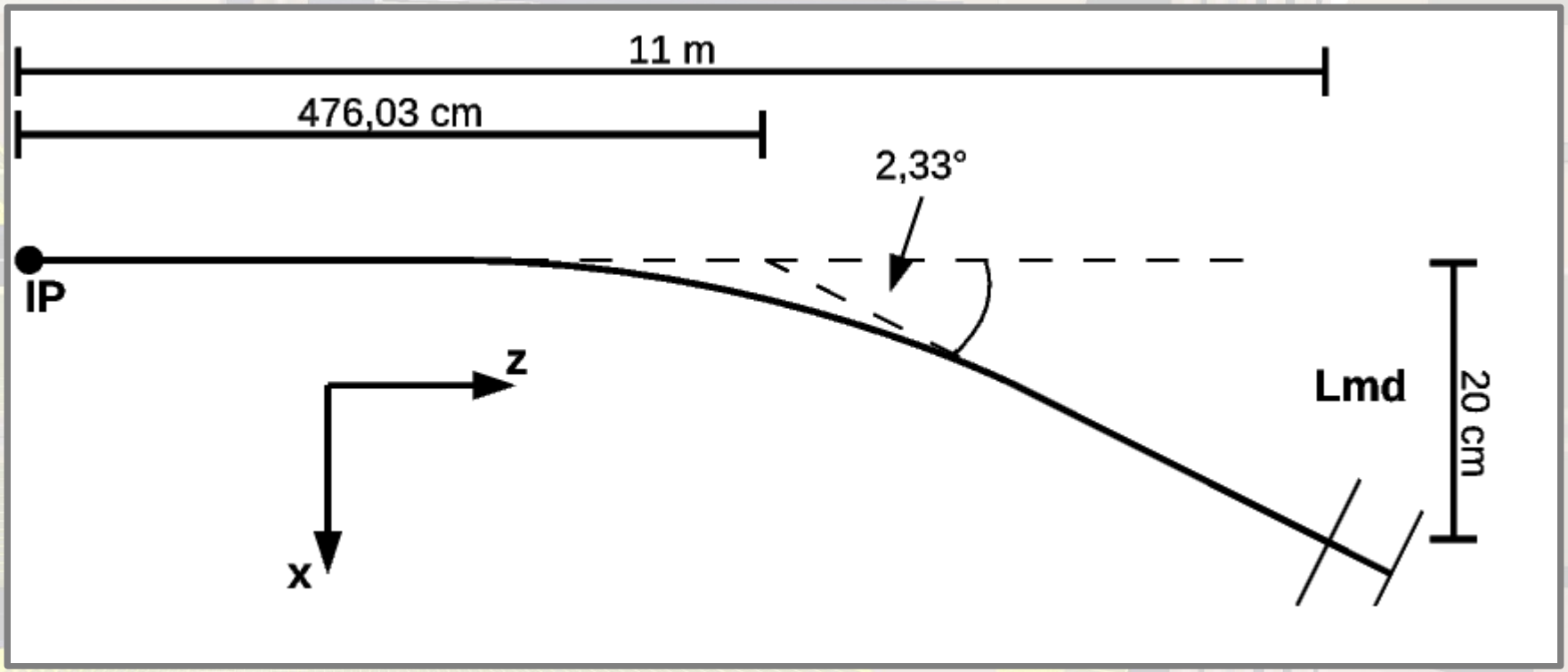
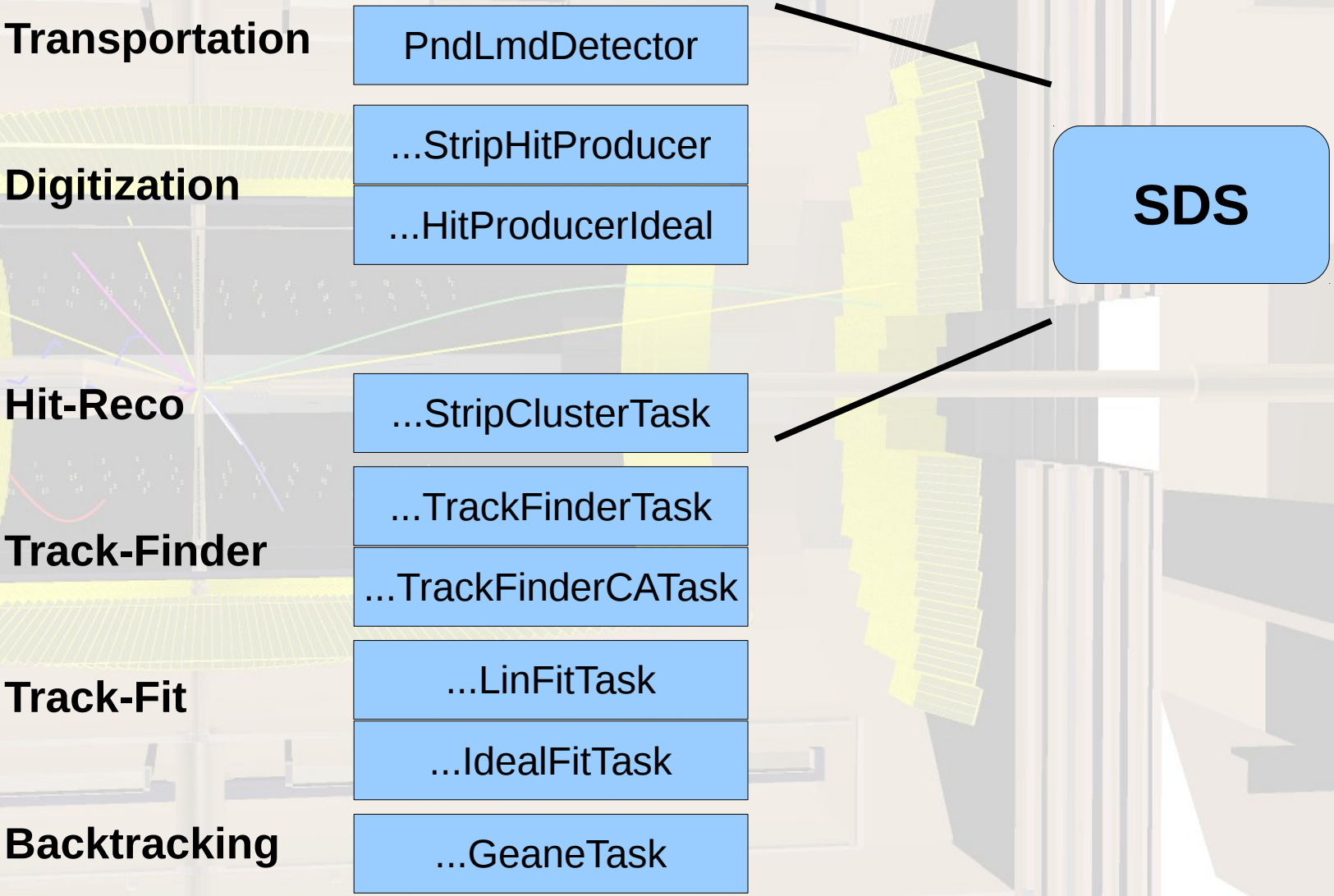
Lumi Software Update: Pixels

- Software Status
- New Design
- Software Update
- Differences to Strip-Sensor Design
- Outlook

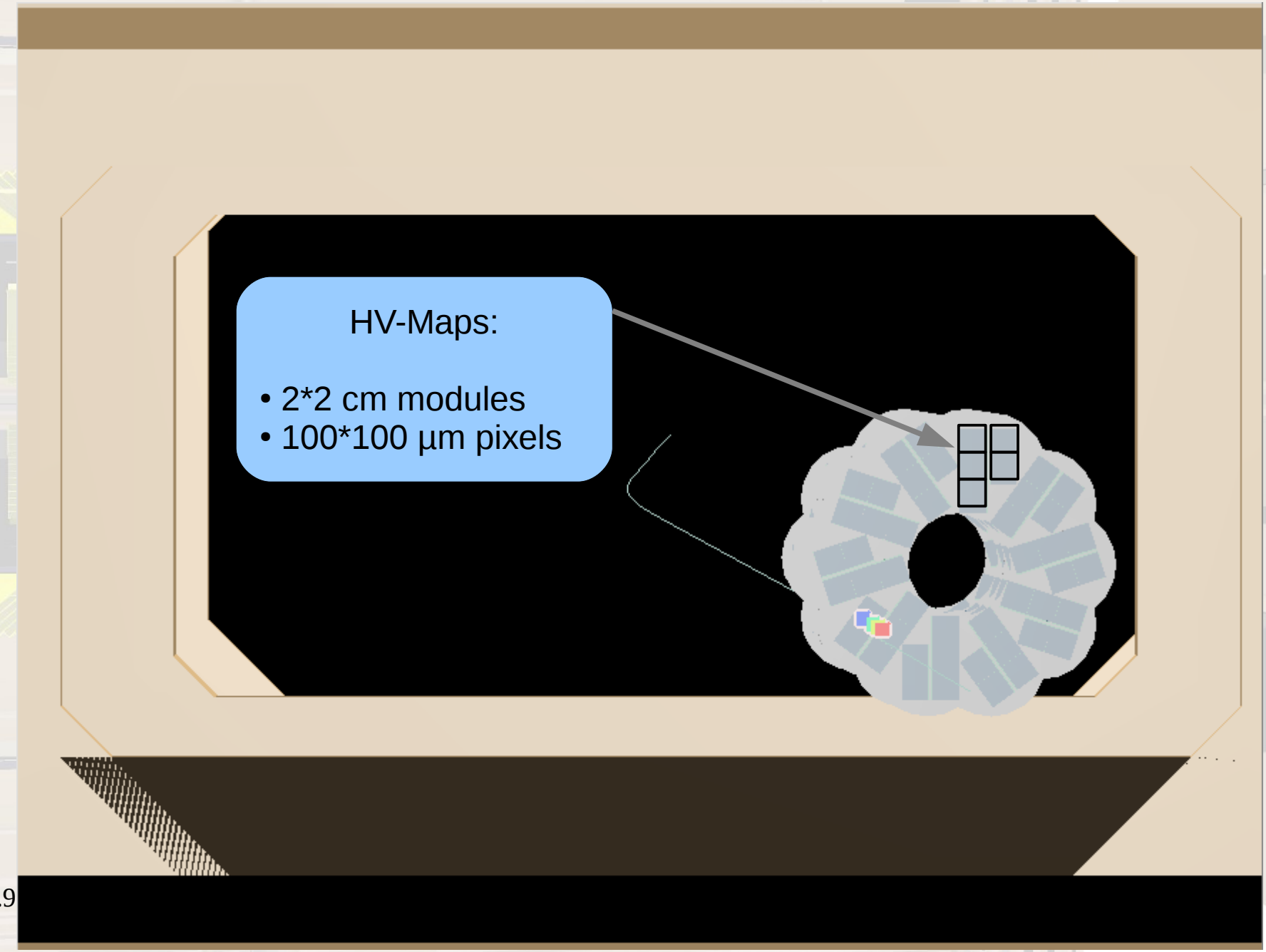
Luminosity Detector (Lumi)



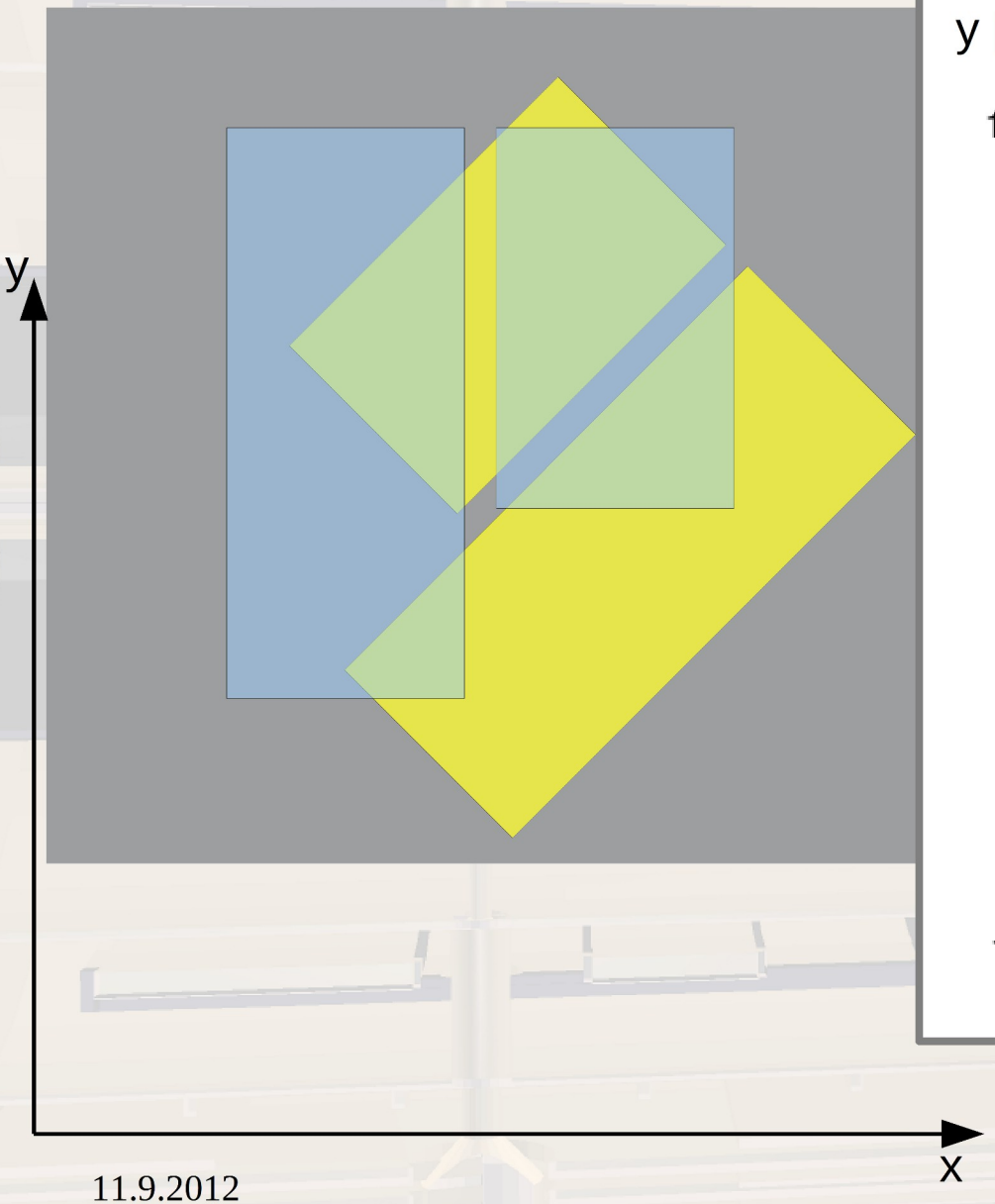
Lumi Software before Pixels

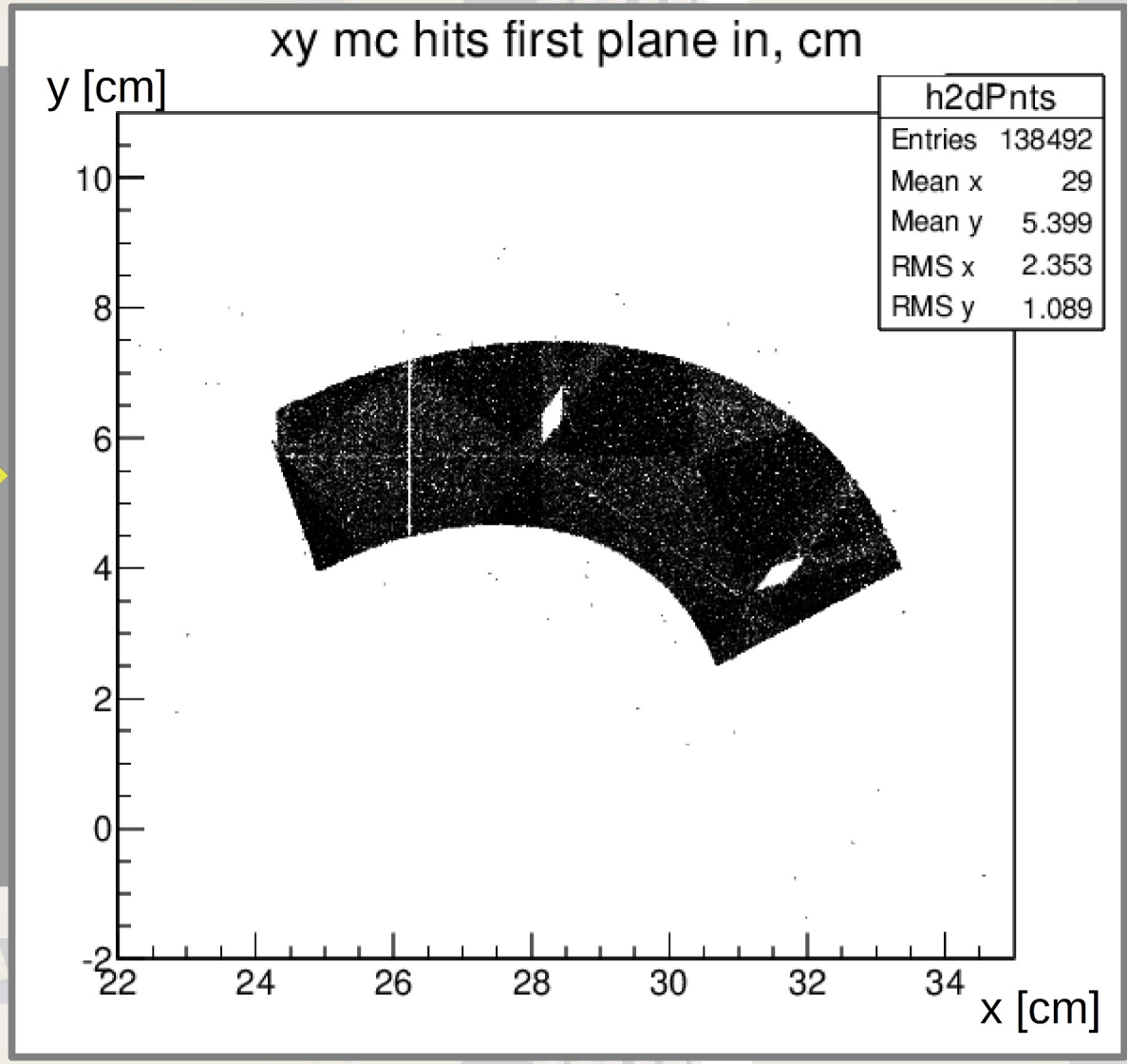


New Lumi Design with Pixels

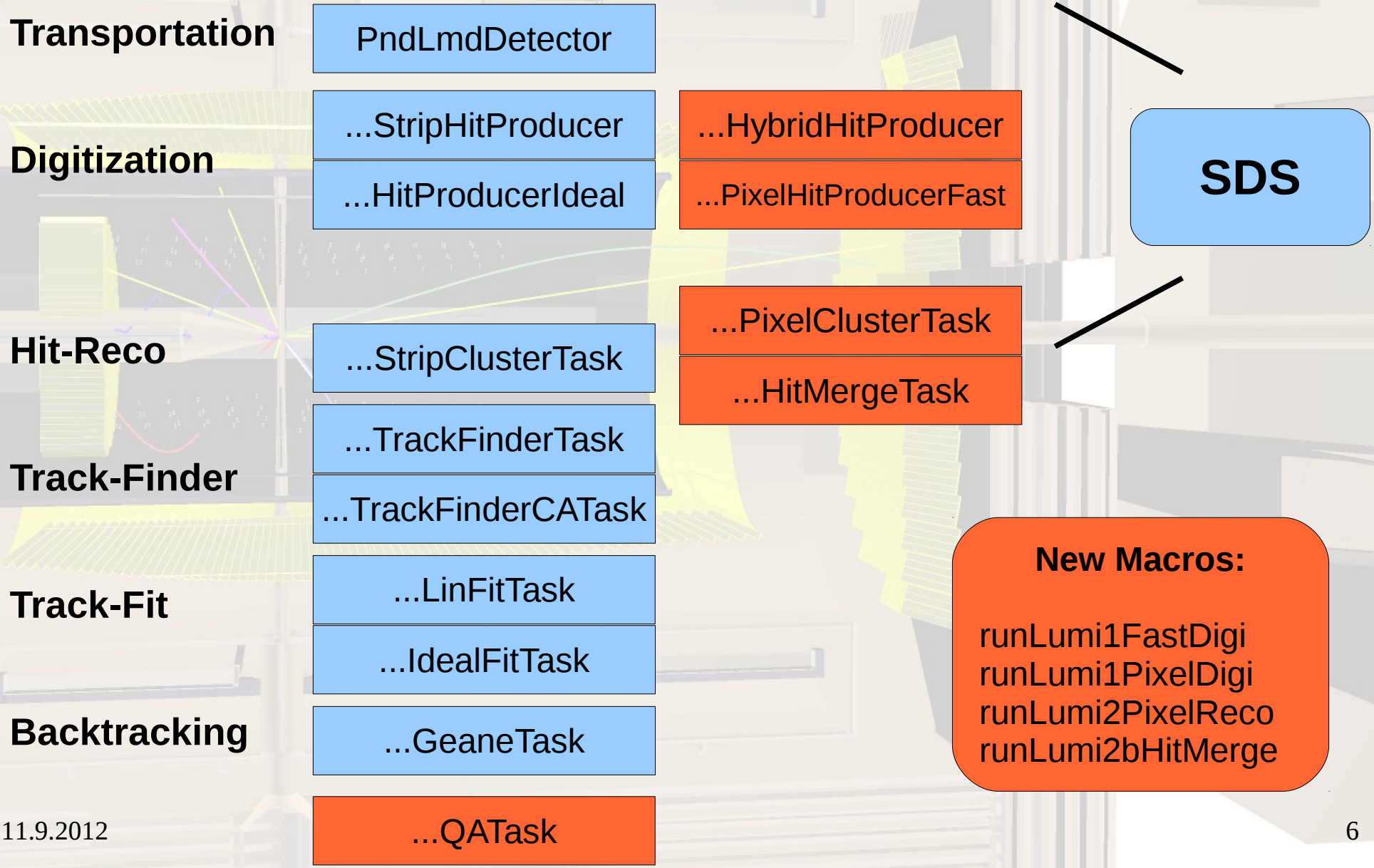


New Lumi Design with Pixels





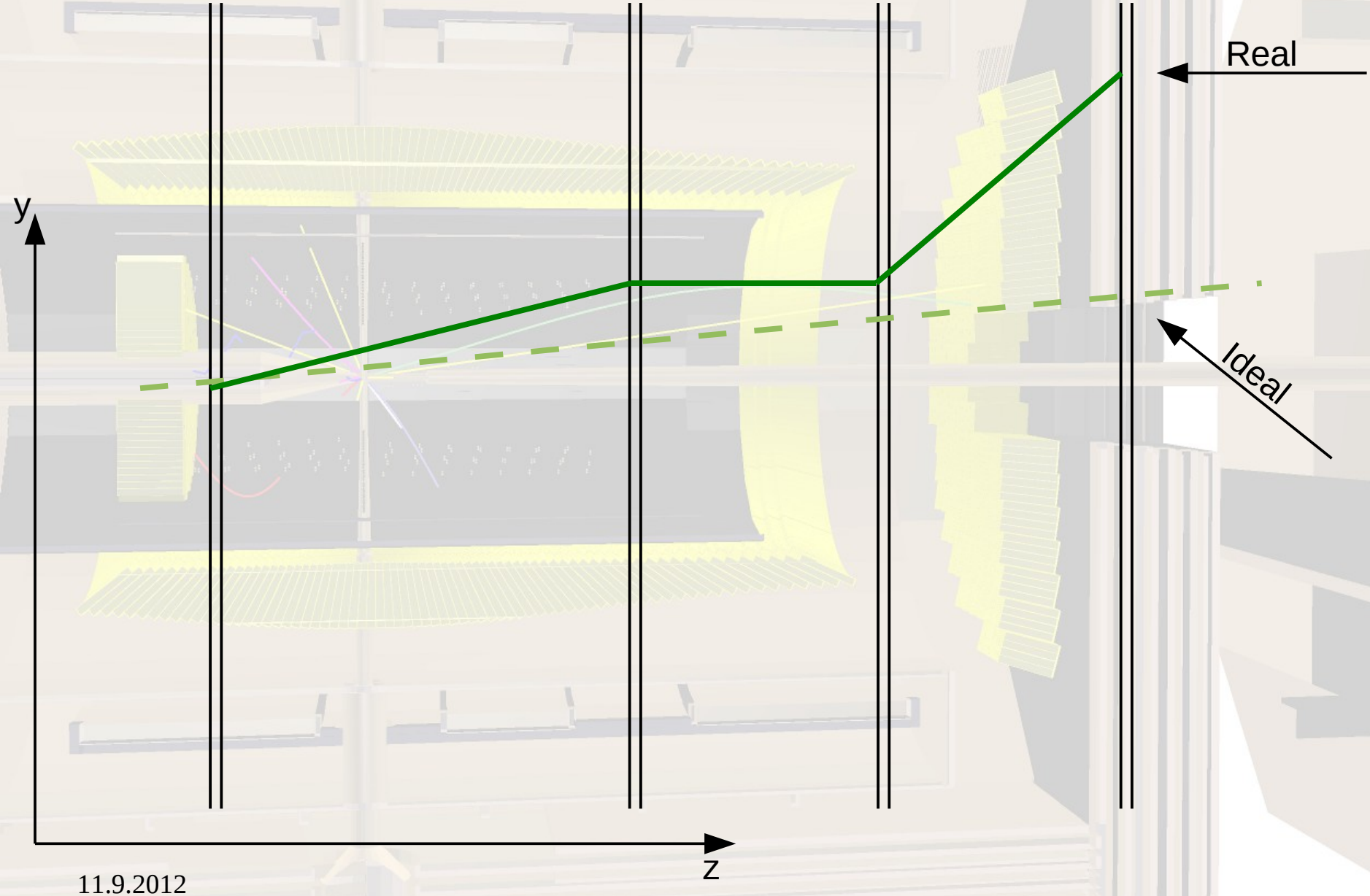
Lumi Software Update



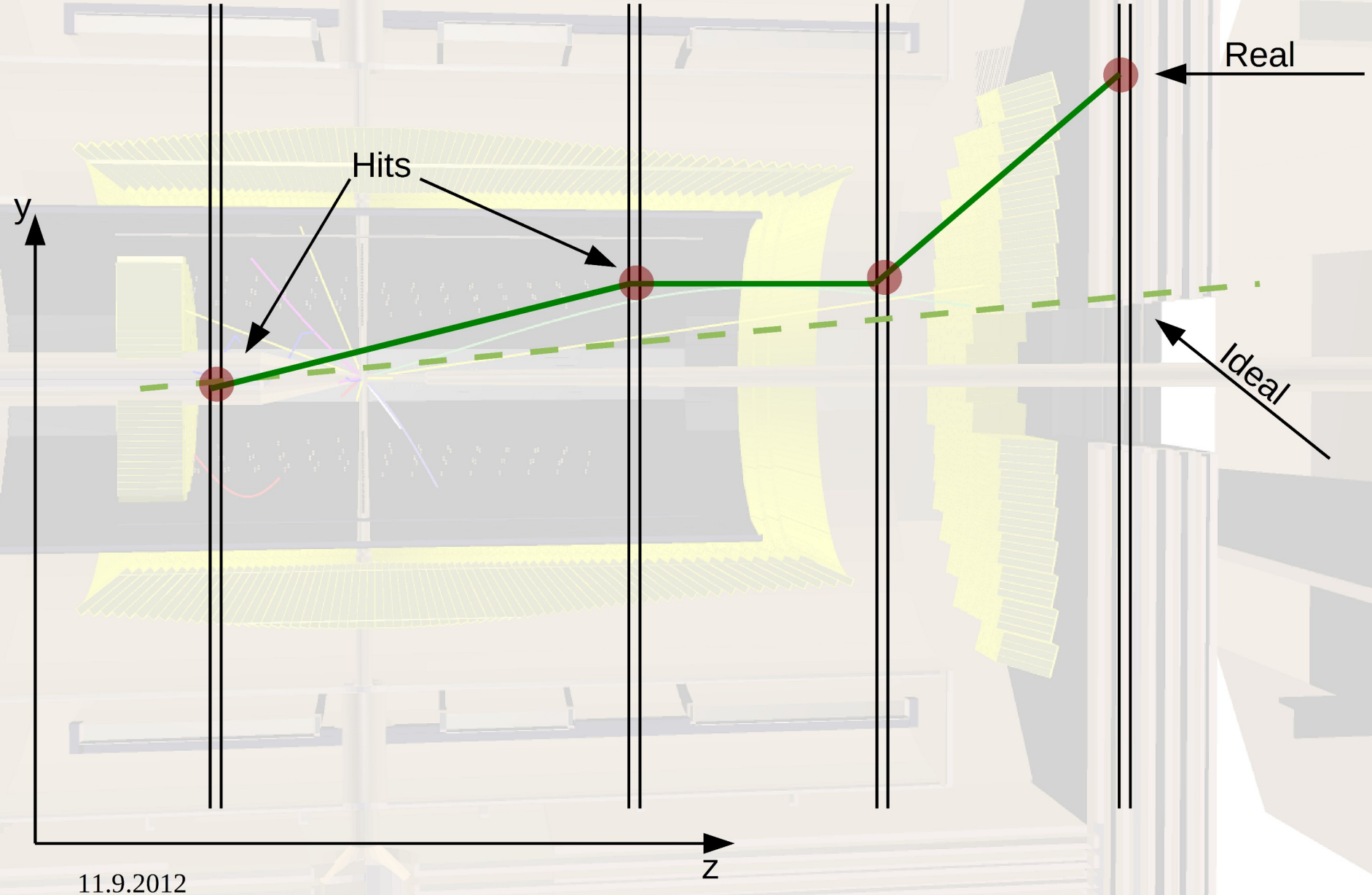
New Macros:

runLumi1FastDigi
runLumi1PixelDigi
runLumi2PixelReco
runLumi2bHitMerge

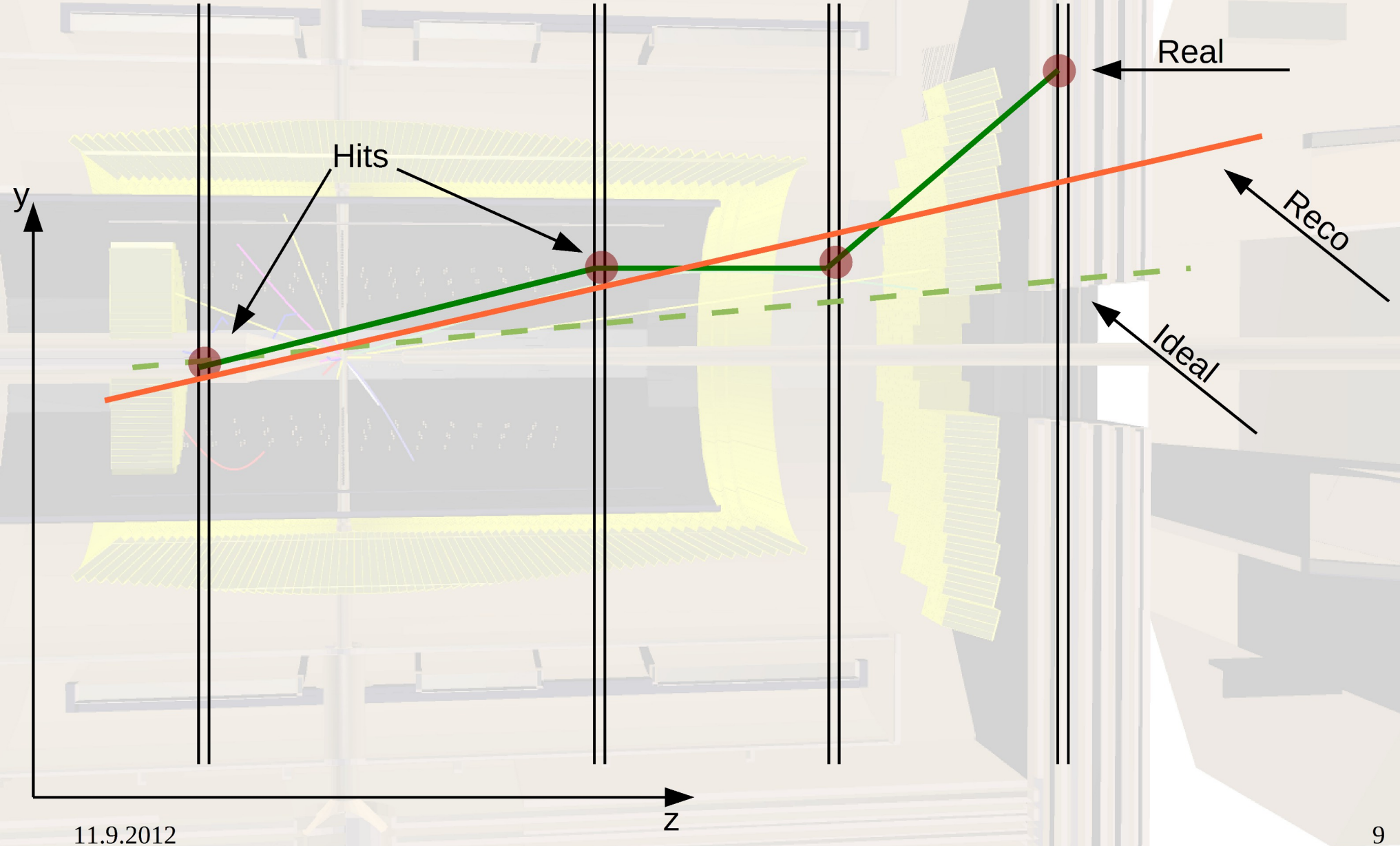
Pandaroot LmdPixel Update



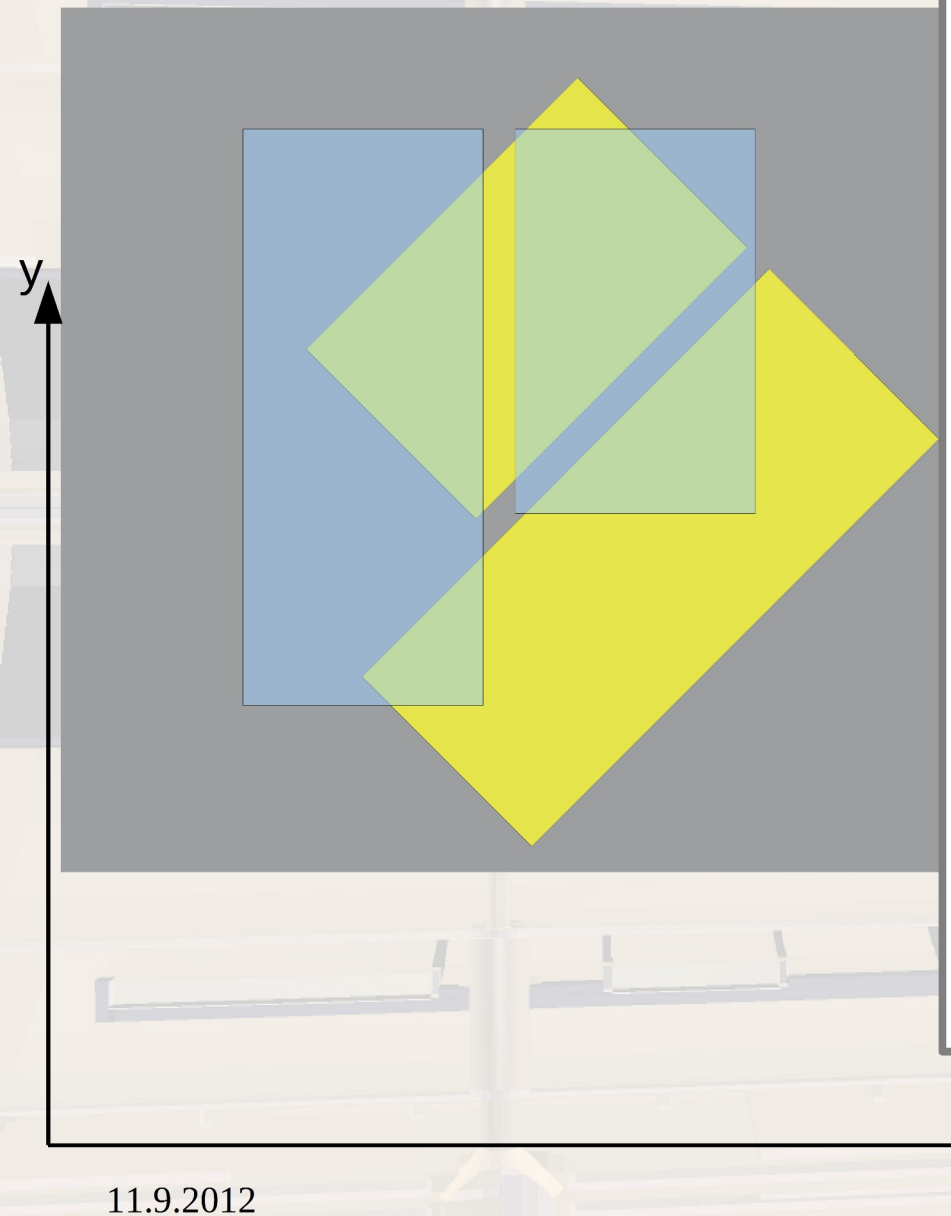
Pandaroot LmdPixel Update

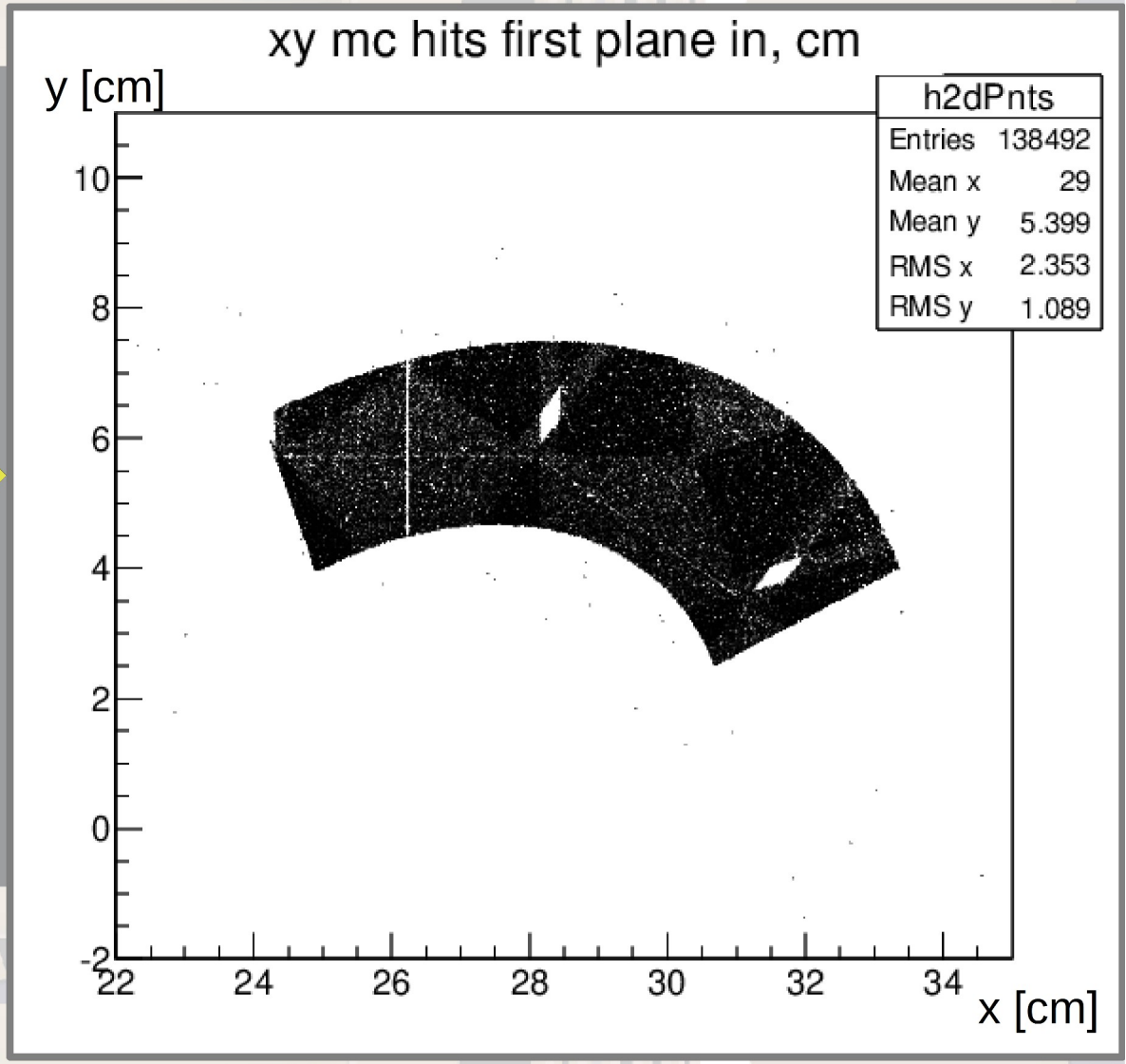


Pandaroot LmdPixel Update

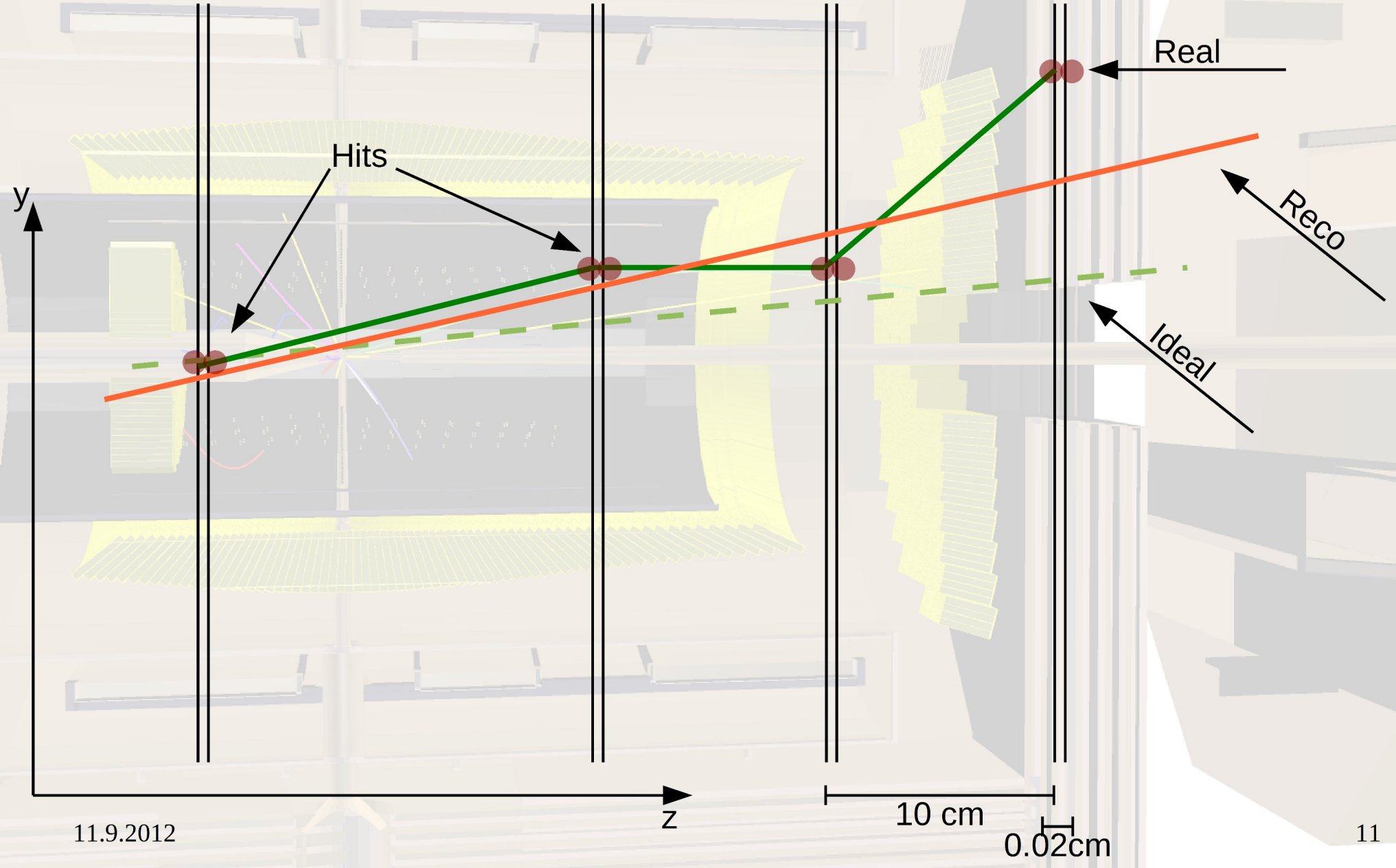


Pandaroot LmdPixel Update

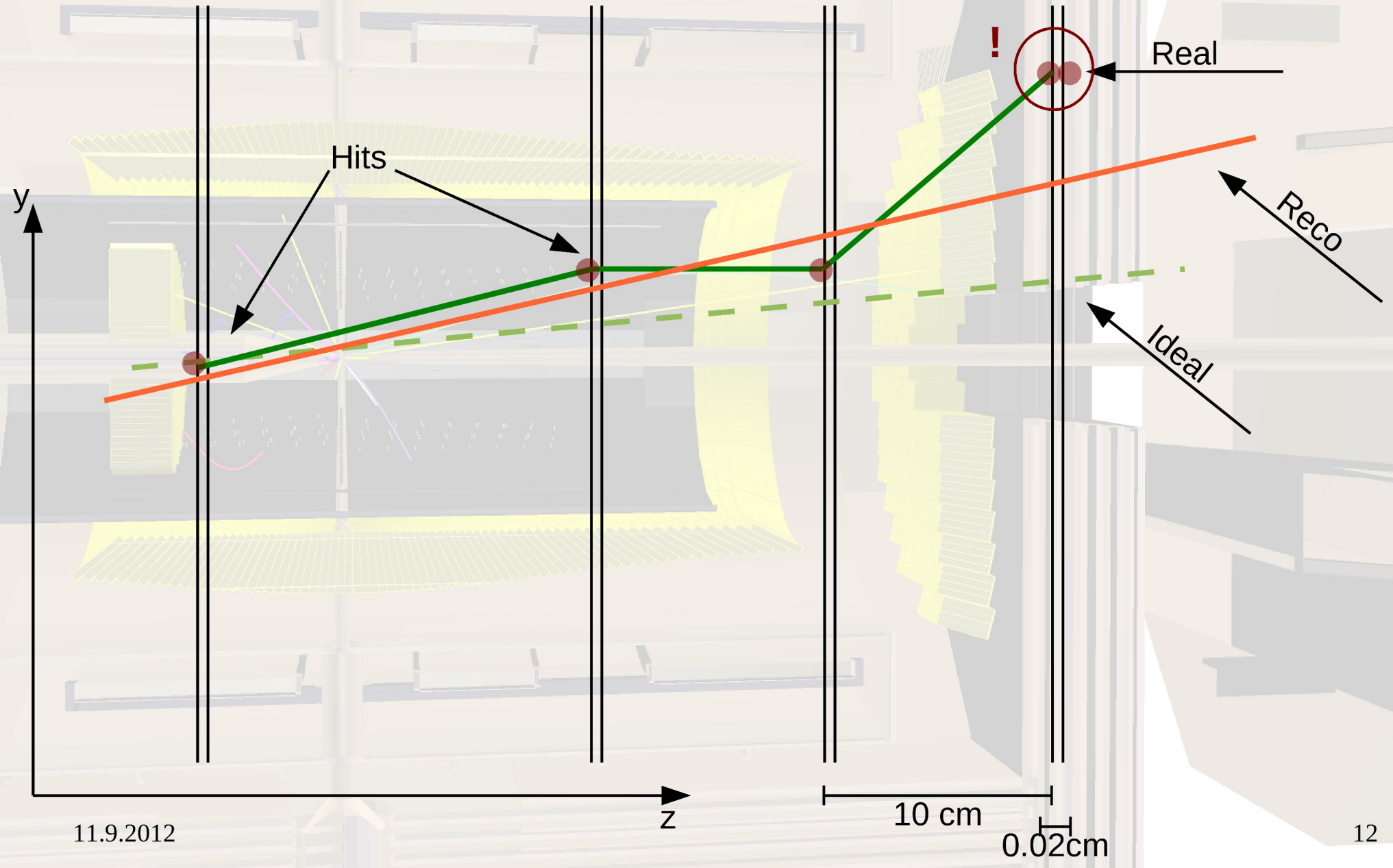




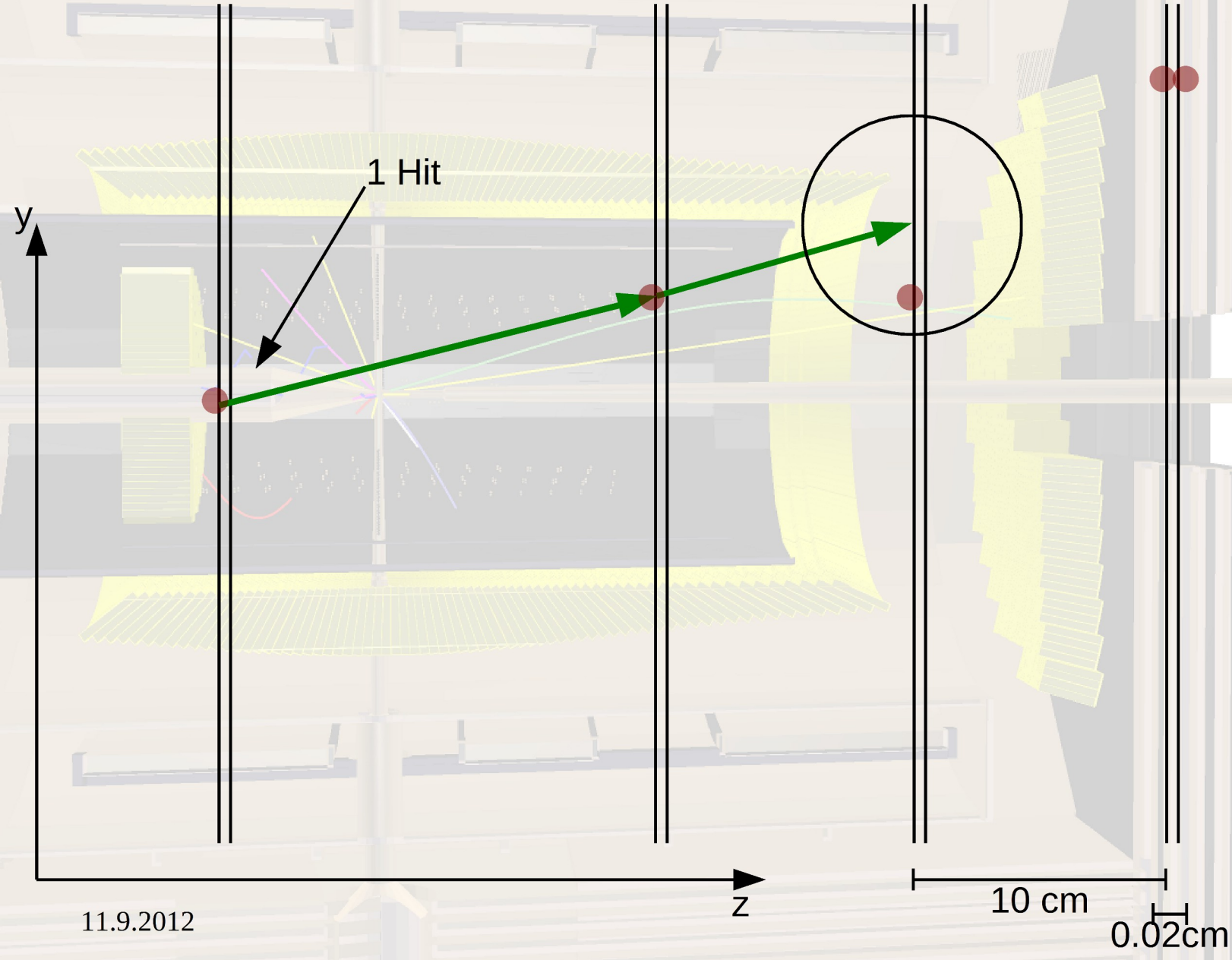
Pandaroot LmdPixel Update



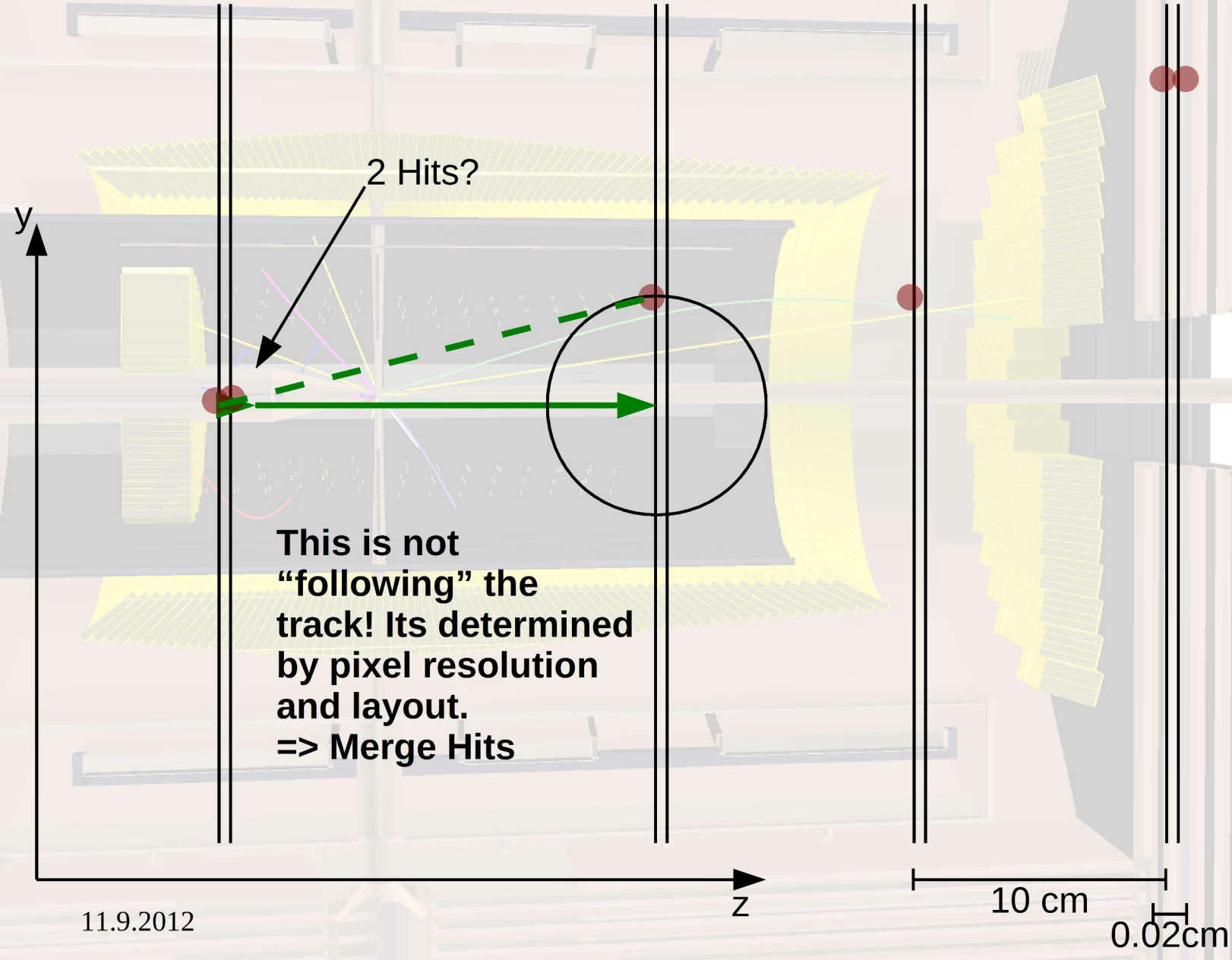
Pandaroot LmdPixel Update



Effect on Track-Follower



Effect on Track-Follower

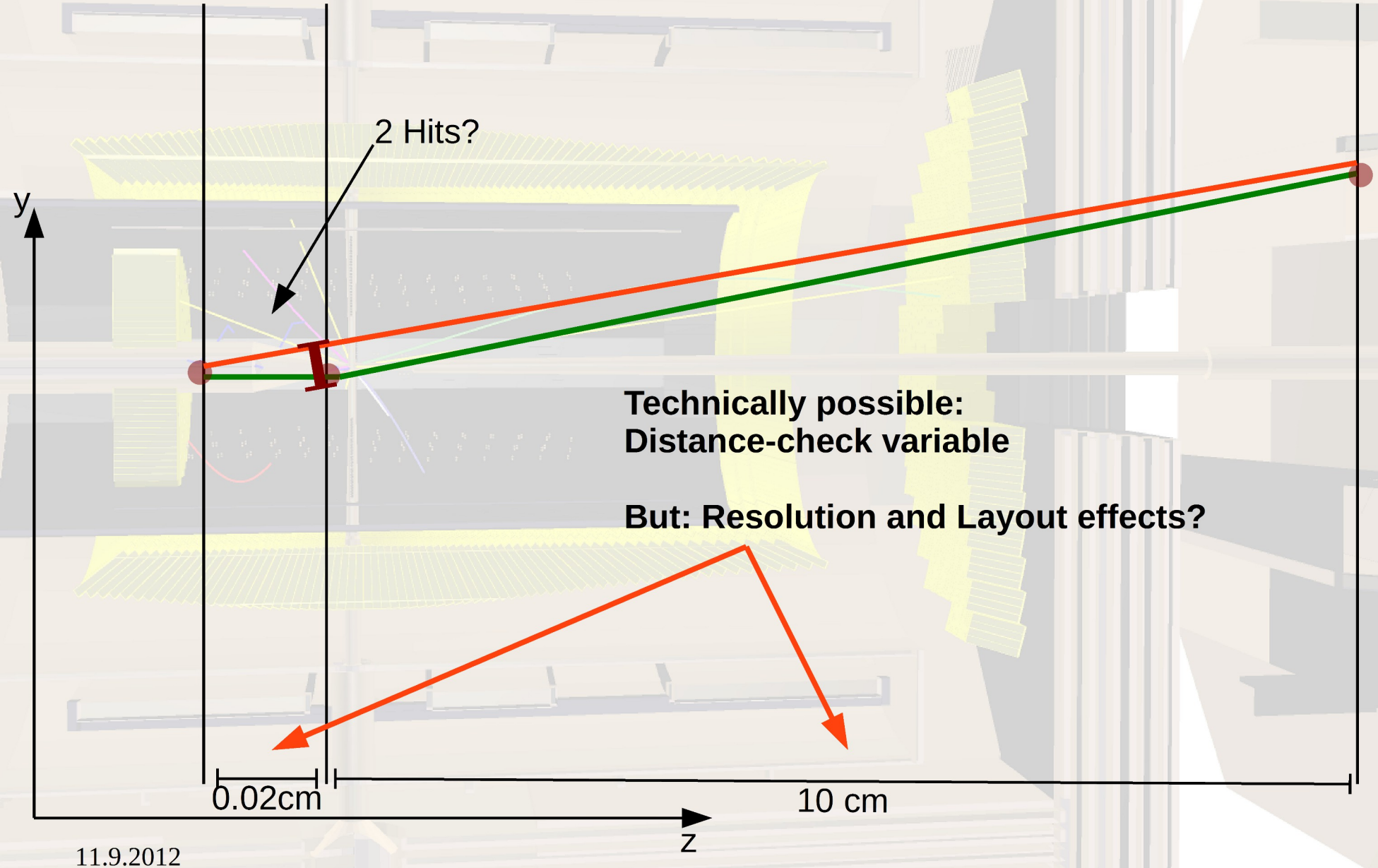


This is not "following" the track! Its determined by pixel resolution and layout.
=> Merge Hits

Hit-Merge:

- Loop hits in plane
- Check for other hits close by
- Mean Position

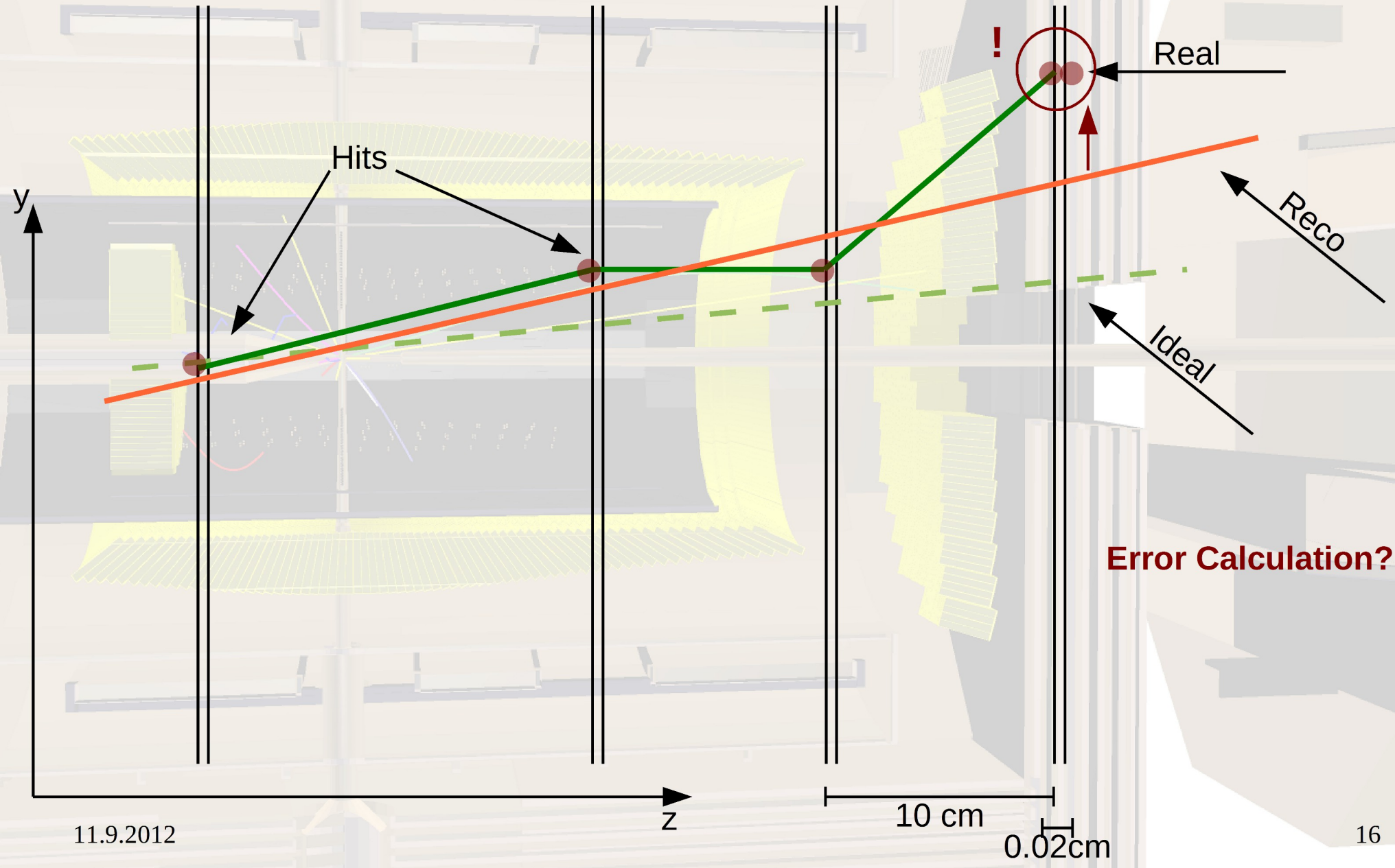
Effect on Cellular Automaton



Technically possible:
Distance-check variable

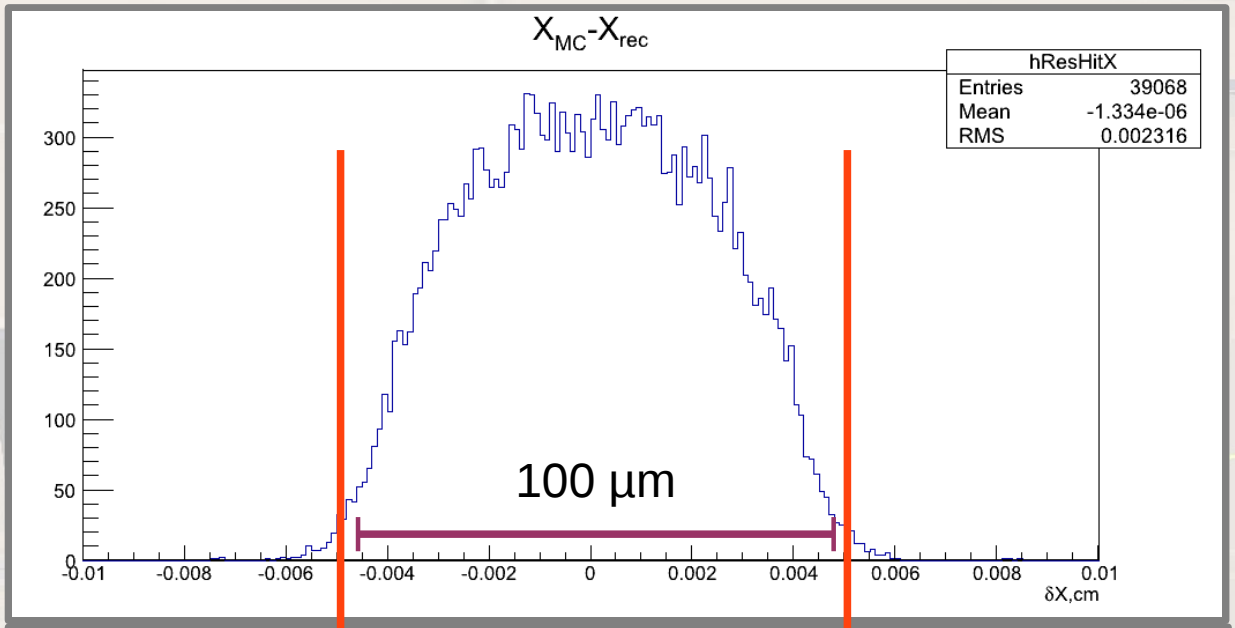
But: Resolution and Layout effects?

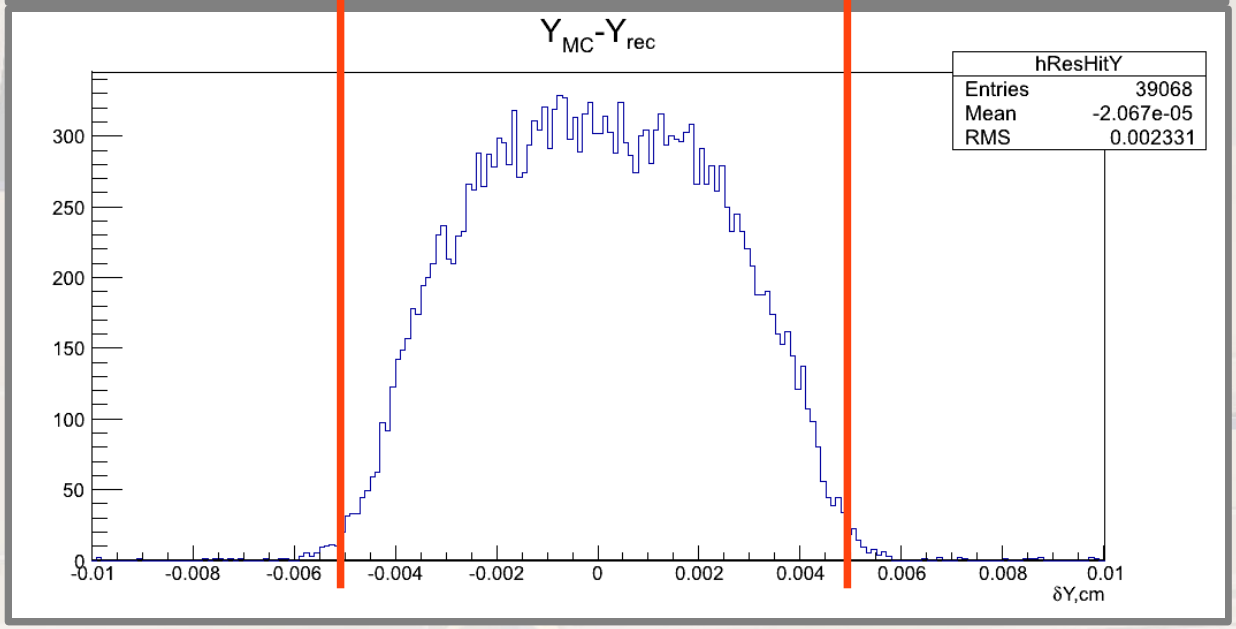
Effect on Trackfit

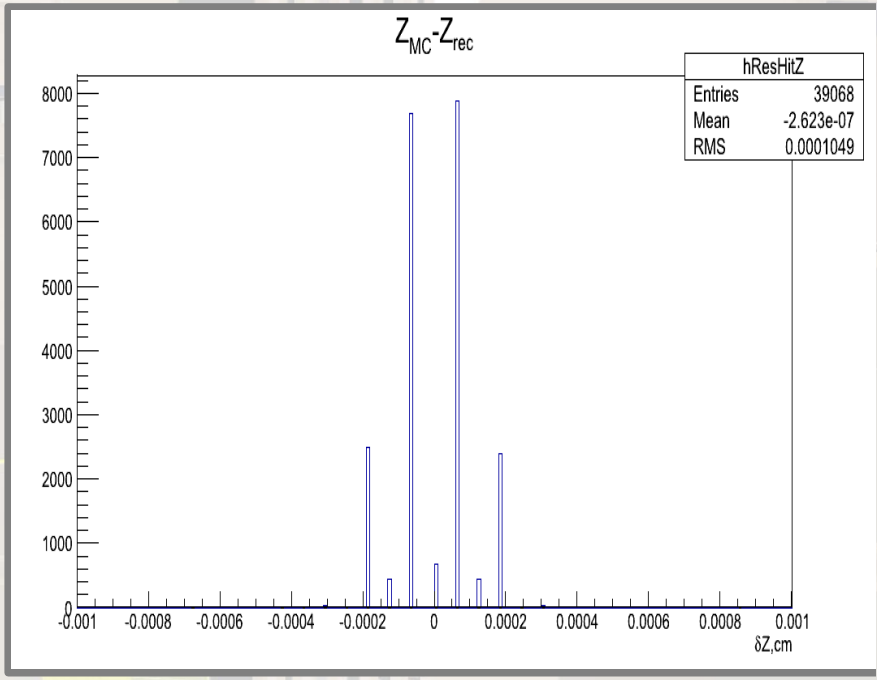


Error Calculation?

Hit-Resolution



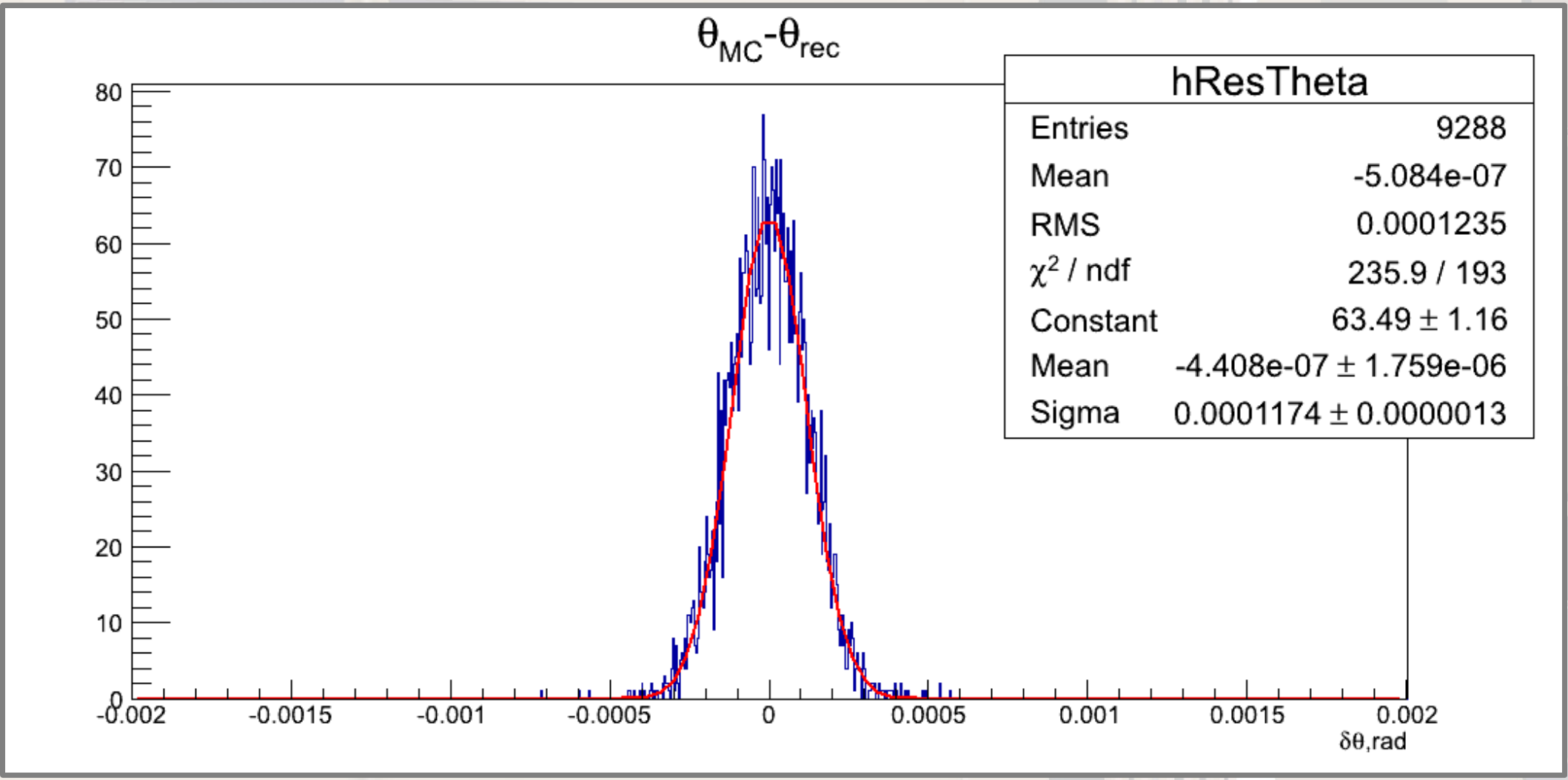




4 µm

Dipole rotation
=> Backmapping to
local Lumi coordinates

Polarangle-Resolution



Outlook

Hit Reconstruction:

- Pixel Reco in local coordinates

Tracking:

- Update Cellular Automaton
- Test “multiple hit per plane” search
- Test “multiple hit per plane” fitting
- Check more sophisticated trackfit like Kalman

General:

- Optimize Pixel-Design
- Comparison with Strip-Design
- Check effects of hole in acceptance