LFHCal simulation progress

February 1, 2023

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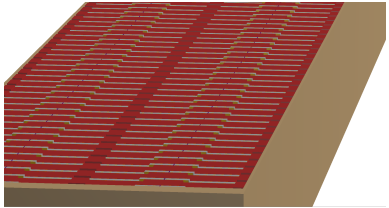
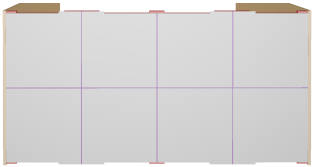
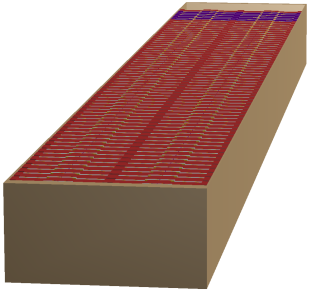
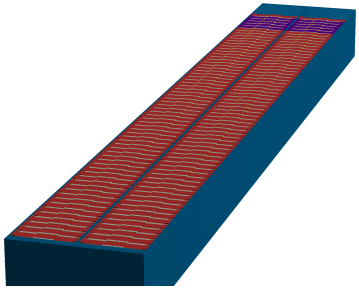
Module Implementation



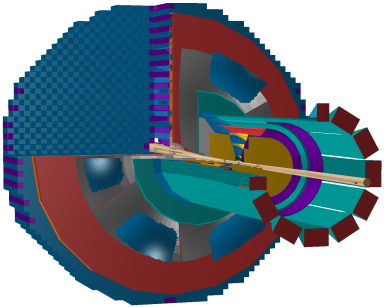


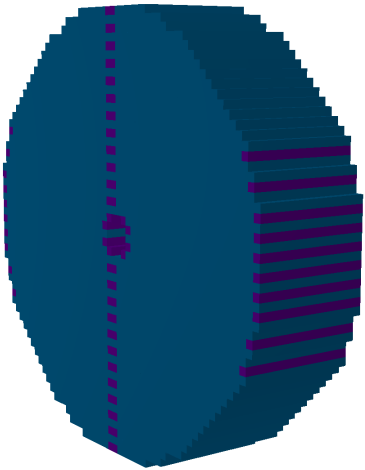




- First implementation of detailed 4M & 8M geometries doen with internal tower structures
- Correct dead area implementation according to technical drawing (small modifications in inactive area)
- Left out WLS fibers for now, computation time as is already extensive
- Solved memory problems & can now run full fledge simulations

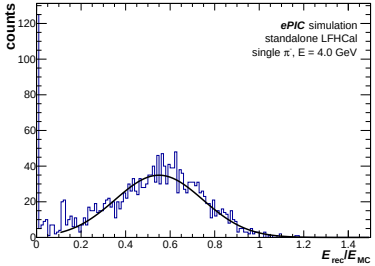
Realistic Geometry Implementation for EPIC

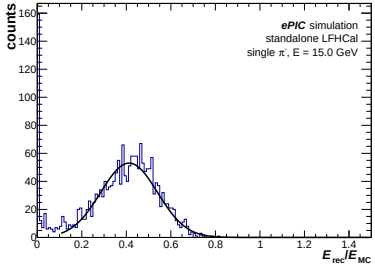


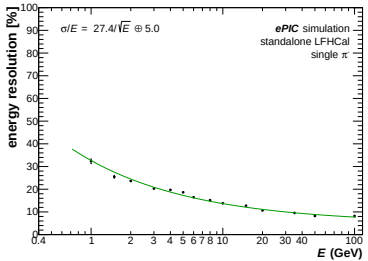


- Changes currently tracked in , in the process of merging into eic/epic
- Readout now correctly structured in x, y, and 65 z layers, working on combining them correctly for tower segments in z
- Sampling fraction slightly dependent on η 0.43-0.42 $\sim 1.5 < \eta < 3$, 0.35-0.37 at $\eta = 4$ (to be verified)

First steps in eic-recon







- Currently still in private branch
- Full hit summation for single particles (no proper cut-offs yet in time or E)
- Access to cell IDs from dd4hep
- No proper calibration yet (offset in energy)
- Next steps adapting hit classes to carry cell/tower IDs & build ID based clusterizer