

TRACKER CONFIG

Weeks until 10/10

Overview and next steps

Recap of the summer:

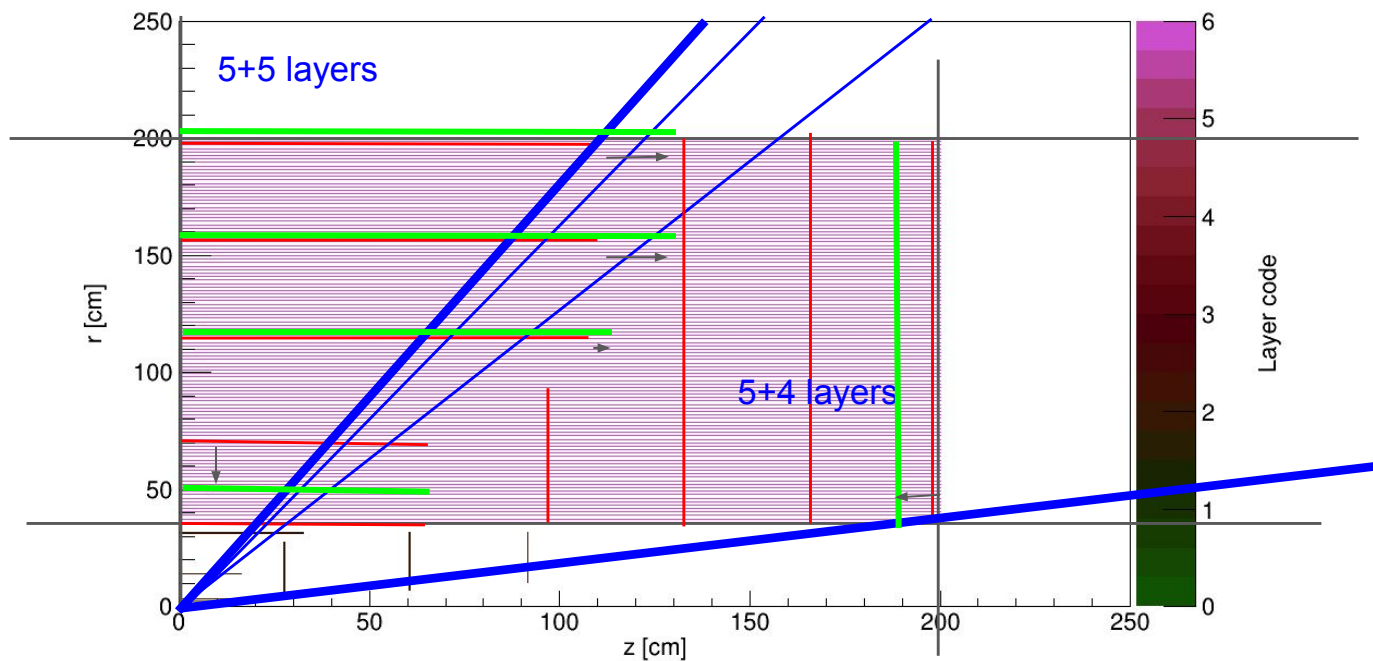
- Fine-tuned the default IDEA vertex detector in Delphes, to be compatible with the FullSim layout and material budget
- Studied several alternative vertex detector options and compared to the default:
 - 3T magnetic field (default has 2T)
 - First vertex layer on top of beam pipe
 - Short barrel with endcap discs
 - First vertex layer inside beam pipe
- Metrics used are impact parameter resolutions d_0 and z_0

Further studies to be done in the next weeks:

- Include momentum resolution to the analysis (in addition to d_0 and z_0)
- Implement (simple) silicon tracker geometry in Delphes + analyze effects on resolution
 - Default IDEA configuration has an excellent drift chamber, results could be biased towards it
 - Silicon tracker to be compatible with drift chamber volume
- Re-analyze short barrel with reduced material budget (MAPS-like)

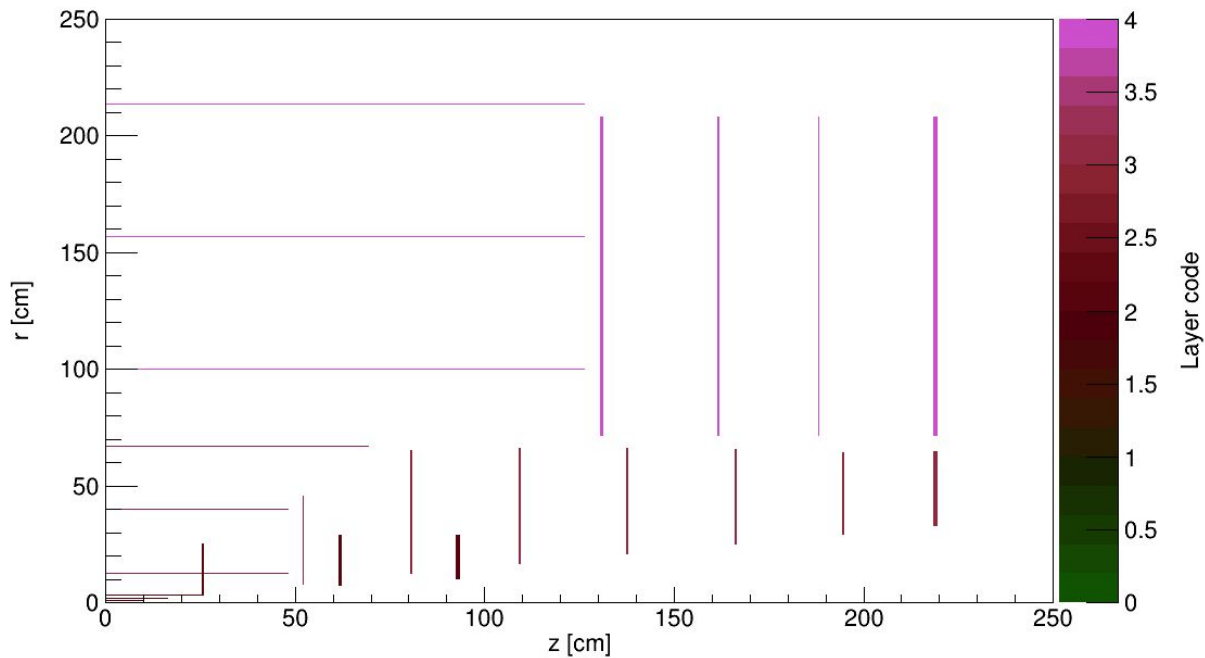
IDEA VTX + DRIFT + SI TRACKER (PROPOSAL)

- Current implementation: VTX+drift chamber layers
- In red: SI tracker proposal (see next slides)

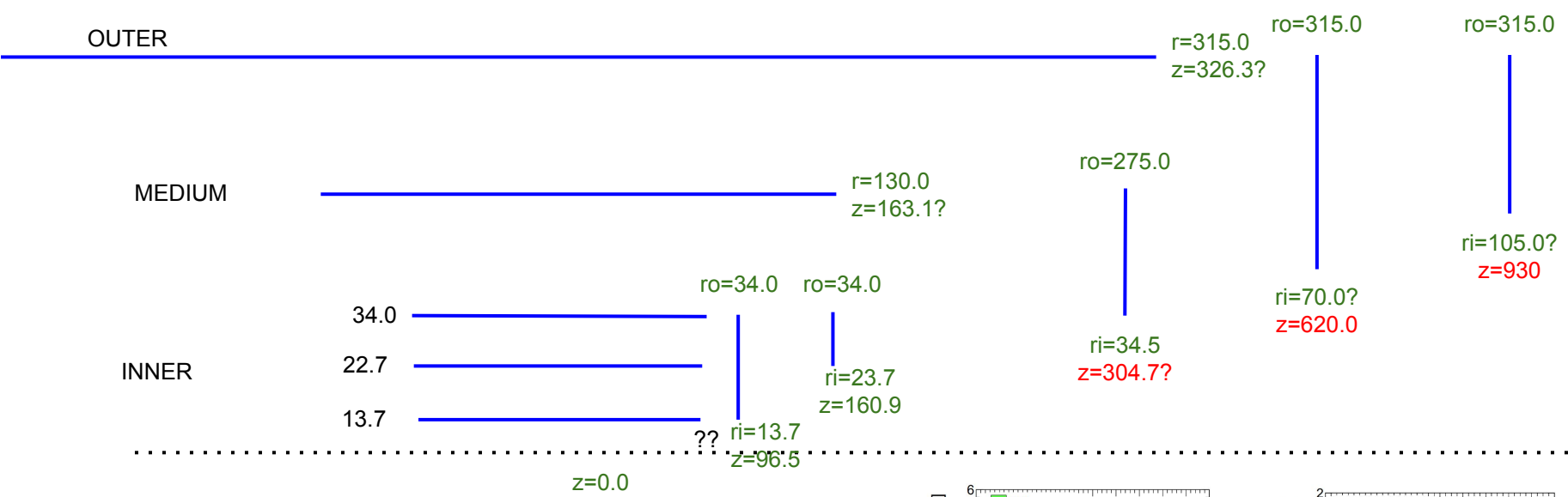


SI TRACKER PROPOSAL

- SI tracker isolated



Short inner barrel



- Short barrel+end caps for the inner vertex and **current layout for the outer and disks**
- Reduce radiation length X_0 of first 3 layers from $1X_0$ to $0.4 X_0$ to be MAPS-like

