



Tracking Simulations for the 2nd EIC Detector

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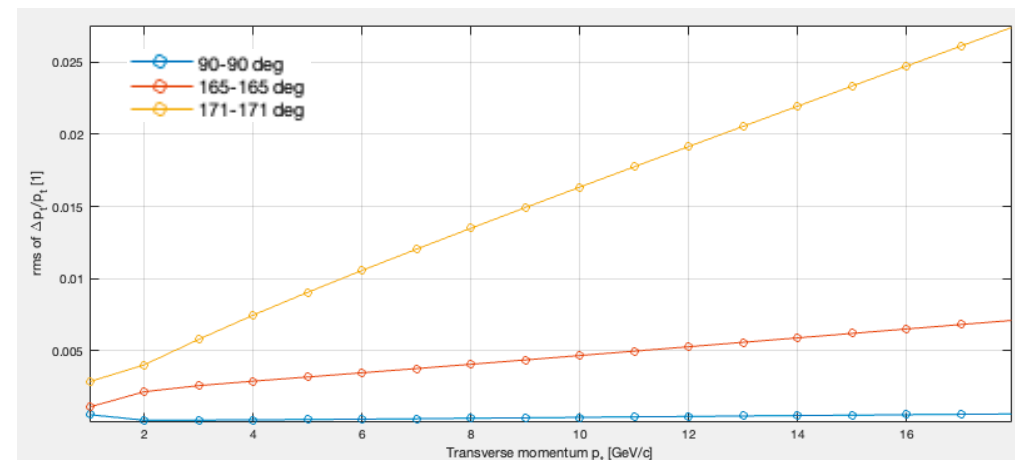
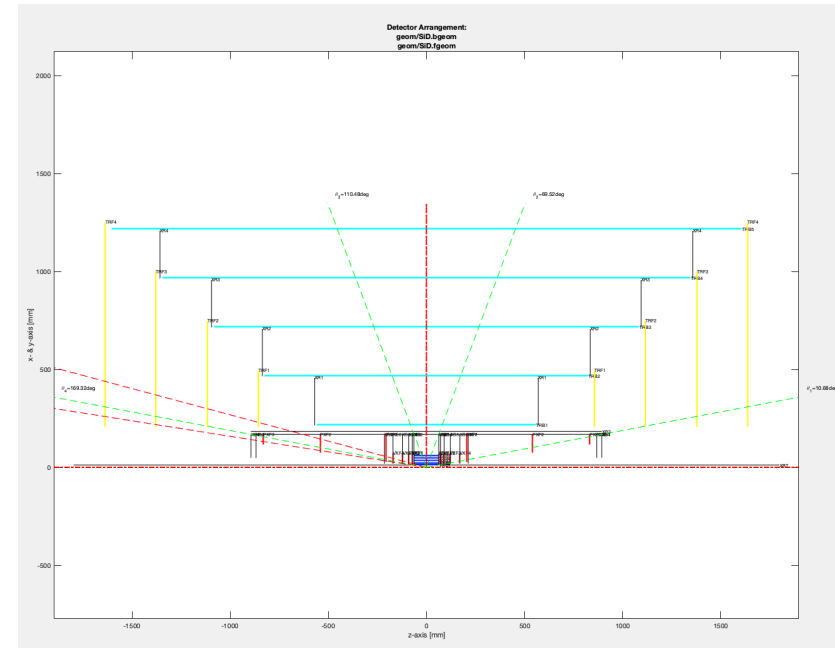
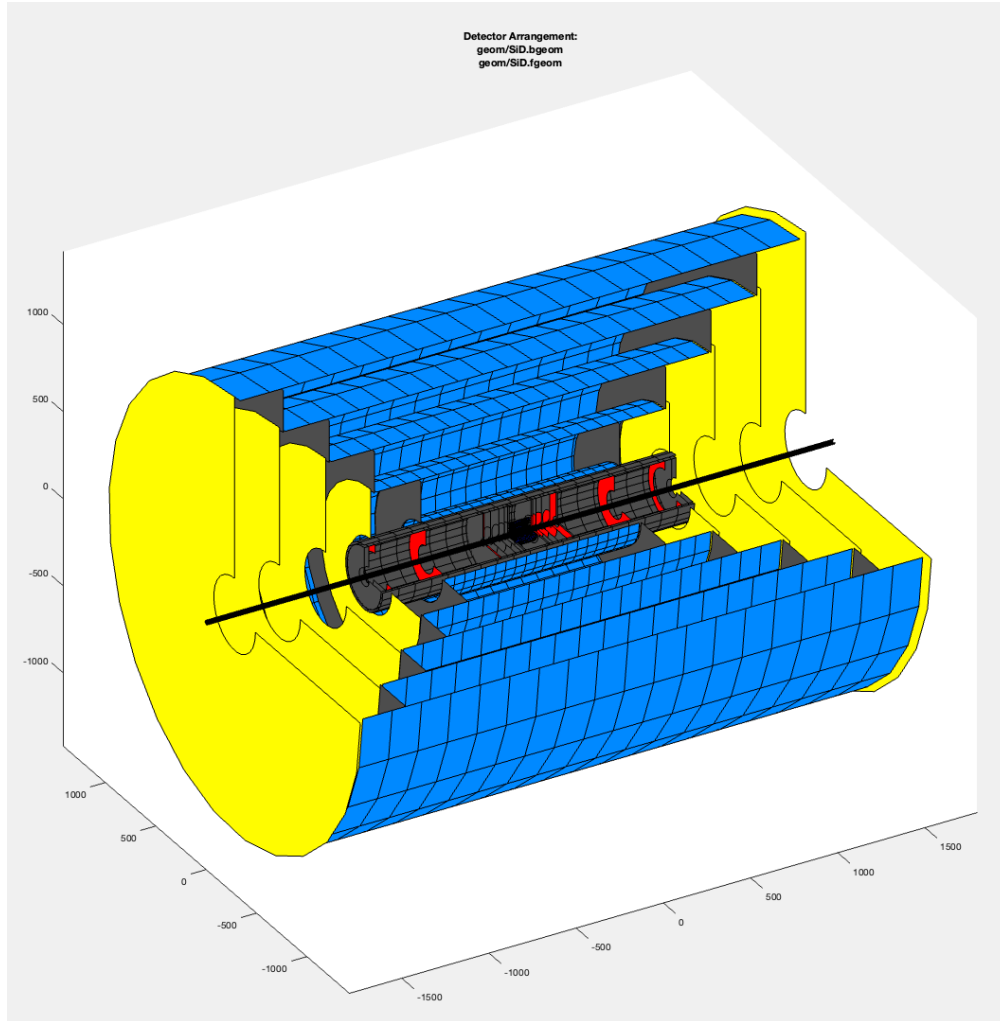
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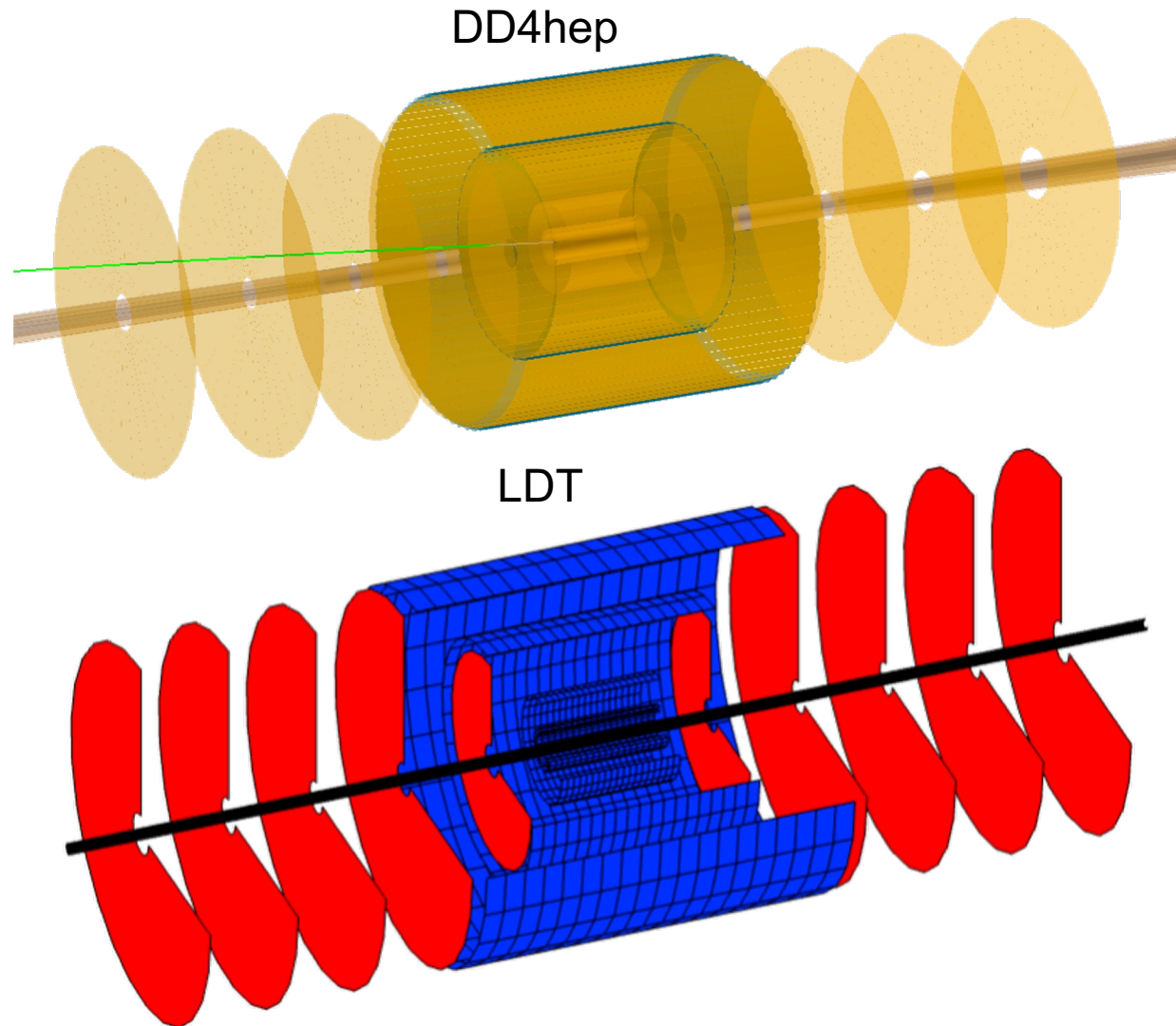
This Update

- Notes of tracking simulation with DD4hep is close to finish
<https://www.overleaf.com/read/hyxjmdcypqzt#e5d3b7>
- Running LDT (MATLAB fast simulations)
- Issues of p_T resolutions and efficiencies with EICrecon

Example Detector Setup in LDT



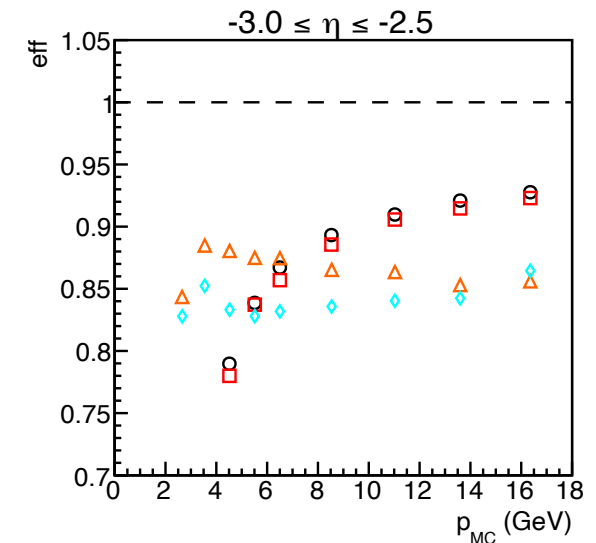
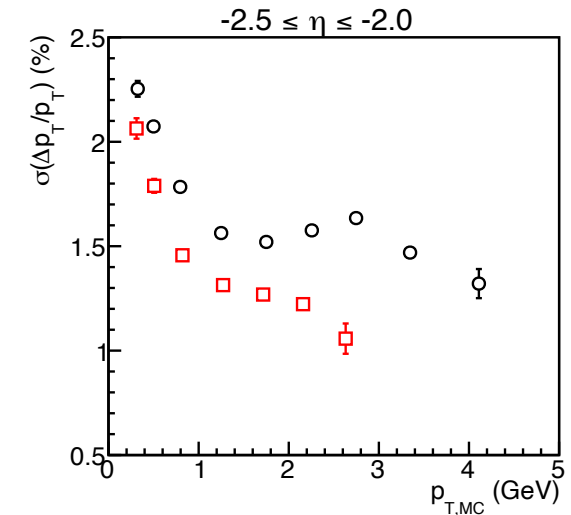
ePIC Setup in LDT (in Progress)



- ✓ Silicon geometry of the inner tracker
 - ✓ Barrel silicon tracker
 - ✓ Backward silicon disks (Backward and forward directions are symmetrical)
- ✓ Beam pipe
- Supporting/service
- Radiation lengths of each component

Issues with p_T Resolutions & Efficiencies

- Brought up the issues to the ePIC track reconstruction meeting on Thursday (<https://indico.bnl.gov/event/22176/>)
- Several suggestions from Barak, Shujie, and others
 - Use true seeding
 - Try single-track events instead of physics events
 - Loosen true-reco matching requirements ($\Delta\phi$)
 - My material maps may be incorrect
 - Work with Shujie to write a new script that runs the latest ACTS material map Python scripts



To-Do List

1. LDT fast simulation
Setup ePIC backward tracking system in LDT
as the baseline design
2. DD4hep
 1. Try