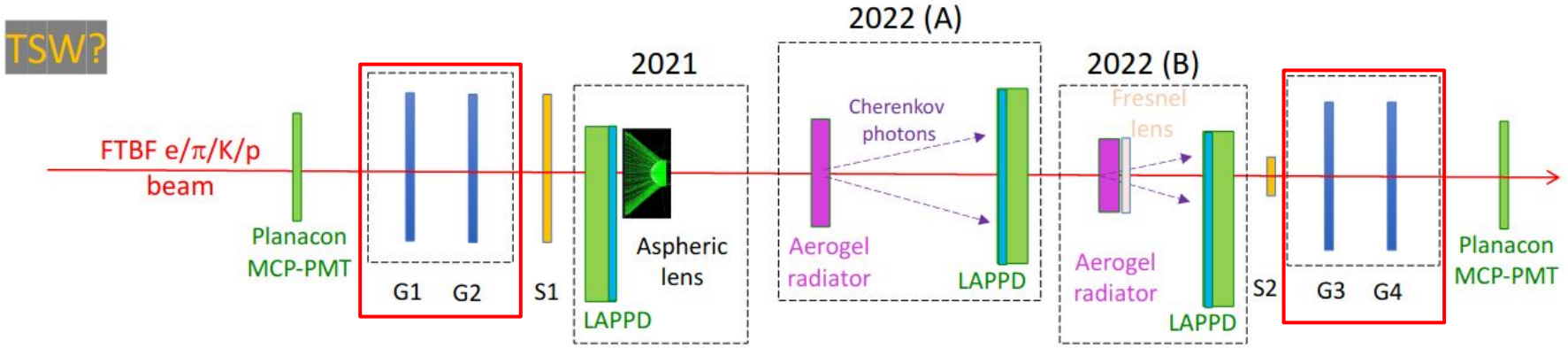
Running macro: needs to write one, but shouldn't take really long to write

Spatial resolution (using average beam positions measured from reference trackers)

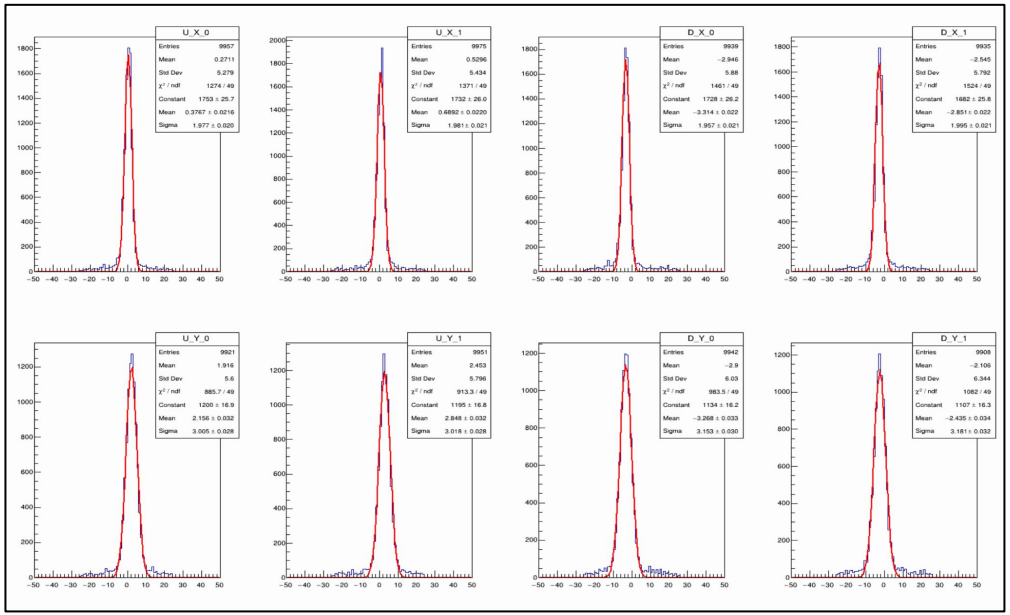
Check CFD, LED functions (available V1742channel::CFD, V1742channel::Discriminator)

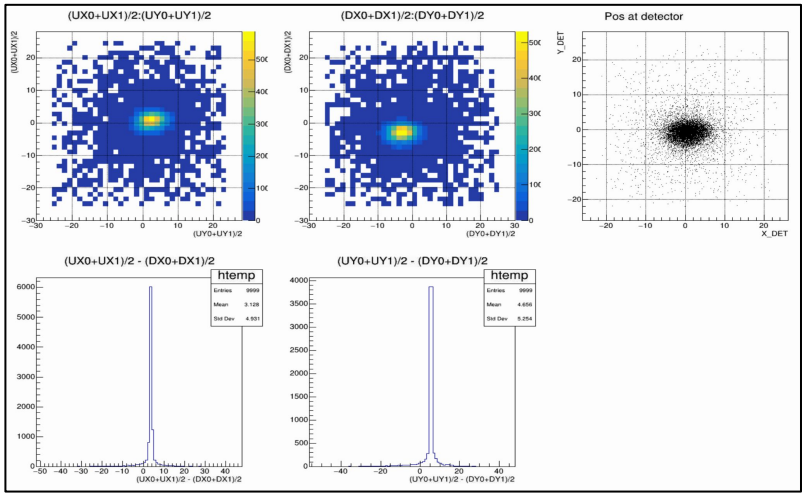
Reference tracker

Experimental setup in MT6.2C



Reference tracker



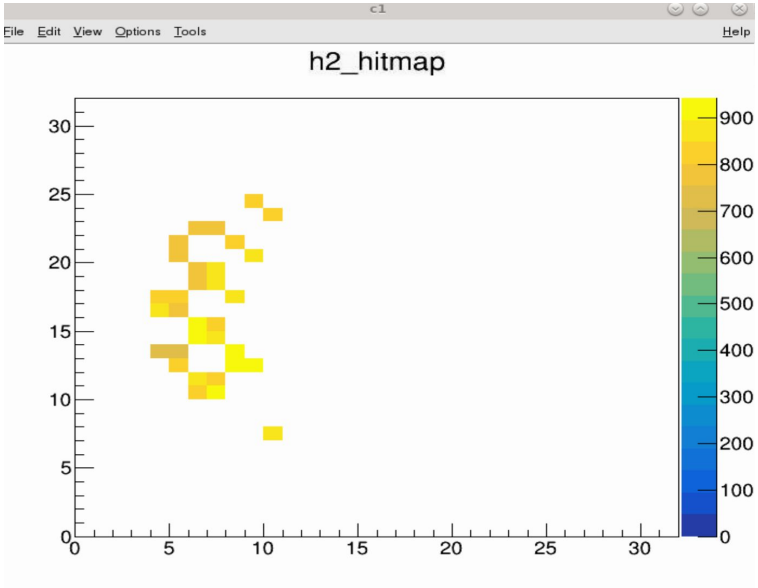


- Script produces histograms and TTree: https://git.racf.bnl.gov/gitea/EIC/mpgd4eic/src/branch/master/dream/reference_tracker/scripts/BIZ/tracker.C
- Plotter macro makes currently two canvas (BIZ/make_plots.C)
- Projected position at the detector – use upstream and downstream averages and their z positions, will need a survey of detector positions before data taking

LAPPD analysis module

Check with good runs (20525):

Only shows signal from one digitizer



— New custom calibration flag off, but standard calibration doesn't apply properly

— V1742 RetrieveWaveForms function needs some clean up

Documentation, instruction, etc…

Documentation (may need a better place):

https://drive.google.com/drive/folders/1WvkMlldo1z7BfMLwXOAHMnDPpi8DuPzq?usp=sharing

- Including cheat sheet from last year (to be updated)
- Software instruction (running from RCF, local machine for online monitoring); will have it available soon

Notes from the meeting:

- Add Timestamp for each event to the output file
- It’s in the data. The usual p->iValue function should work, need to know the channel. (work with Martin)
- We will also have Planacon, Cherenkov count information in our data stream (get information from Martin)
- We have new DRS4 calibration, software part needs clean up (Alexander on Monday)
- Reference tracker and LAPPD data will be in the same data stream. Should be able to use event by event reference position measurement.