Drift Chamber Occupancy Studies Using Bhwide Bhabha Monte Carlo Generator: September 27, 2010

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Major Changes to FastSim (V0.2.5):

-New voxel system for track navigation (many bugs fixed)
-Fixes and modifications to the Dch geometries
-Added Parent Track ID info to PacQA ntuples (see PacQA/trunk/src/PacSimTrackTest.cc)
-Added and tested a preliminary FastSim beamshield (test results to follow below)
-Looking to improve capabilities of EDML parser to enable easier geometry creation in future

Important Notes:

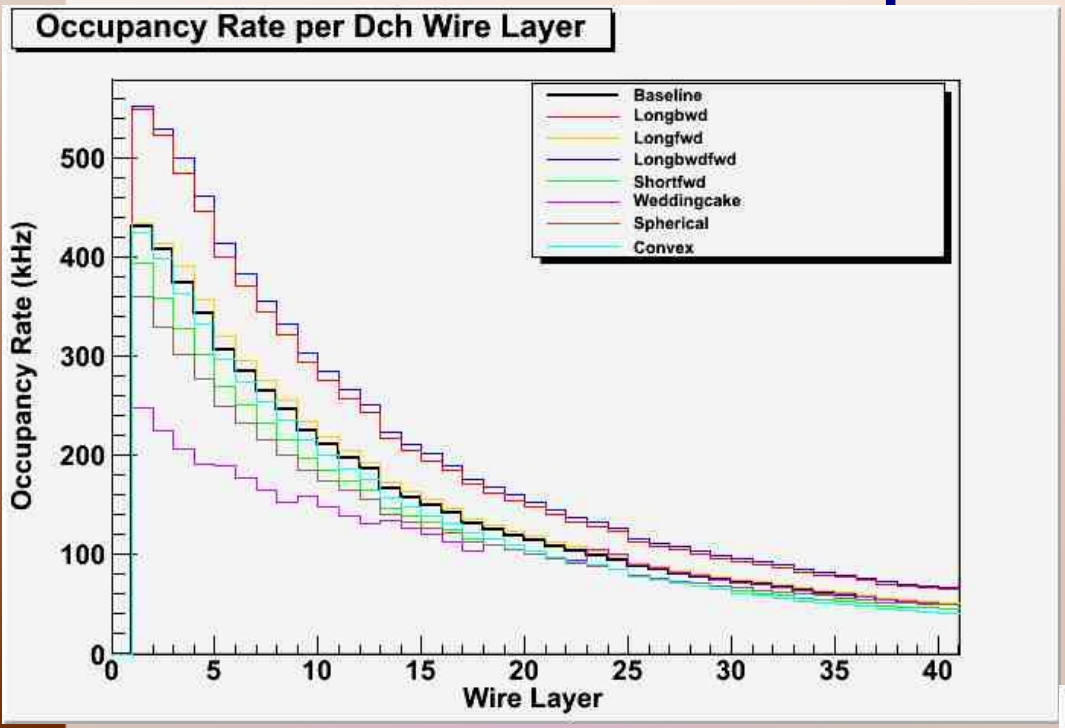
-All simulations run with Bhwide Monte Carlo generator

-30k Monte Carlo events for unshielded results (angles between 5° and 173°), 60k Monte Carlo events for shielded results (angles between 2° and 178°)

-Higher statistics now needed, especially for shielded results

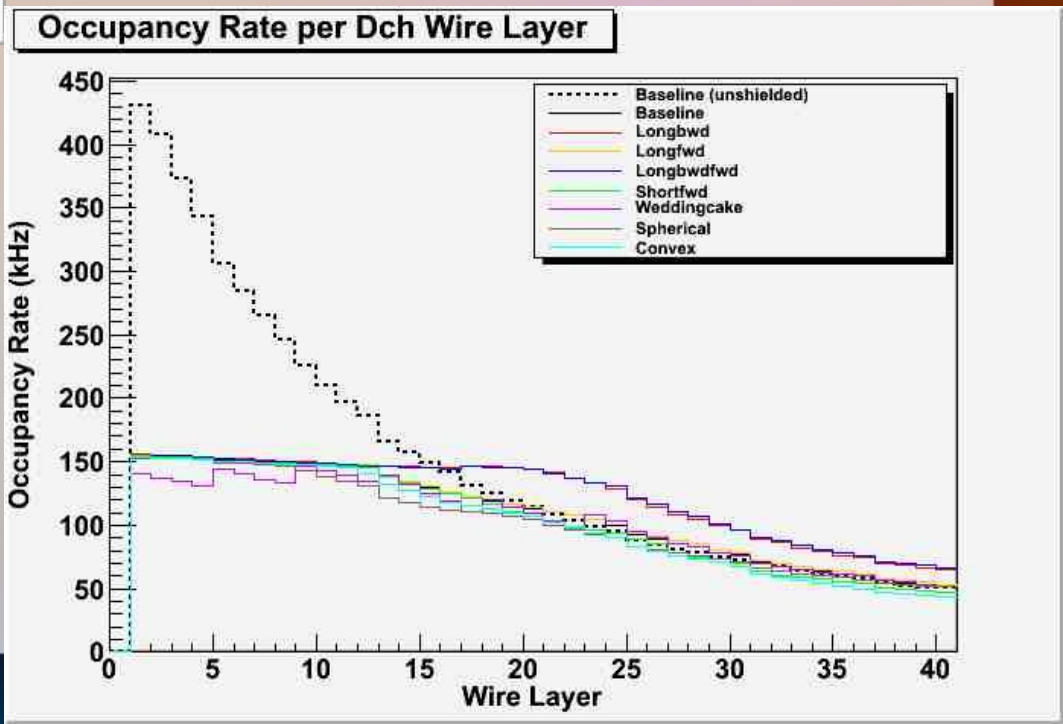
-Wire radii may need to be re-evaluated to match new developments

Direct Comparisons of Results:



Unshielded

Shielded



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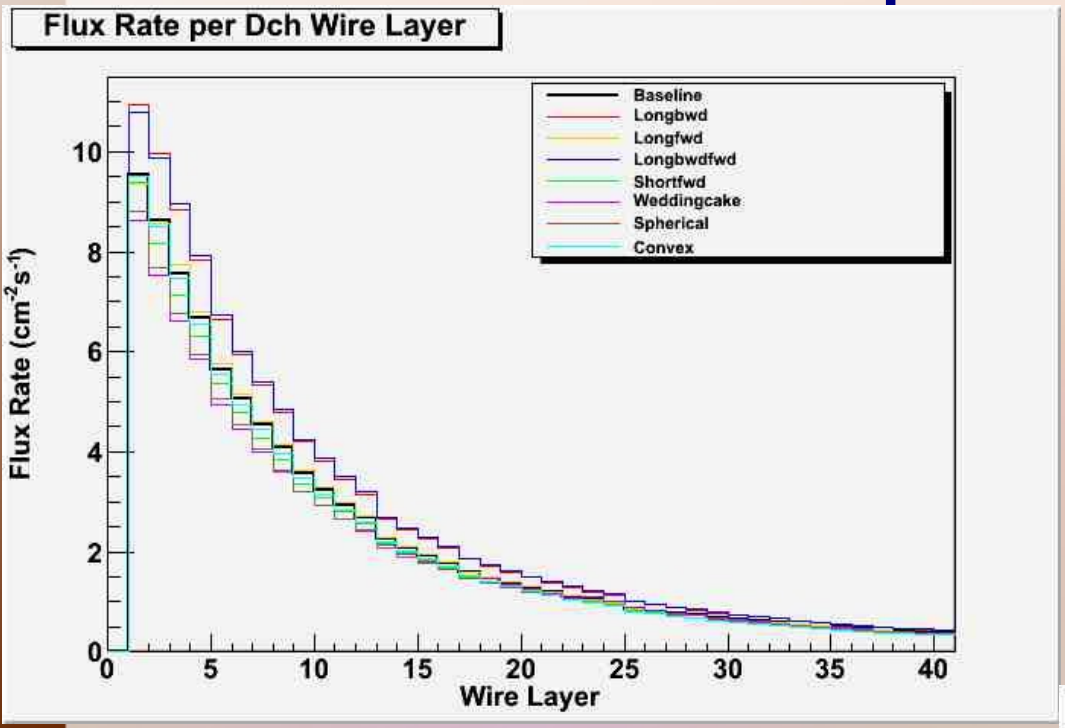
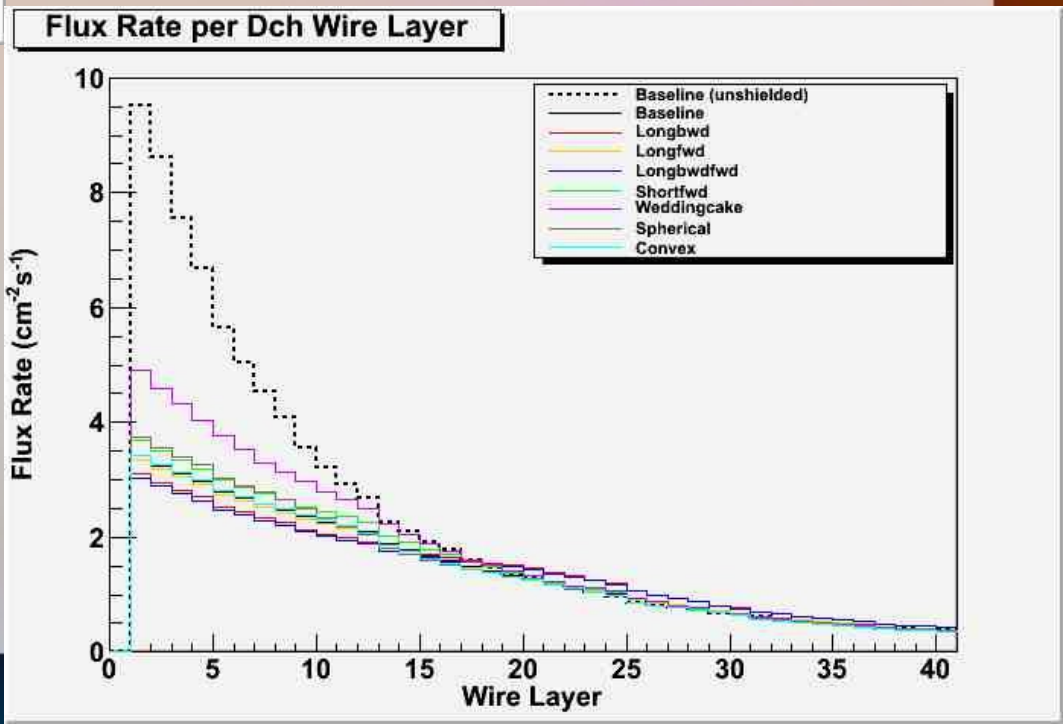


Unshielded

Shielded



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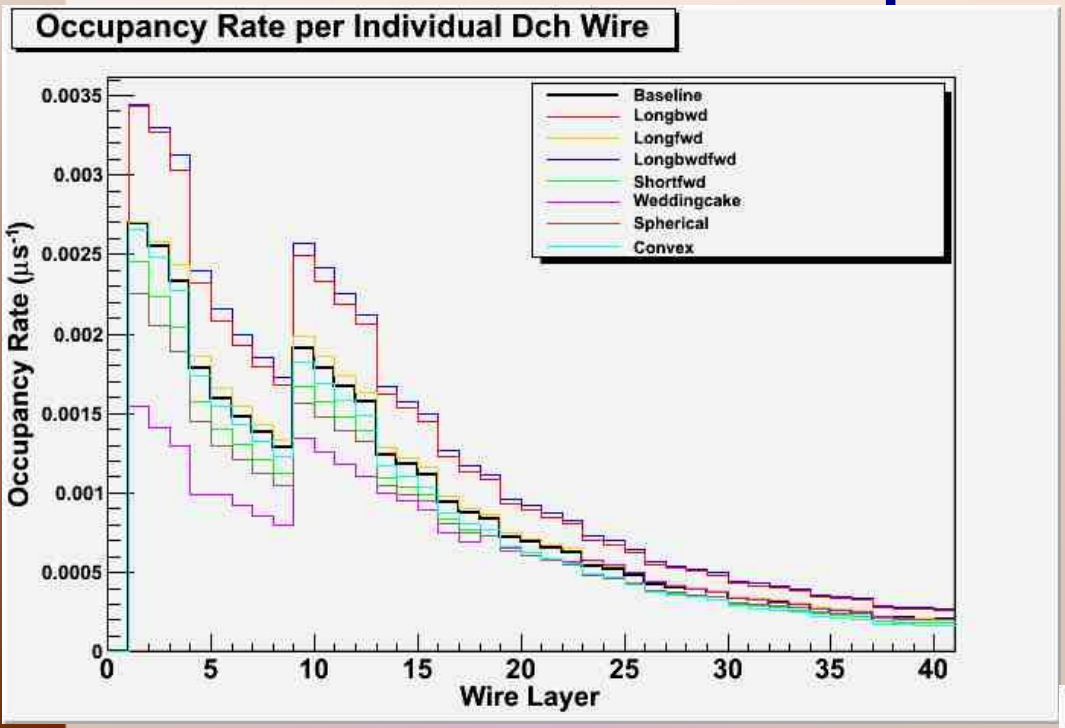
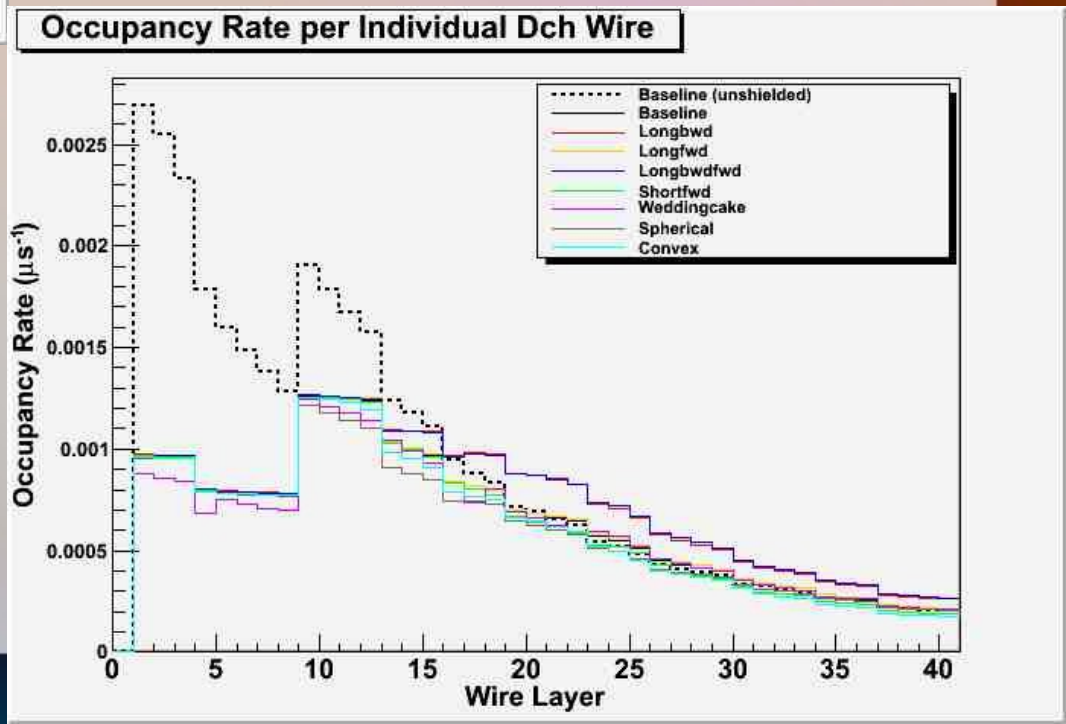
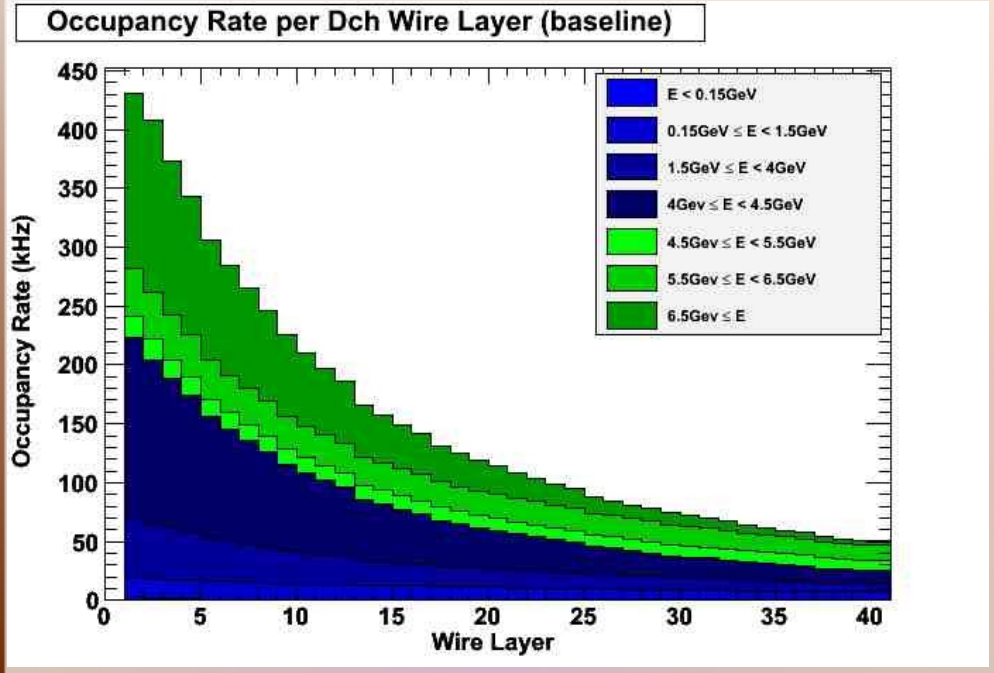


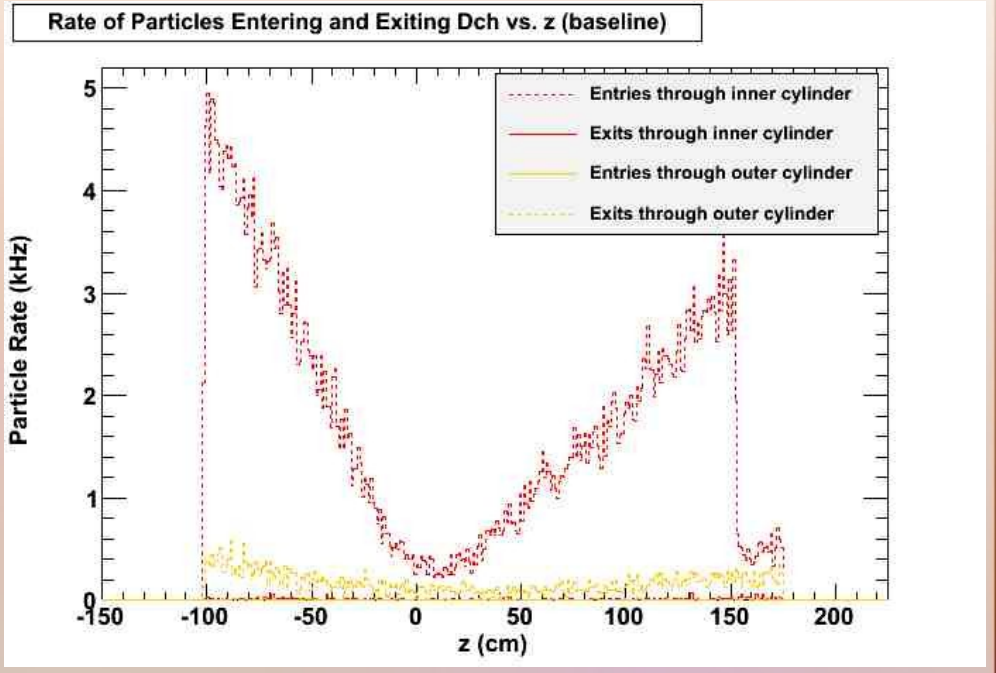
Unshielded

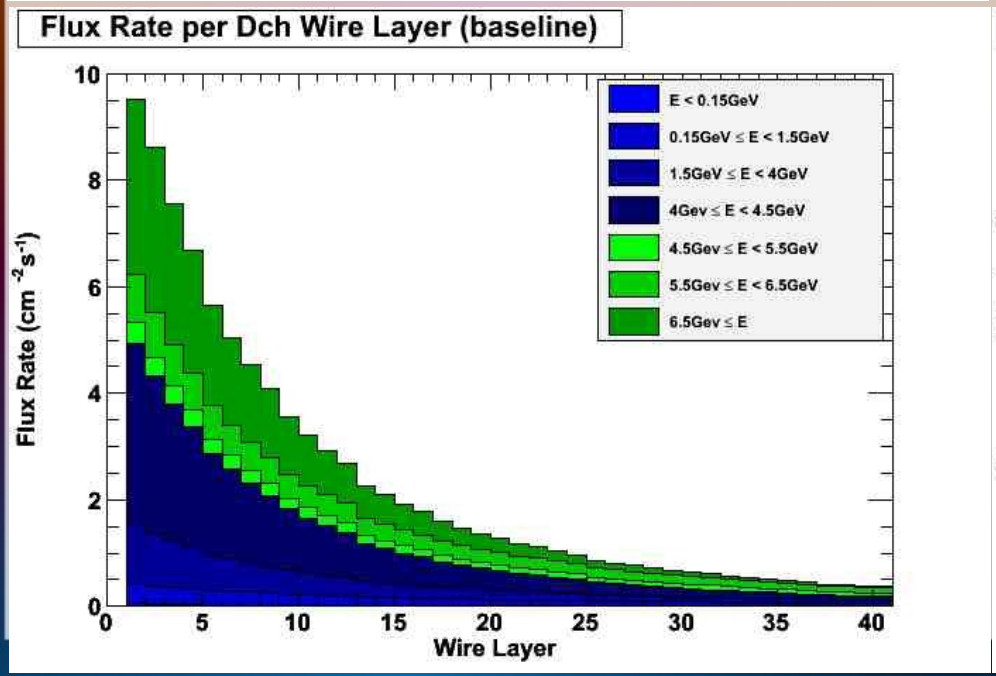
Shielded

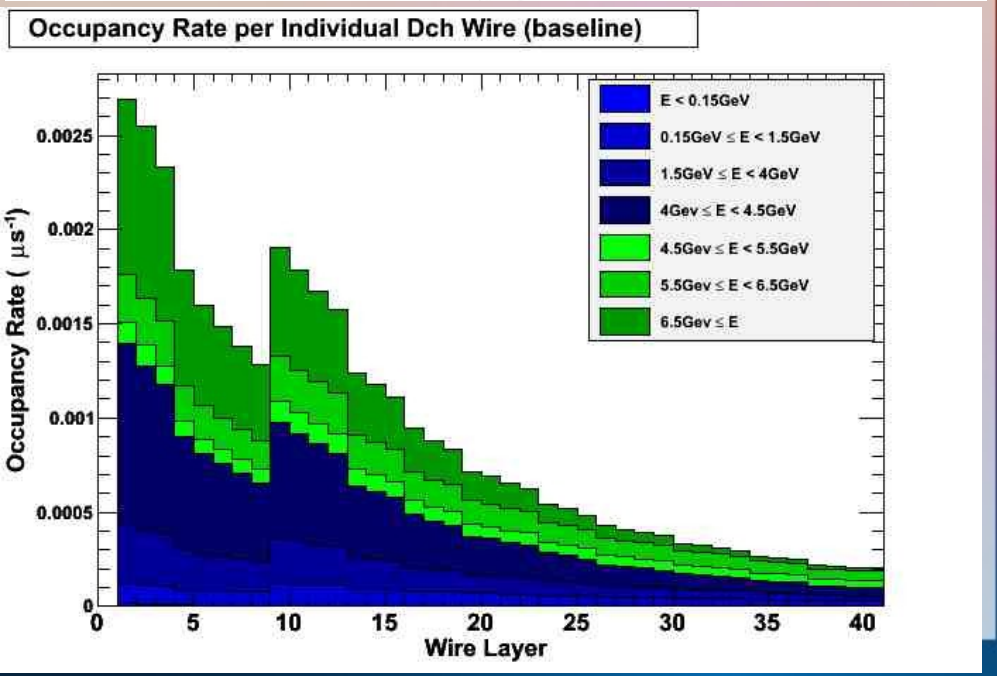


Baseline Geometry: Occupancy Rates

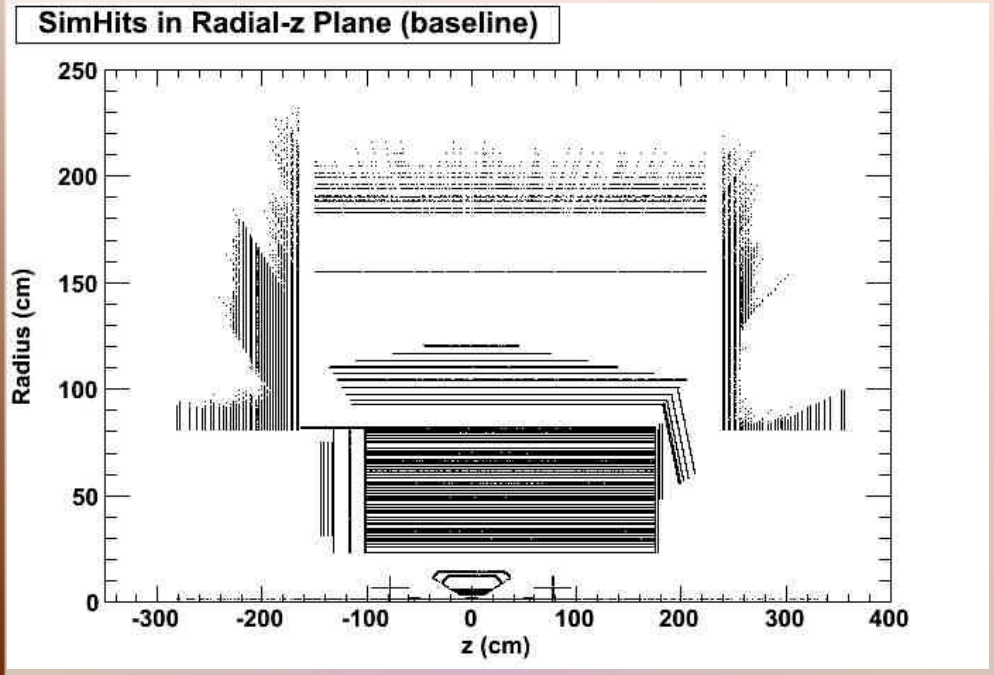


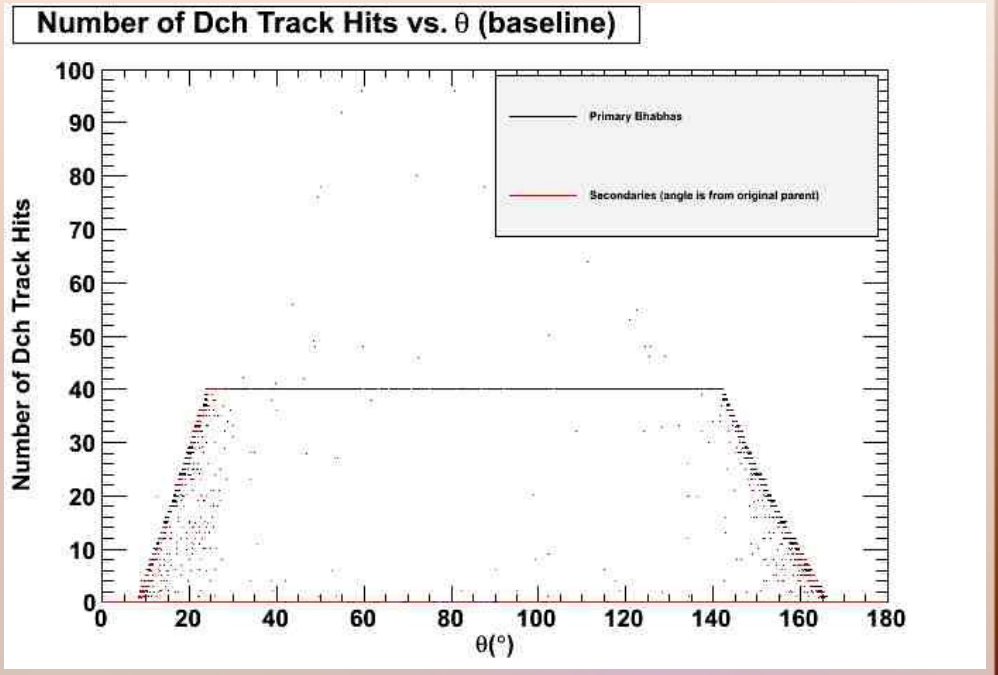


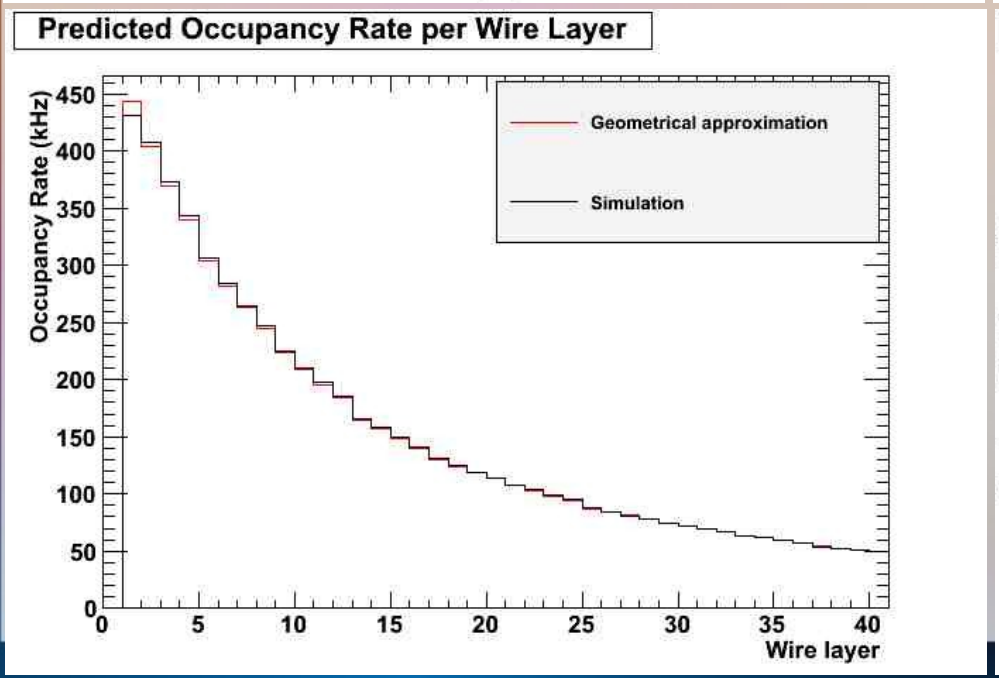


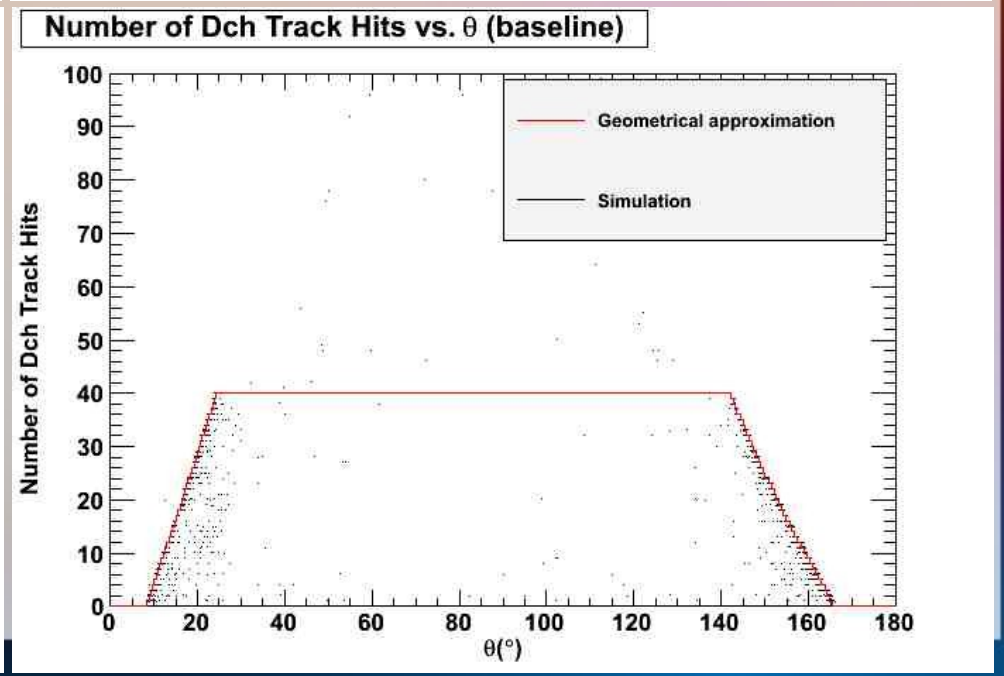


Baseline Geometry: SimHit Checks

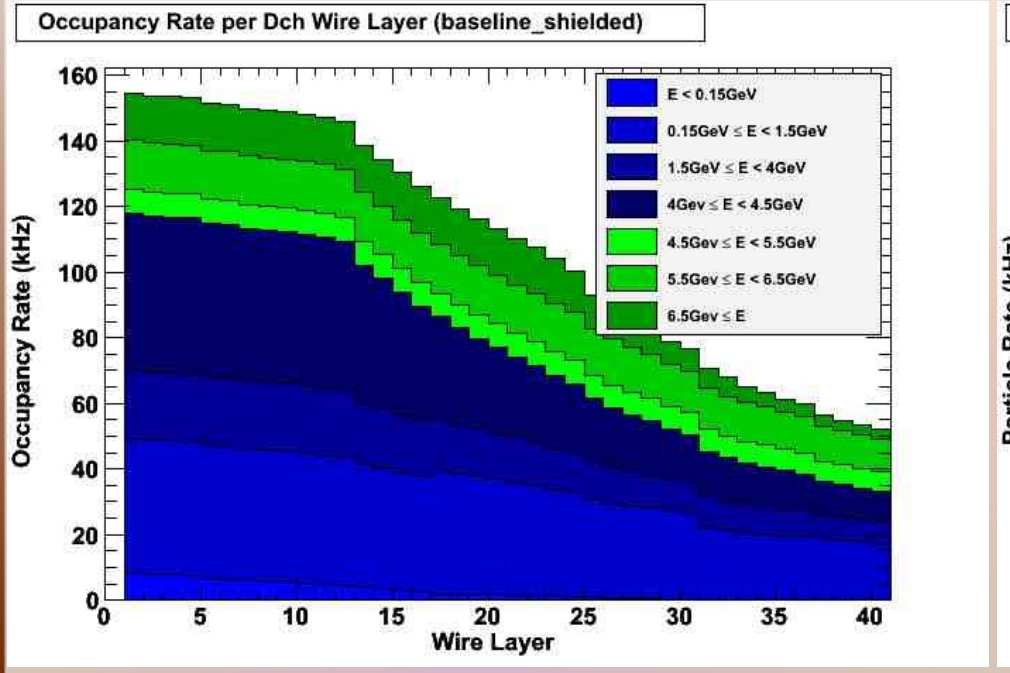


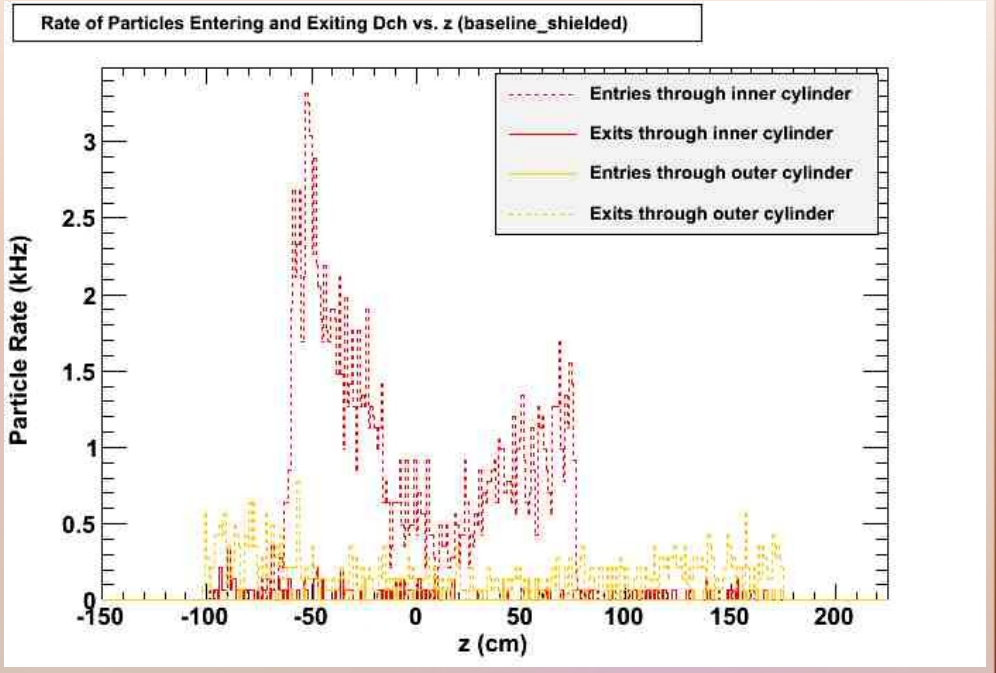


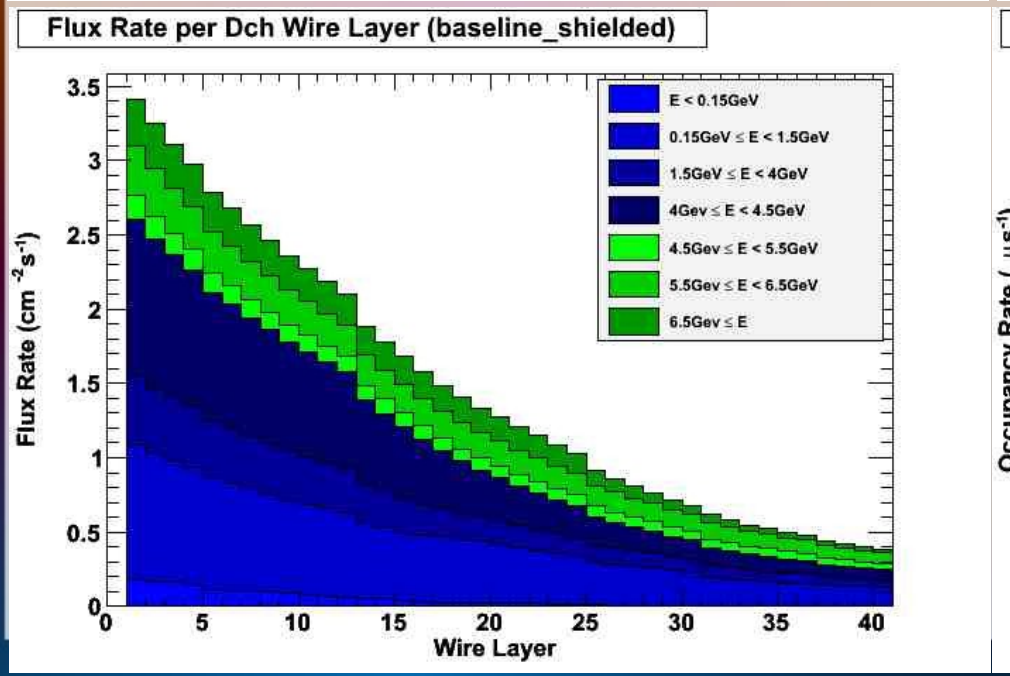


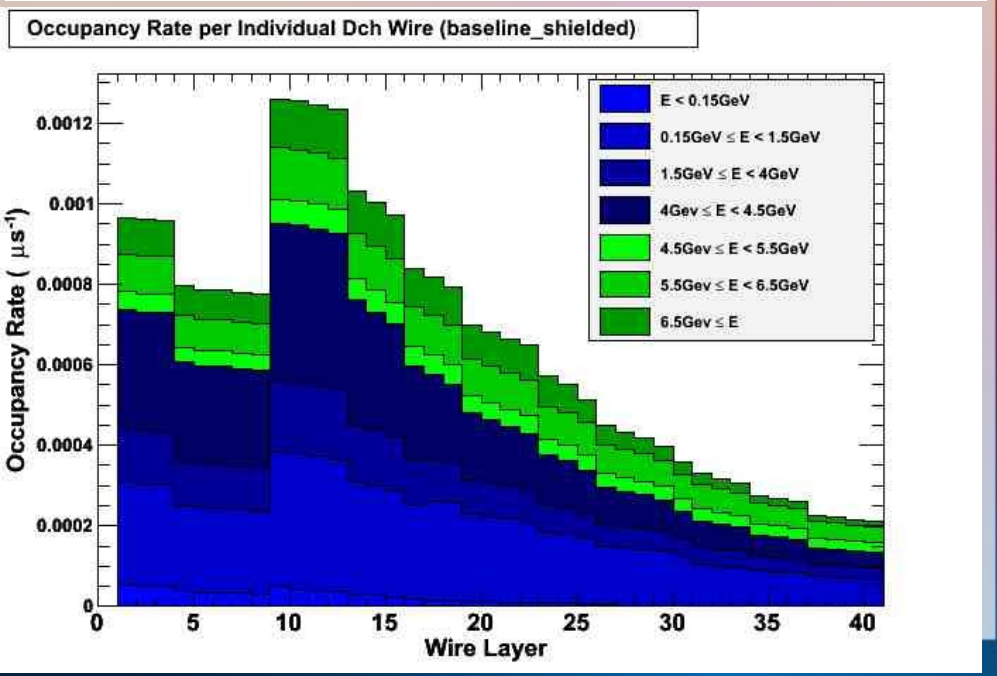


Baseline Geometry (shielded): Occupancy Rates

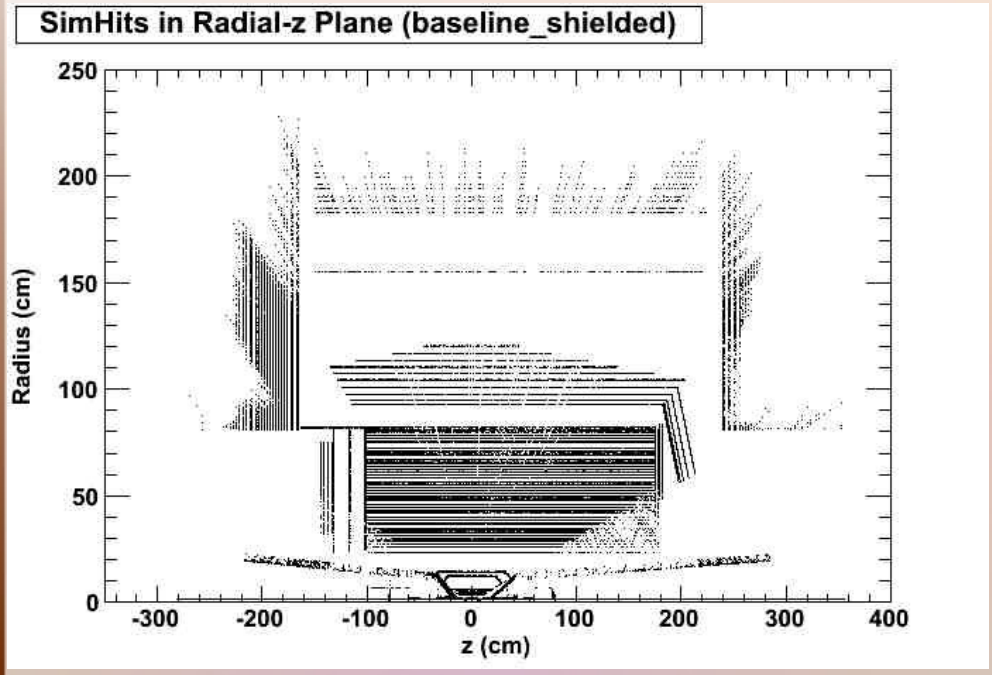


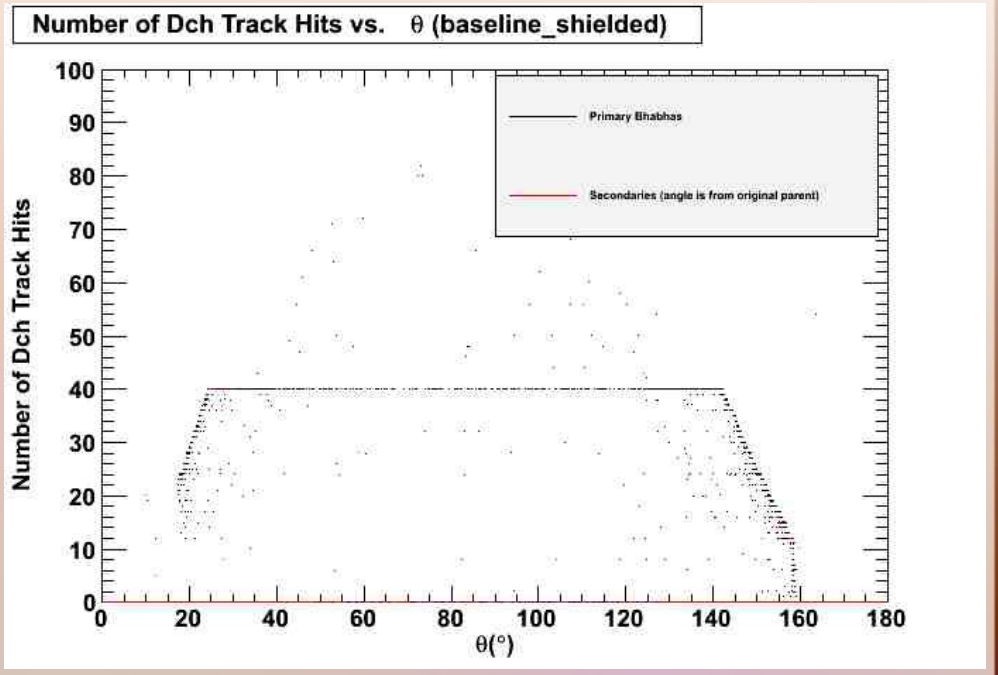


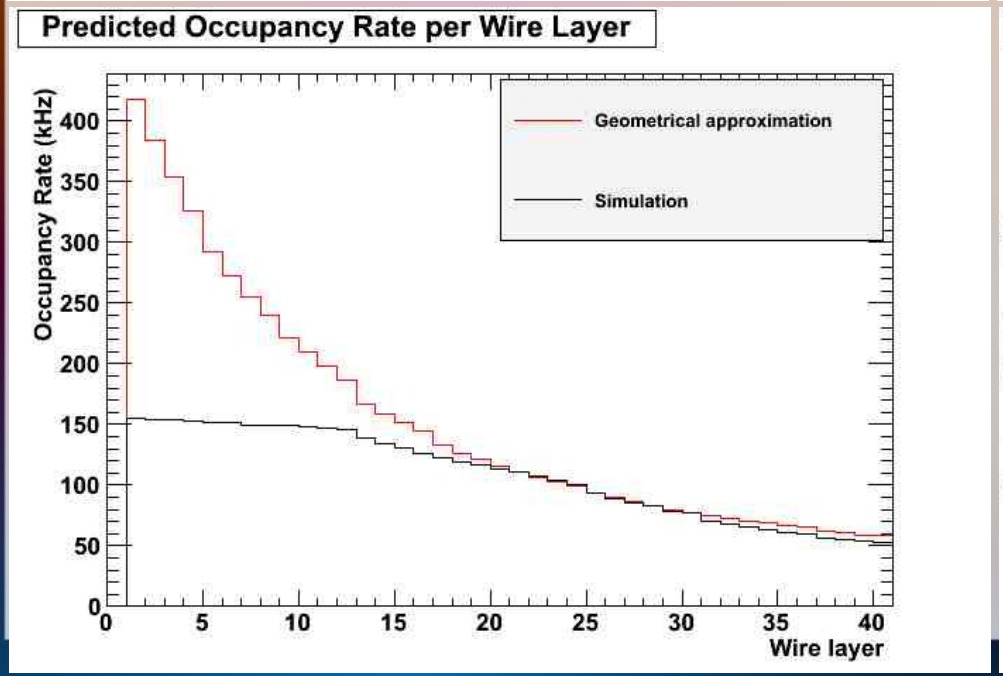


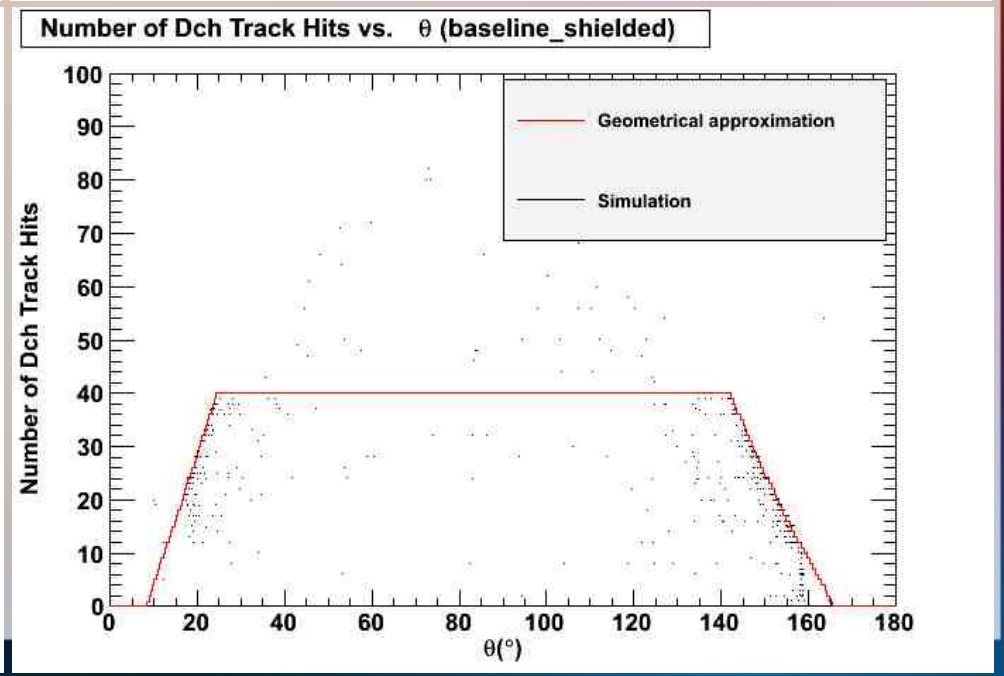


Baseline Geometry (shielded): SimHit Checks

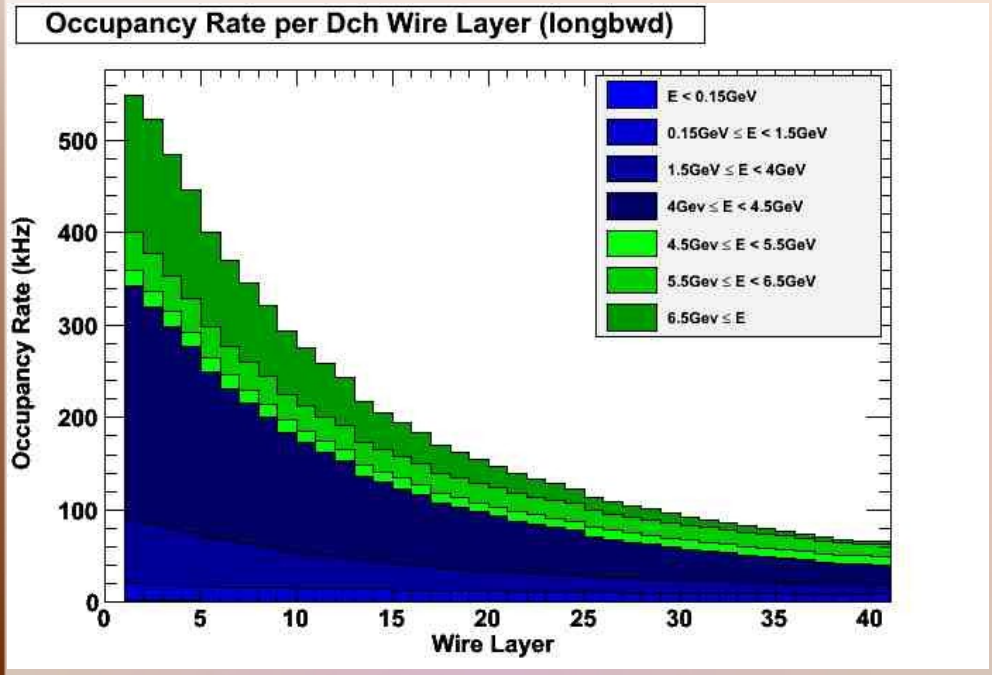


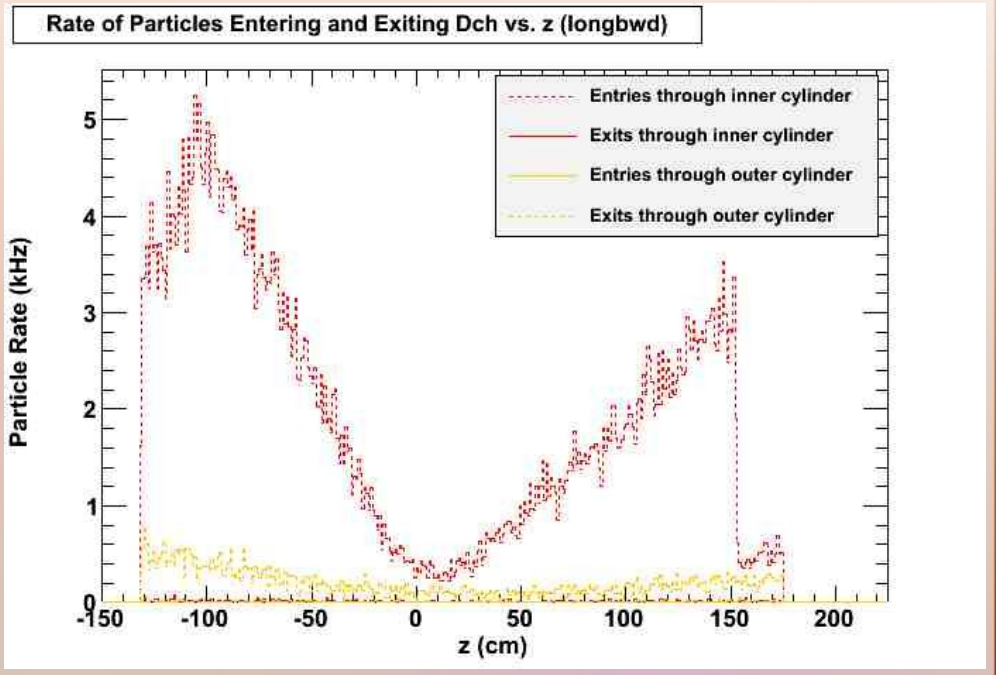


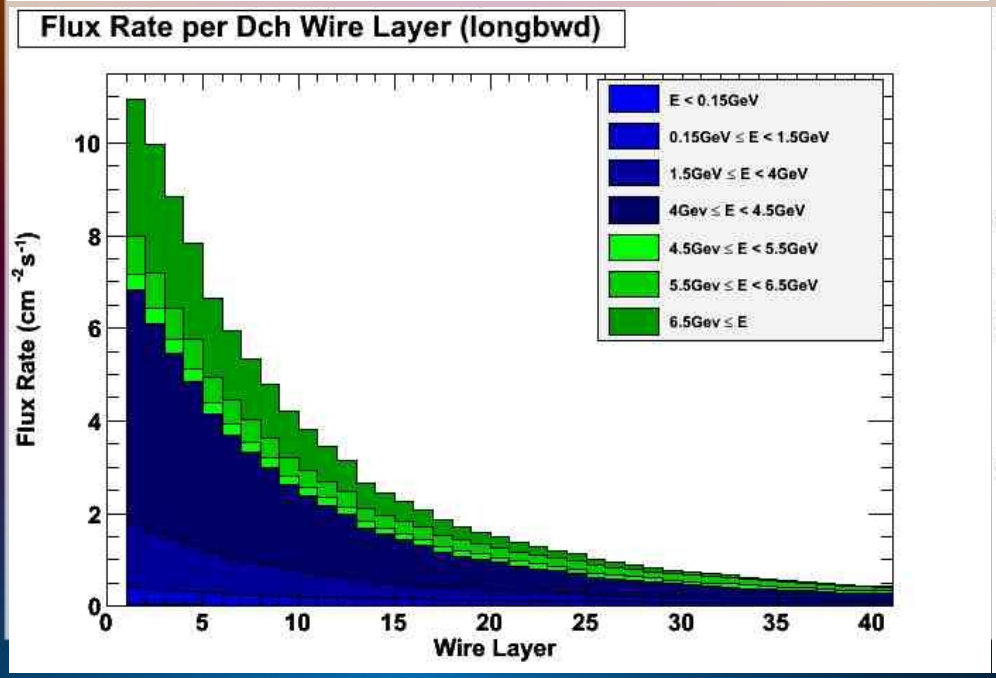


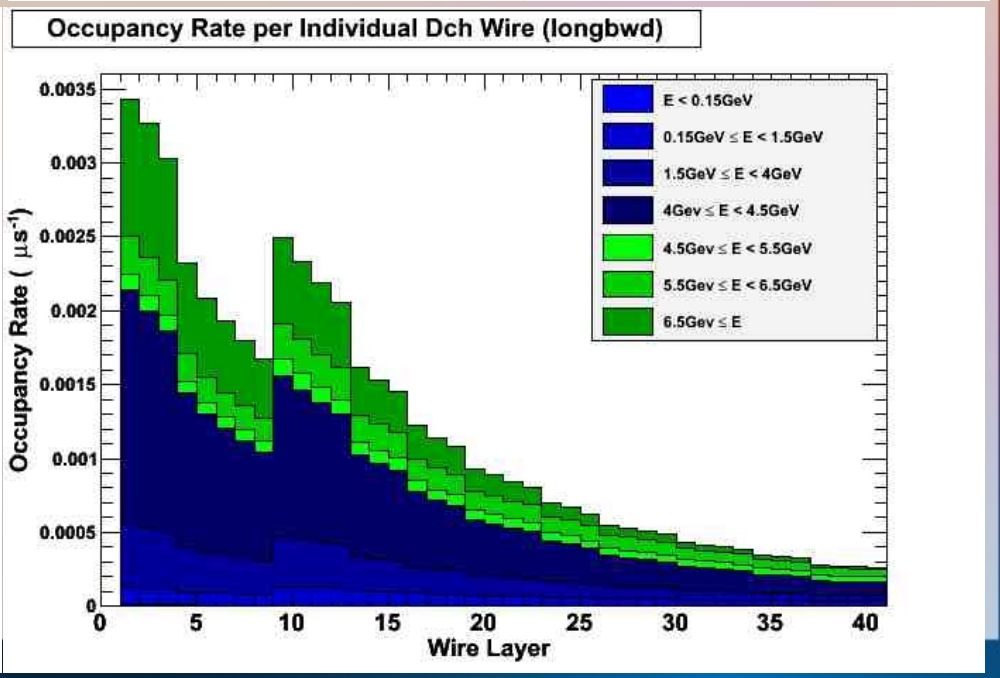


Longbwd Geometry: Occupancy Rates

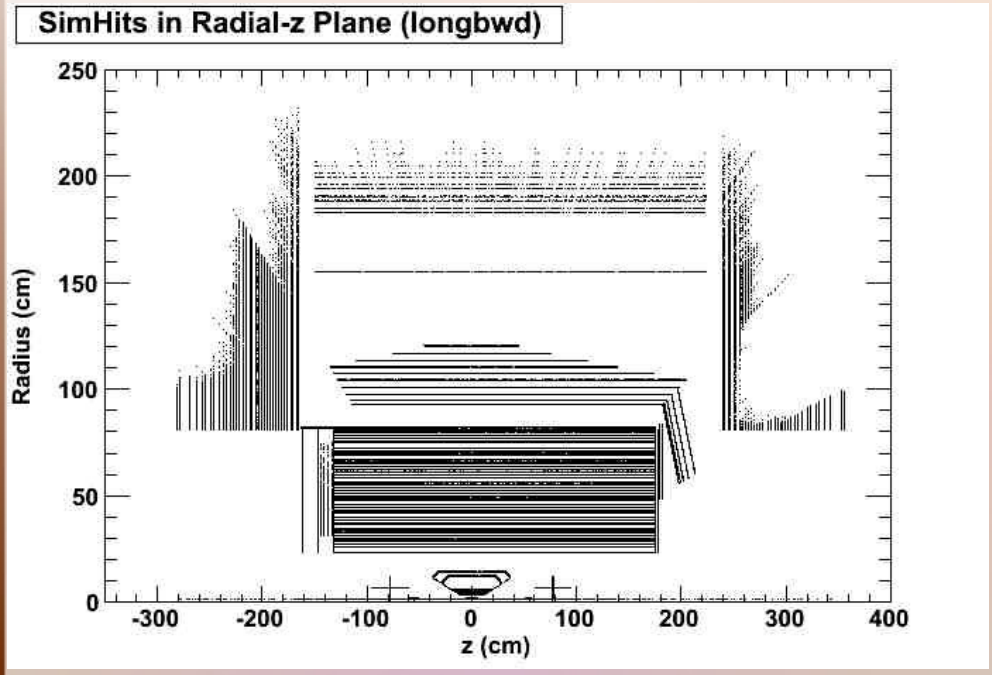


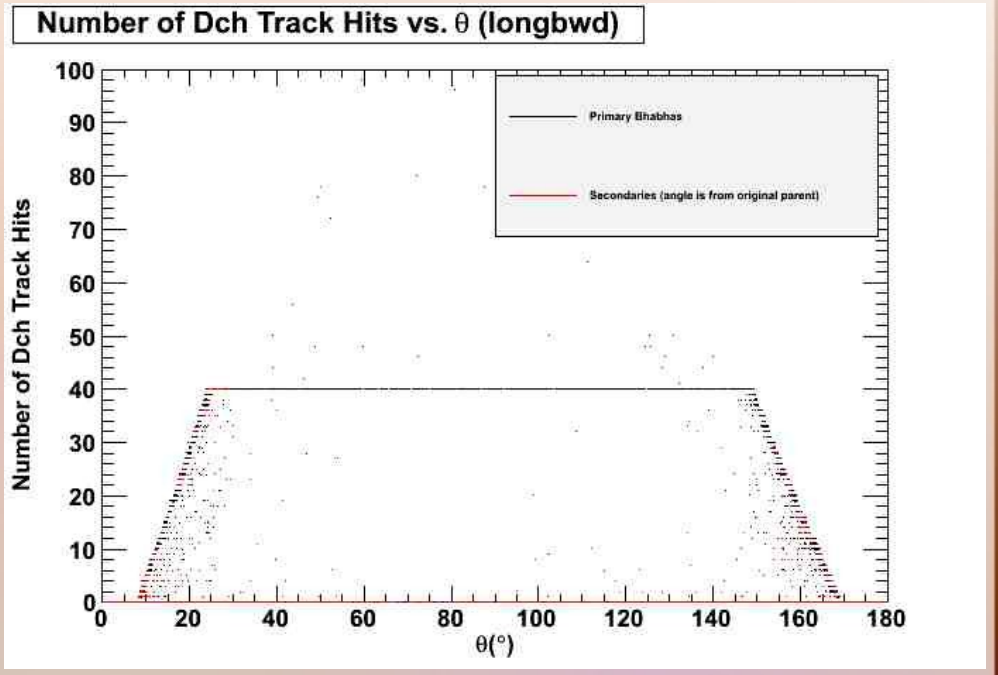


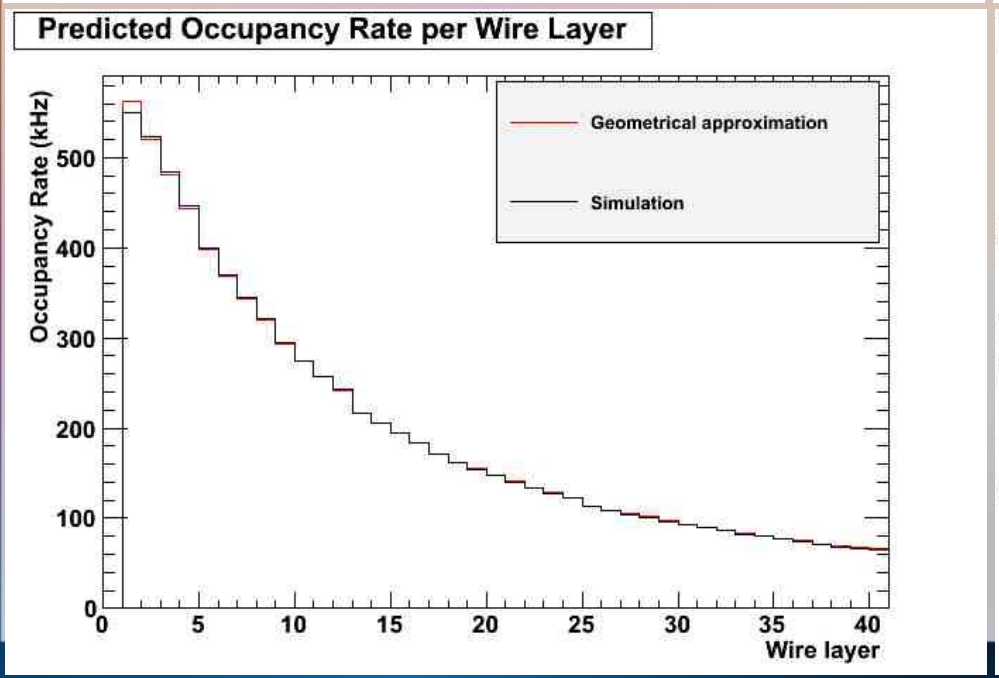


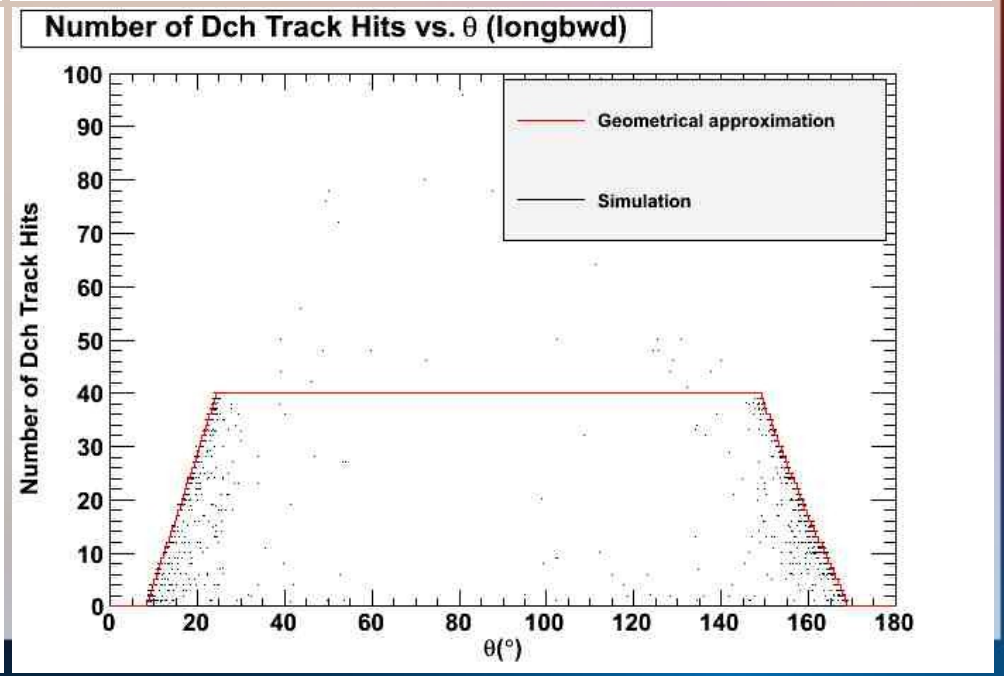


Longbwd Geometry: SimHit Checks

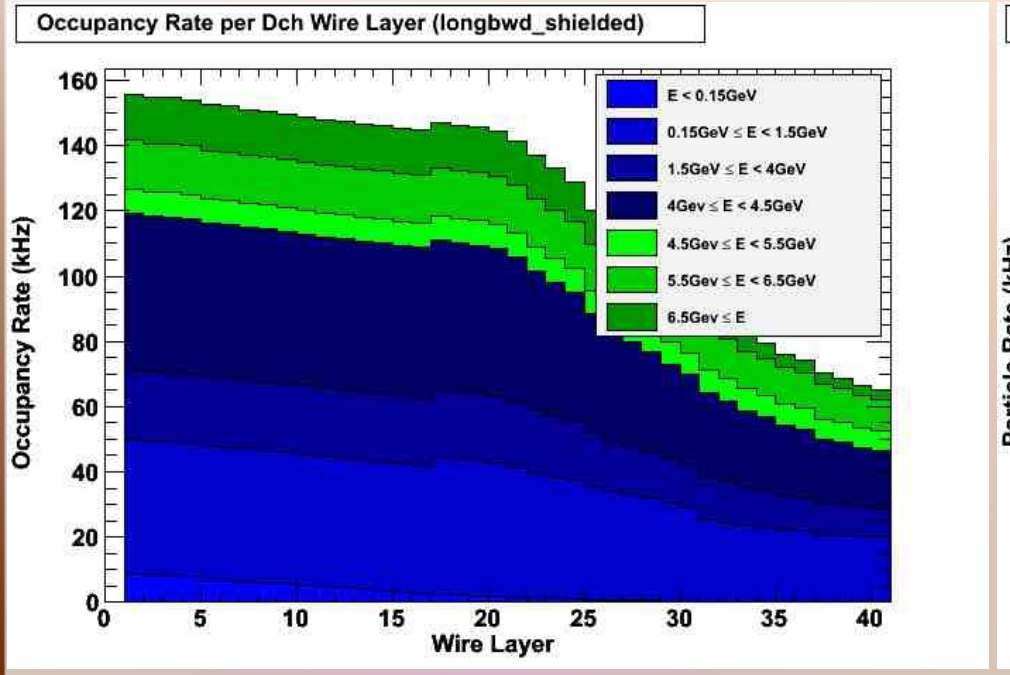


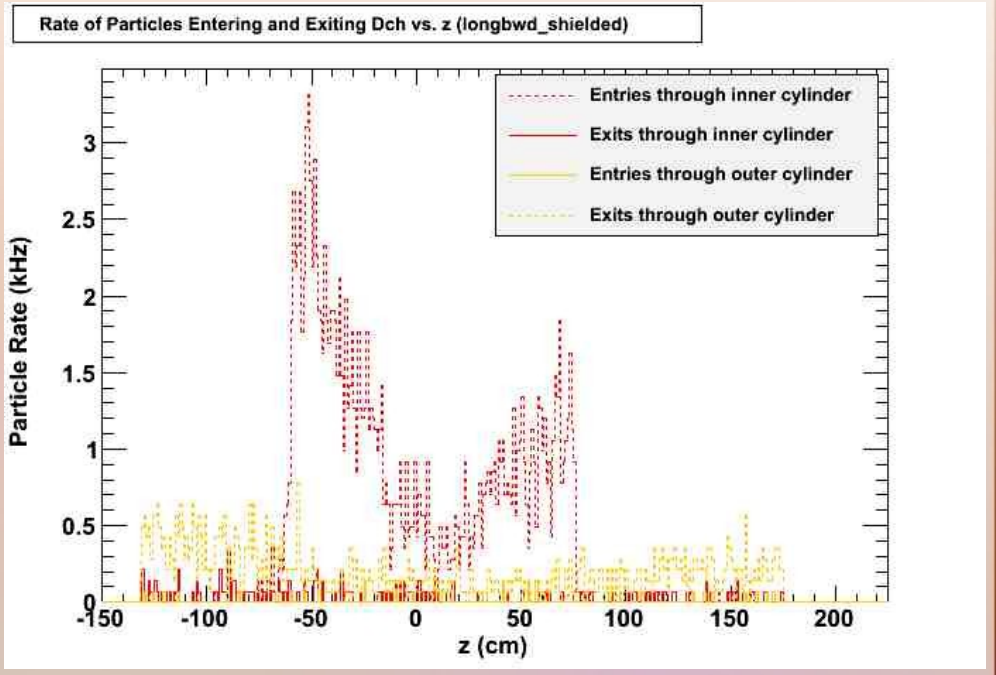


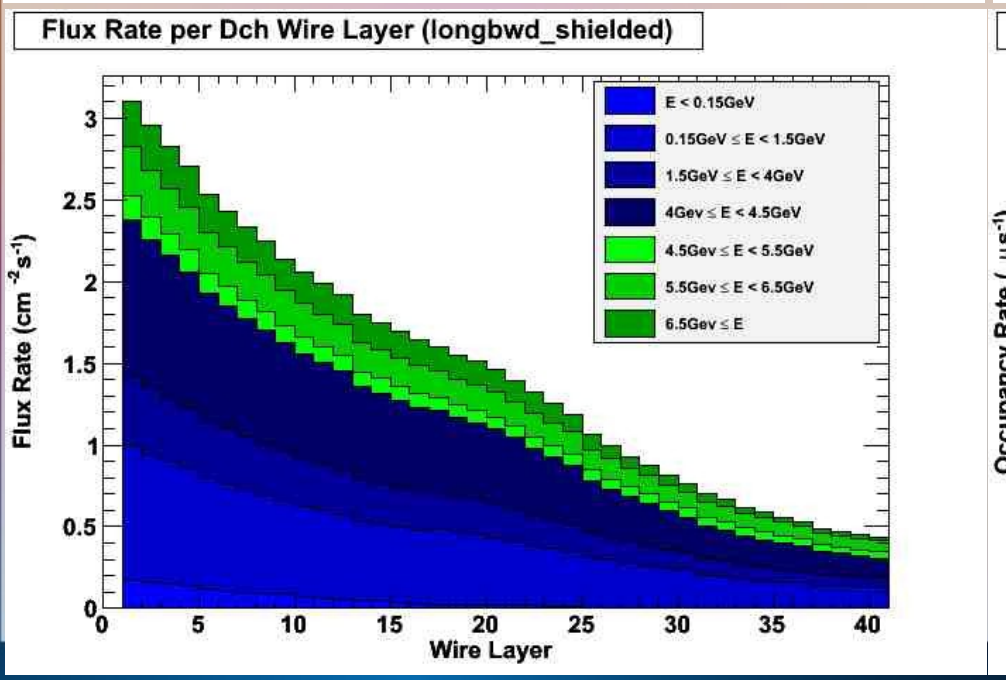


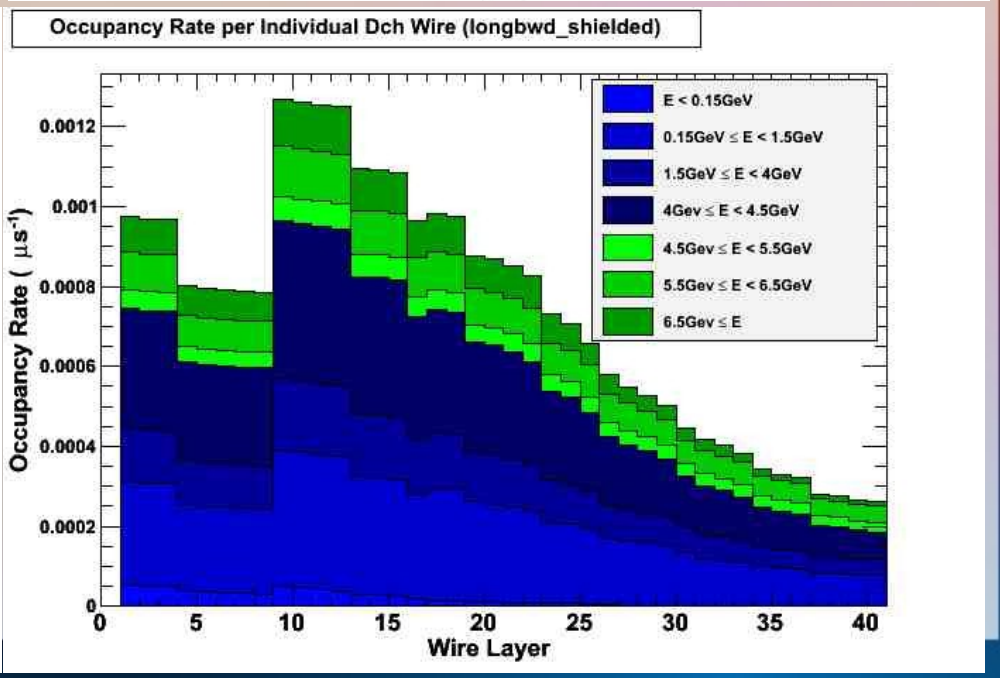


Longbwd Geometry (shielded): Occupancy Rates

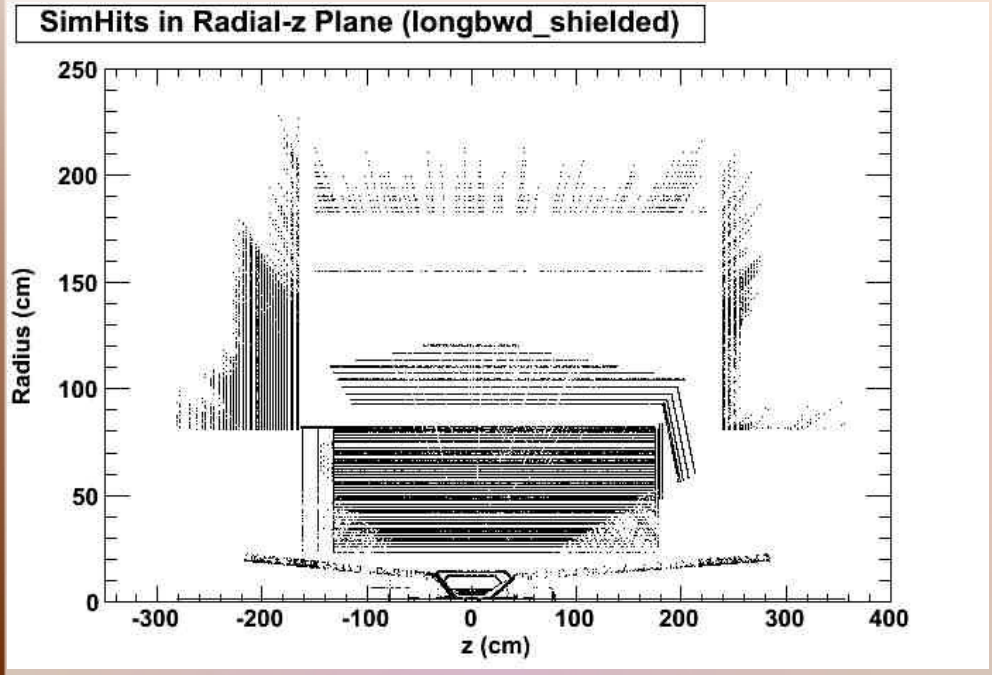


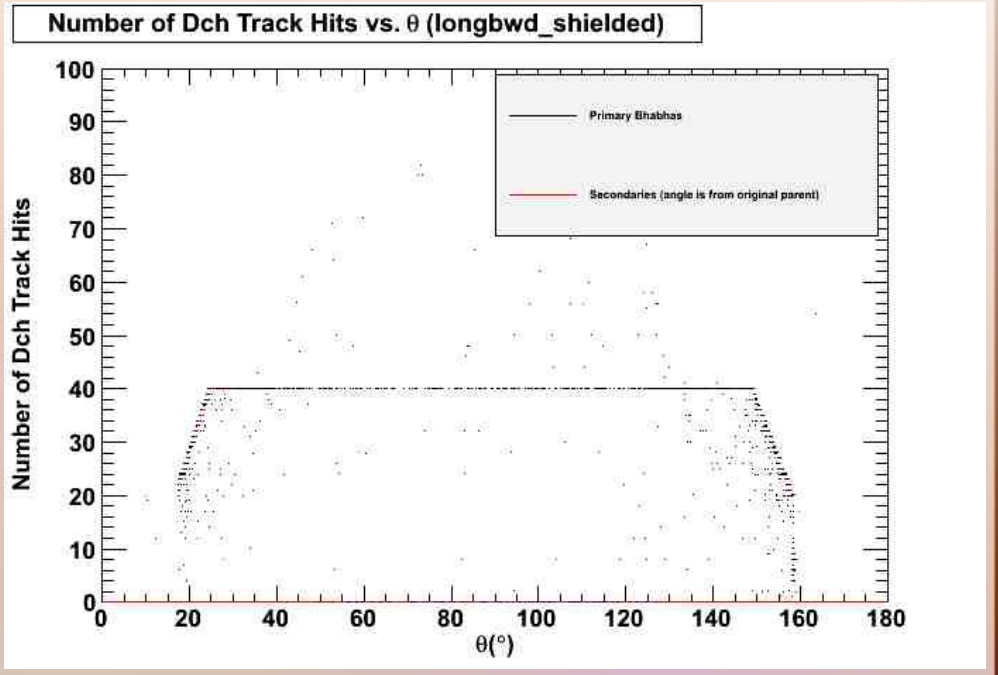


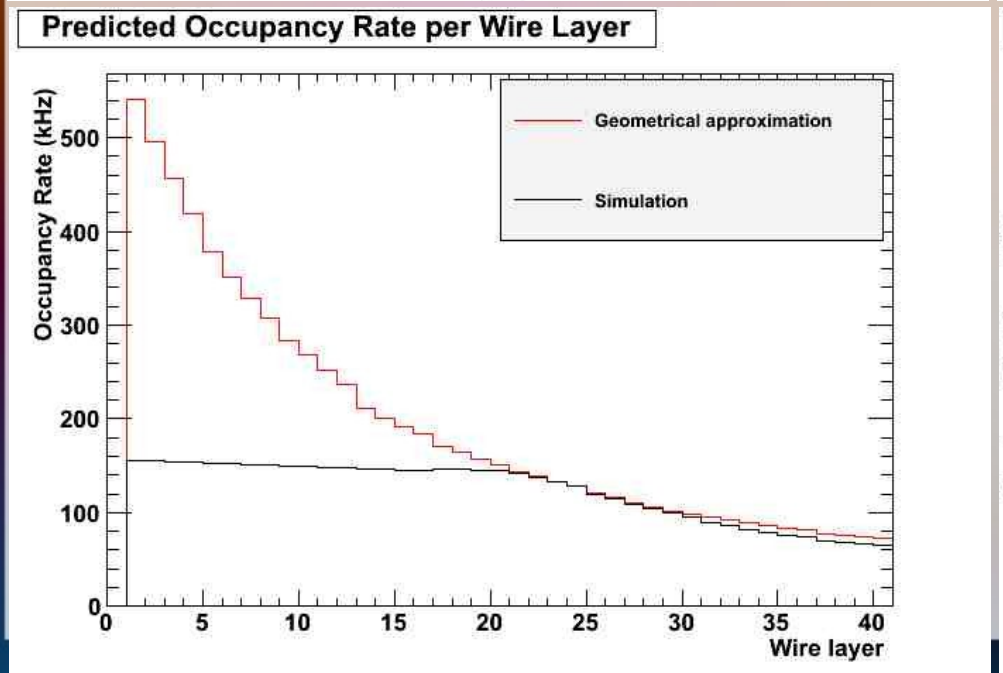


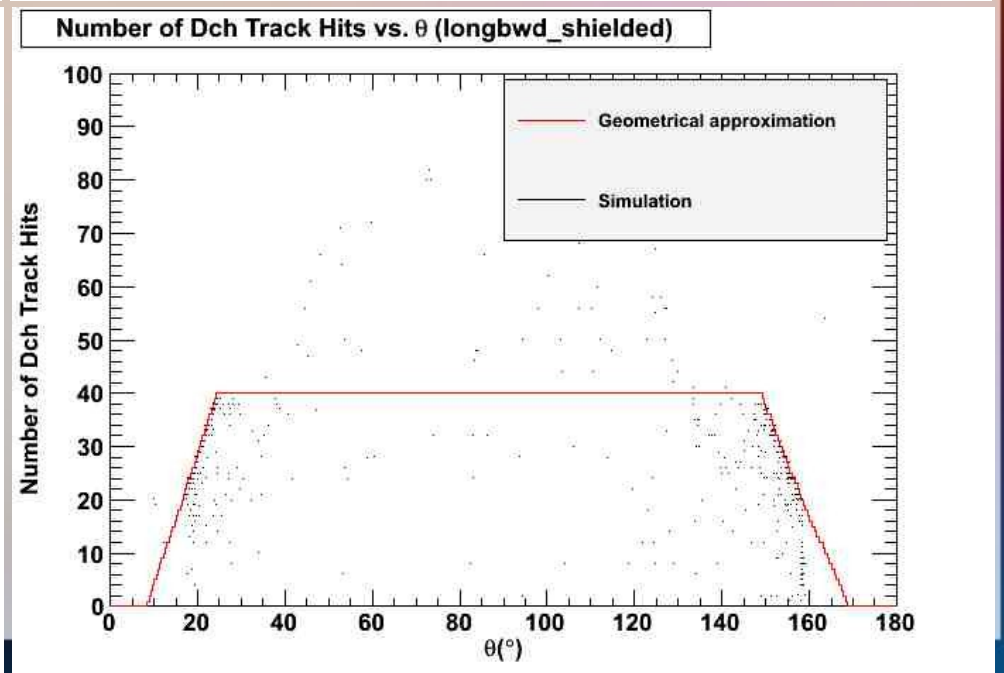


Longbwd (shielded) Geometry: SimHit Checks

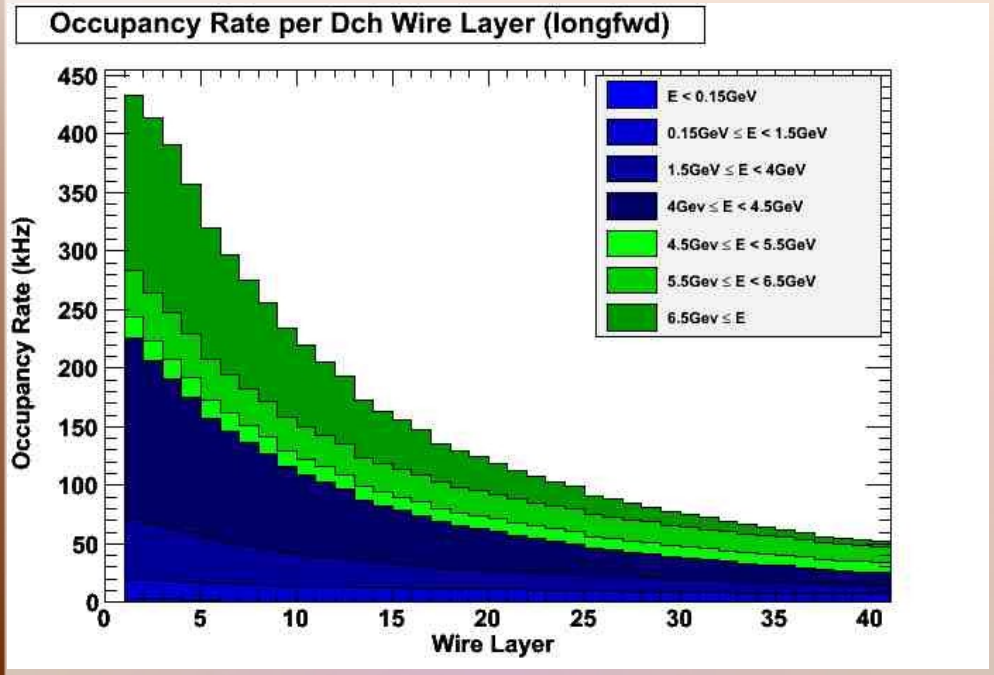


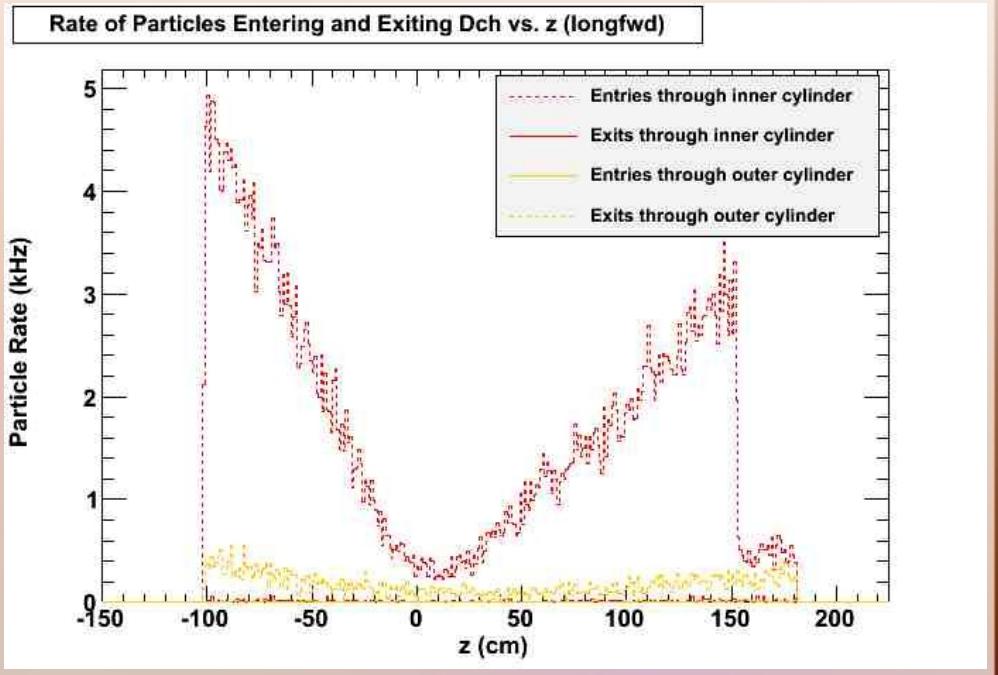


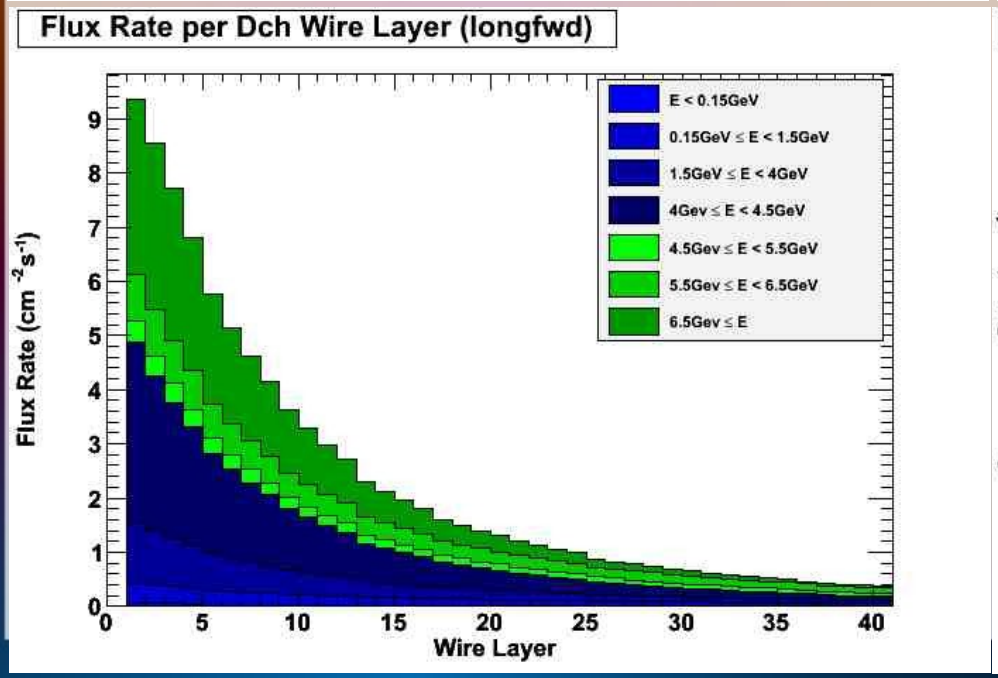


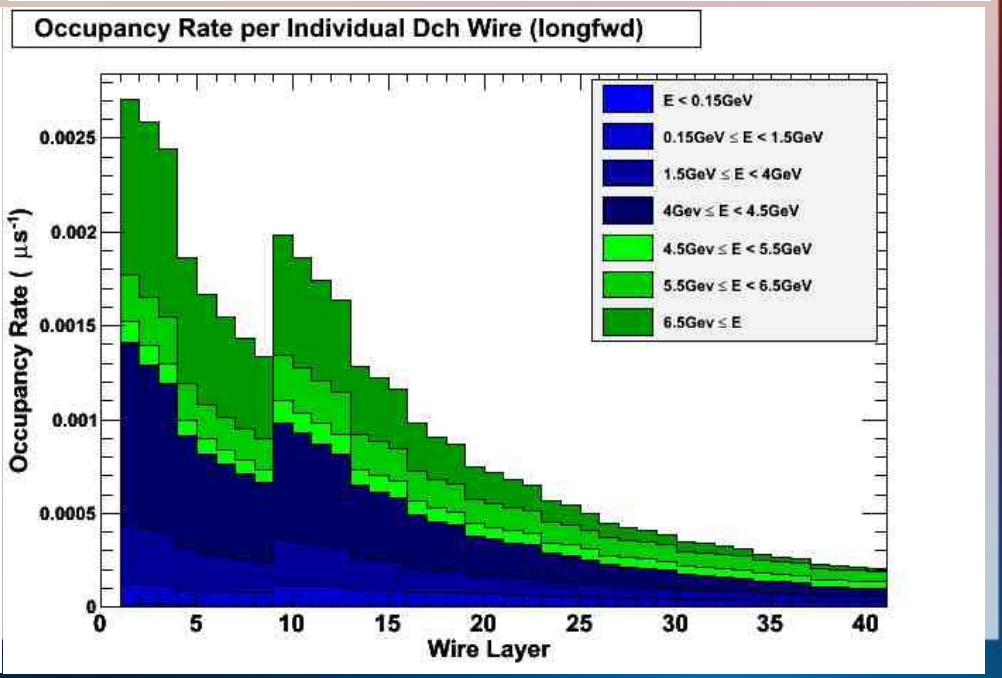


Longfwd Geometry: Occupancy Rates

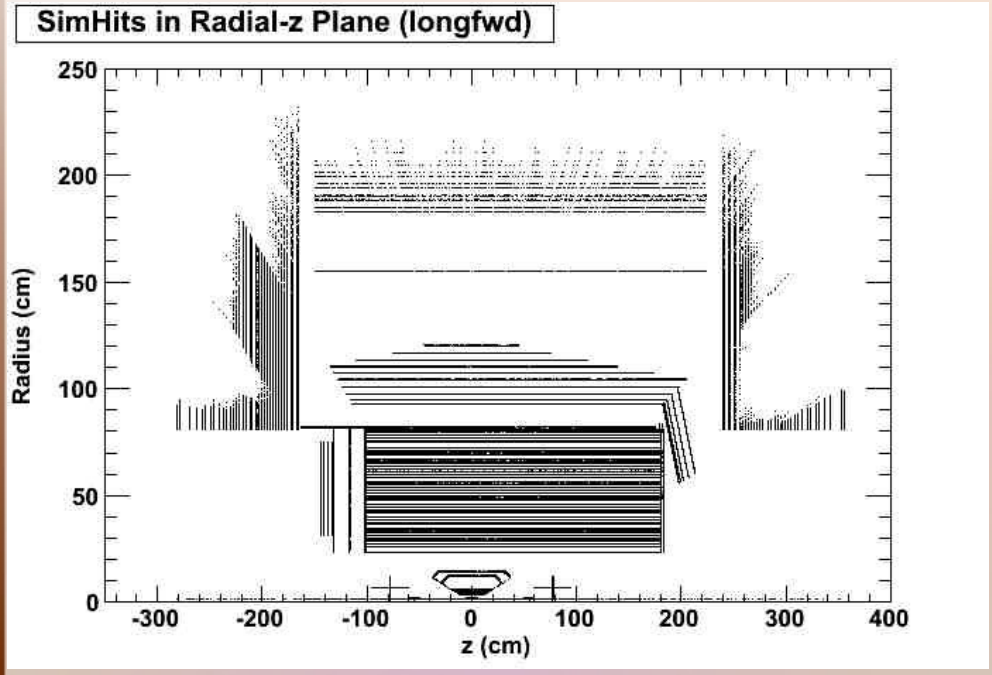


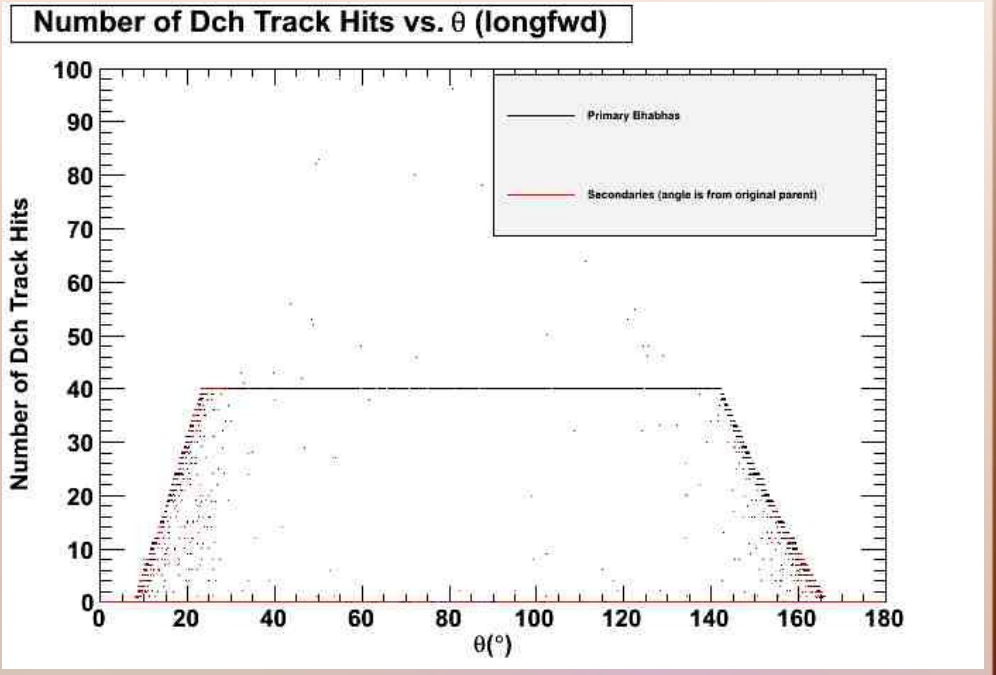


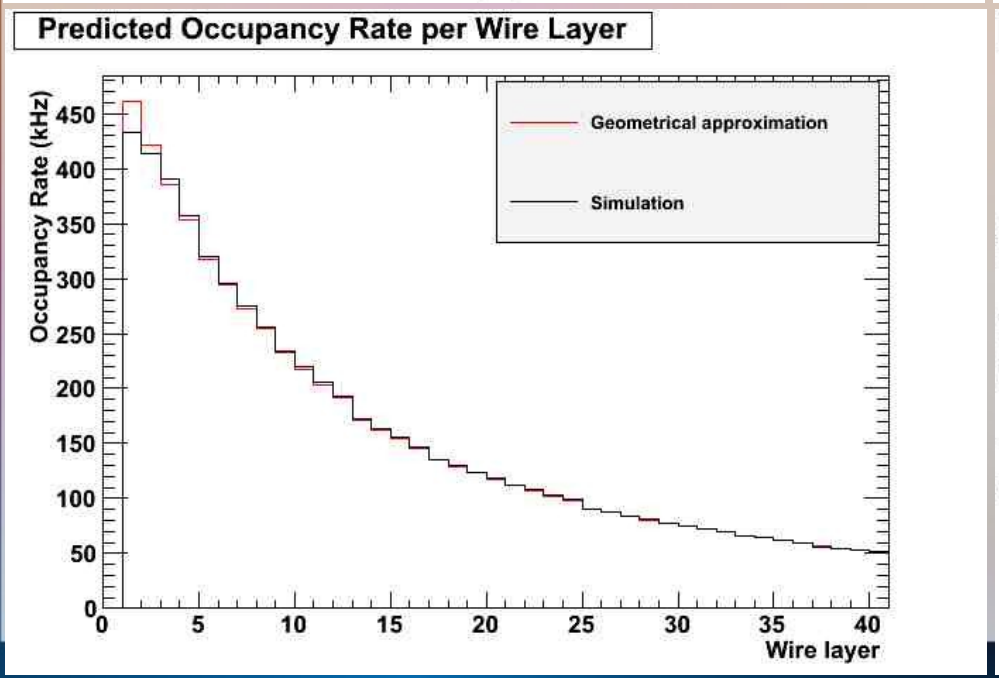


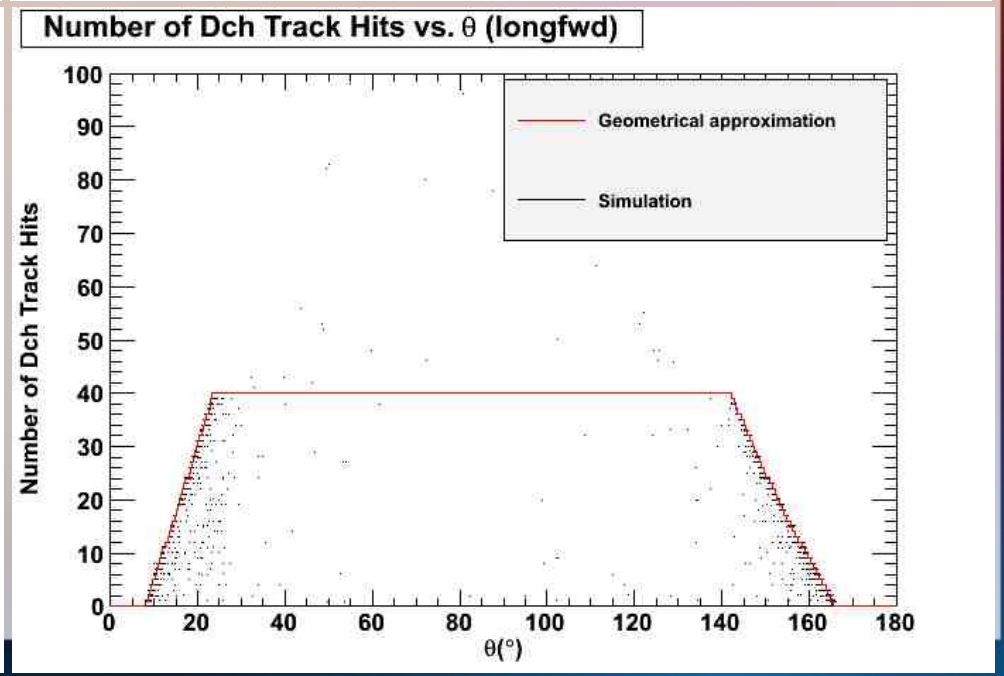


Longfwd Geometry: SimHit Checks

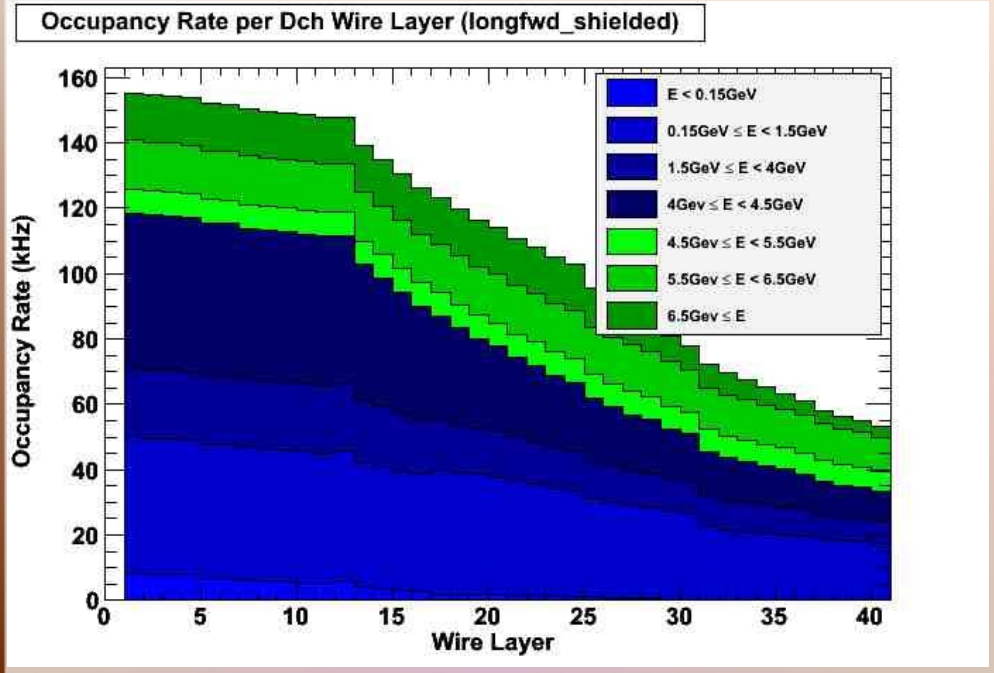


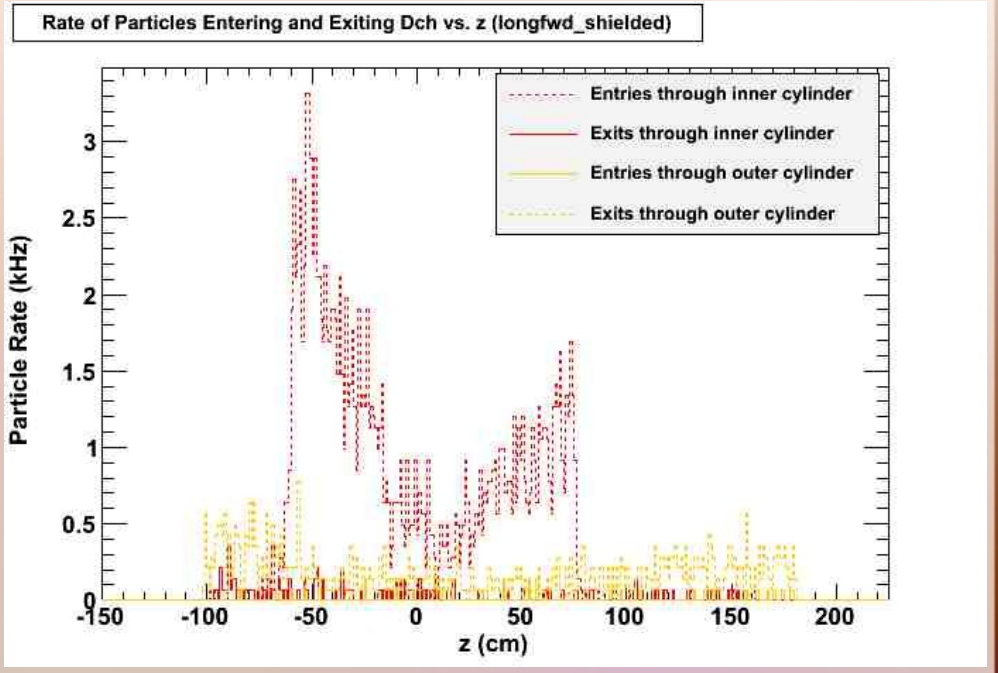


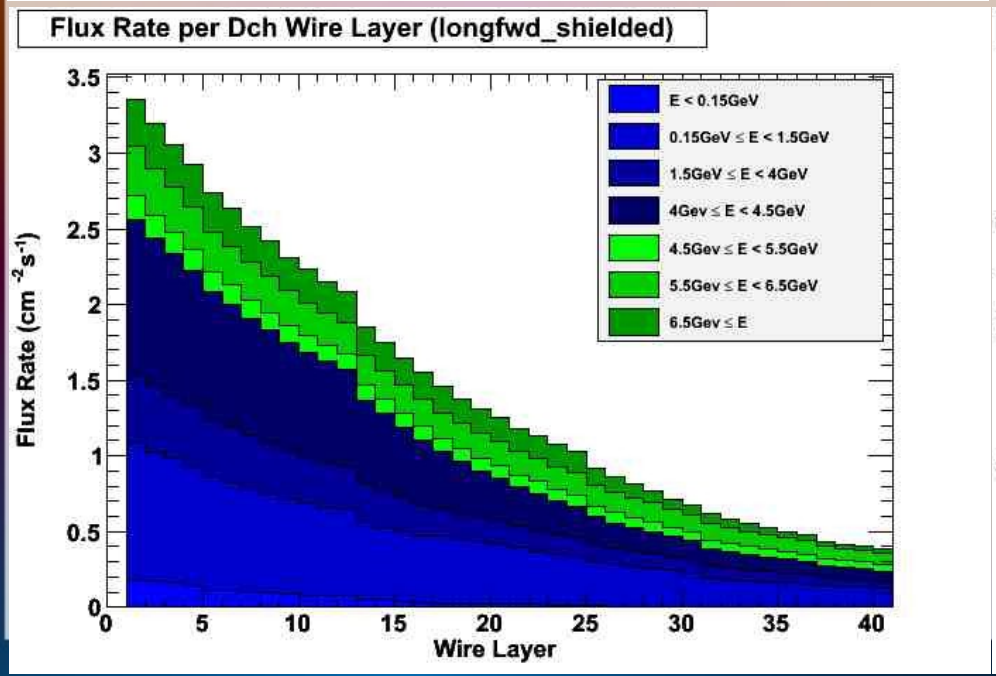


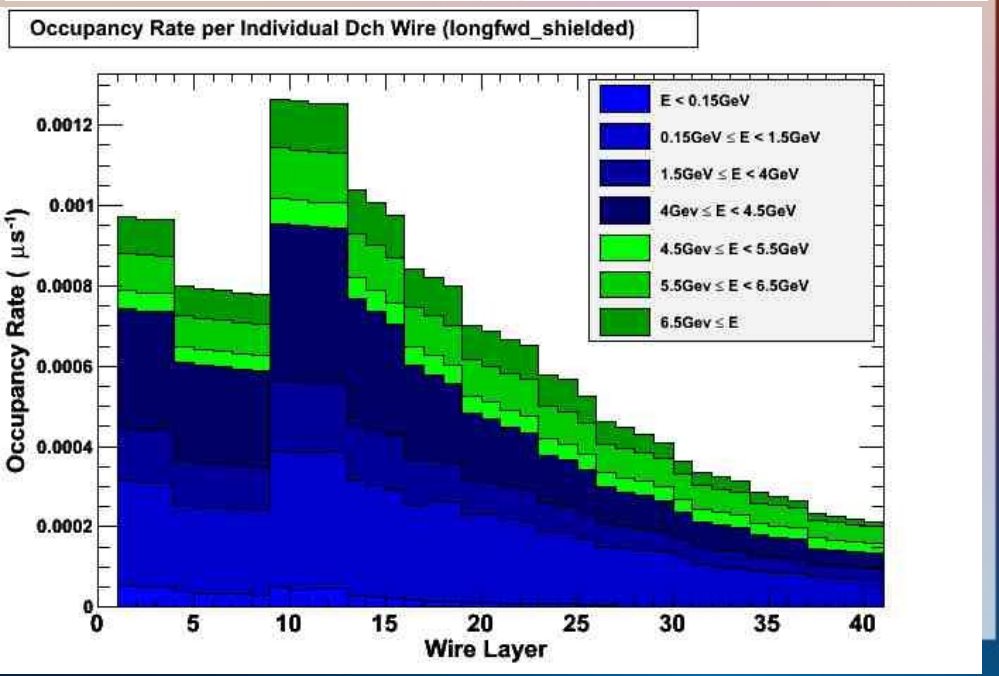


Longfwd Geometry (shielded): Occupancy Rates

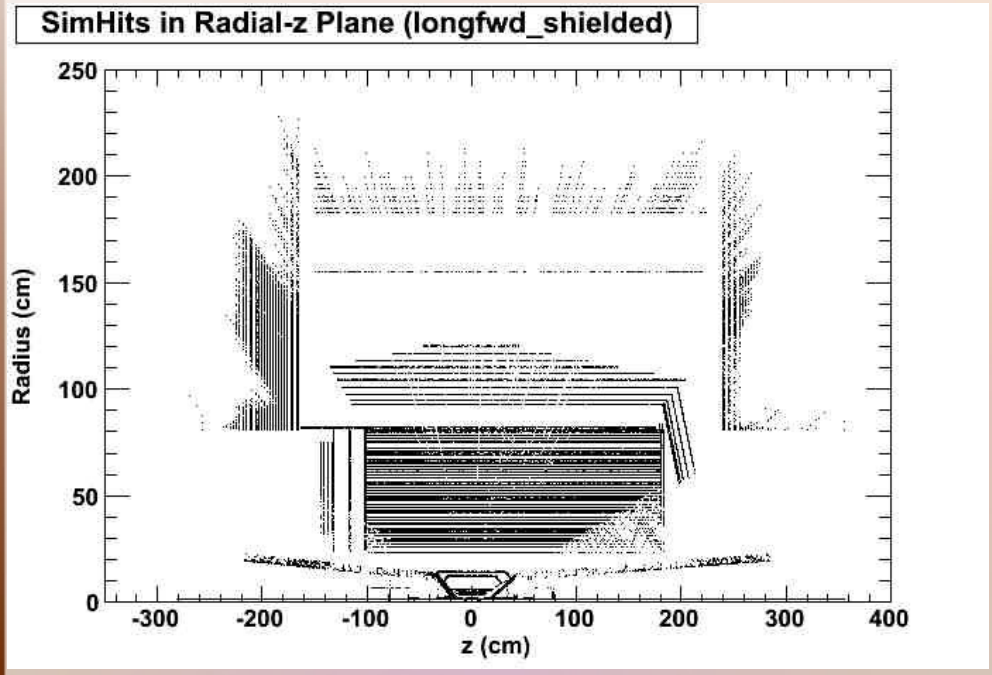


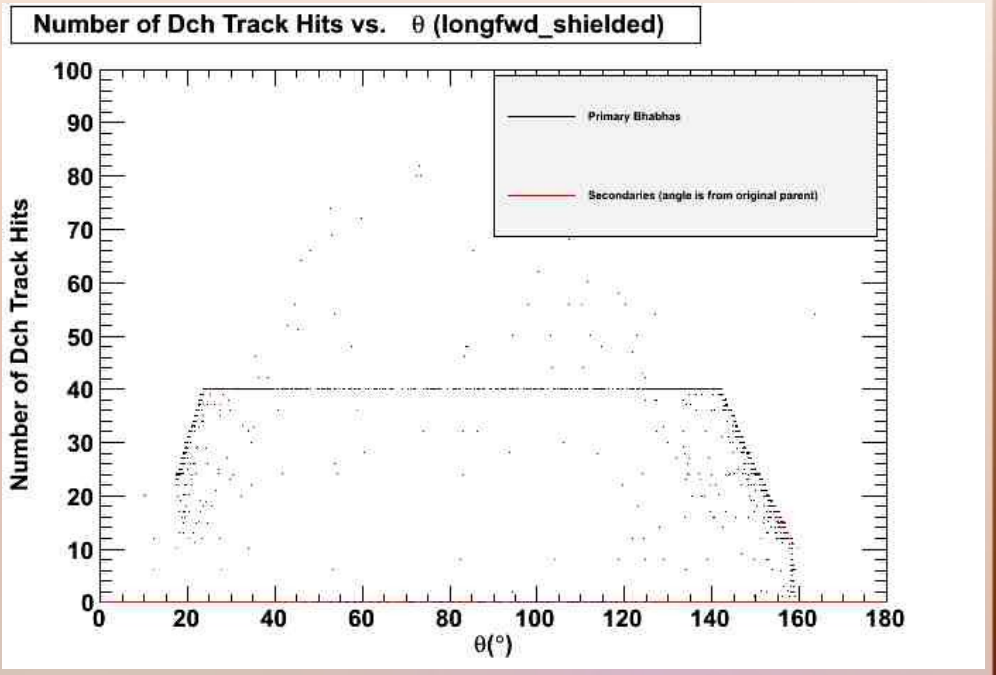


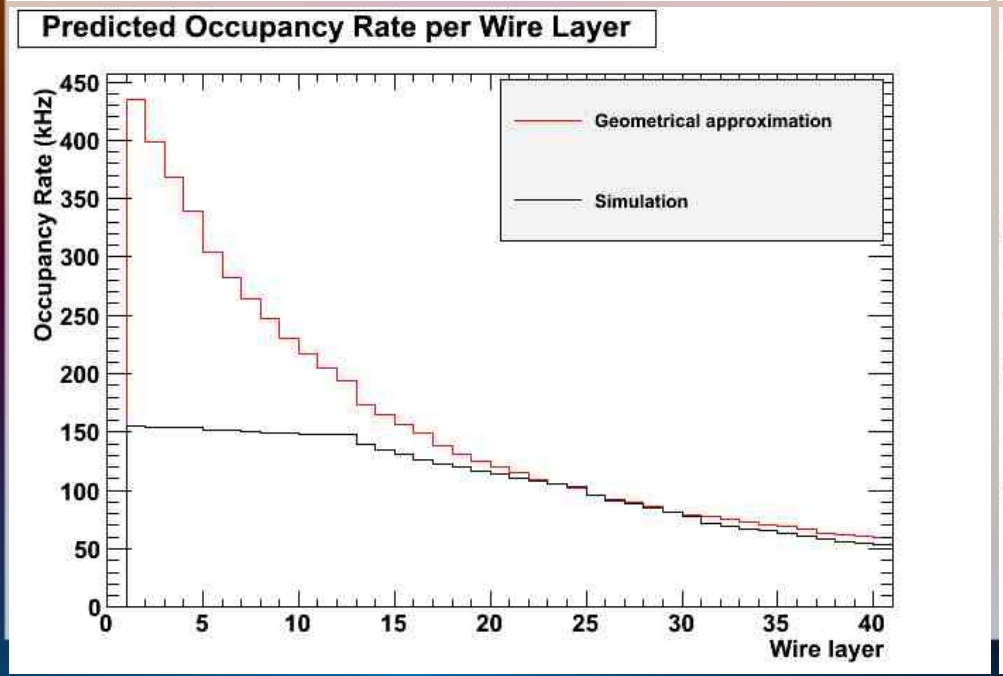


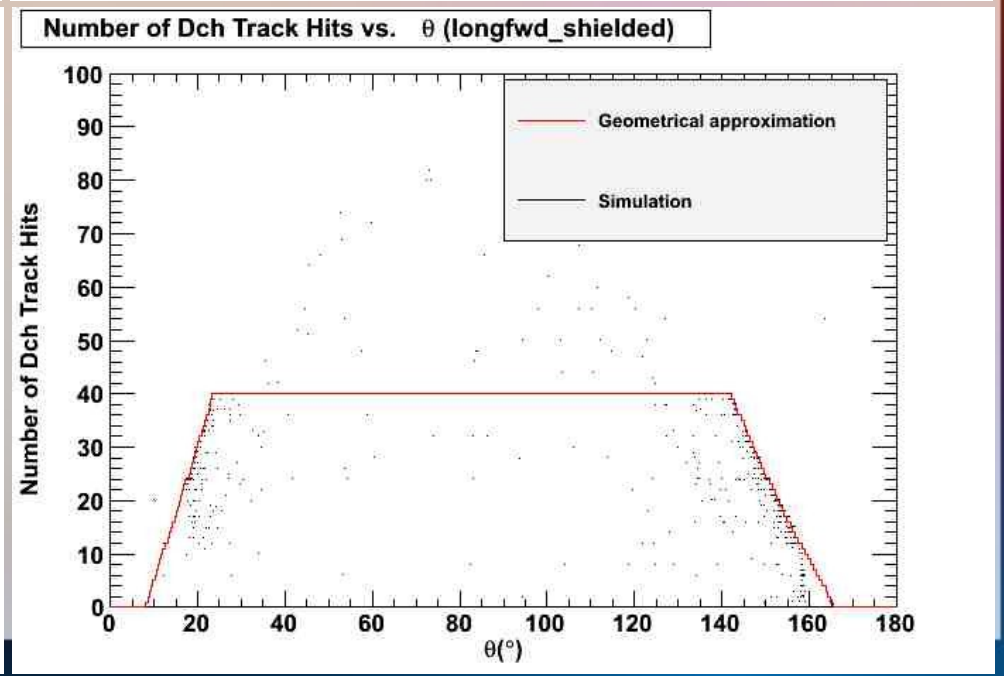


Longfwd (shielded) Geometry: SimHit Checks

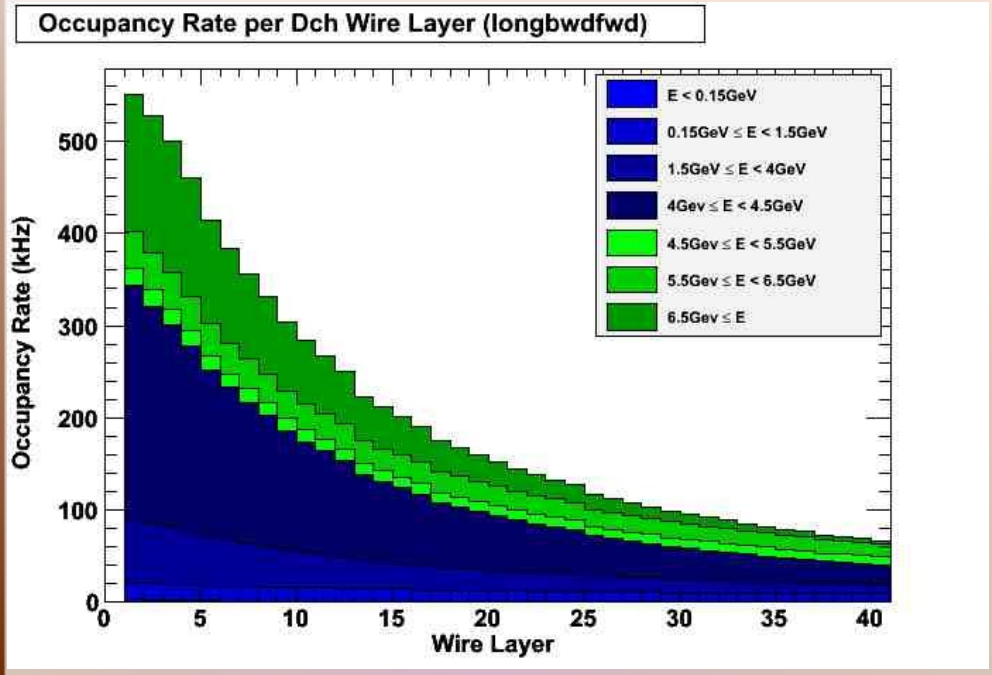


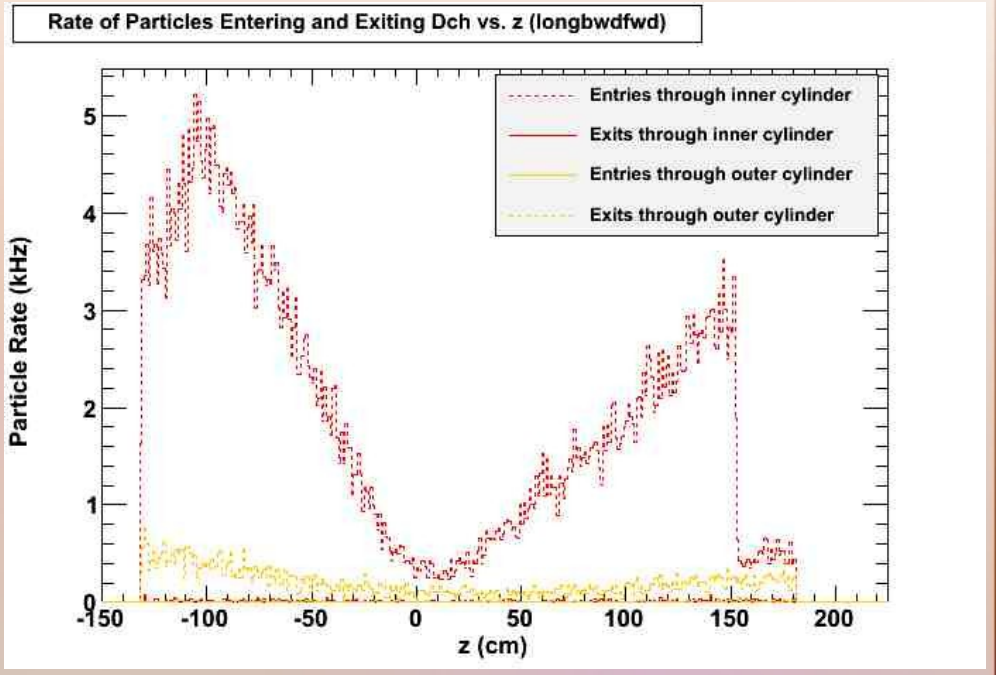


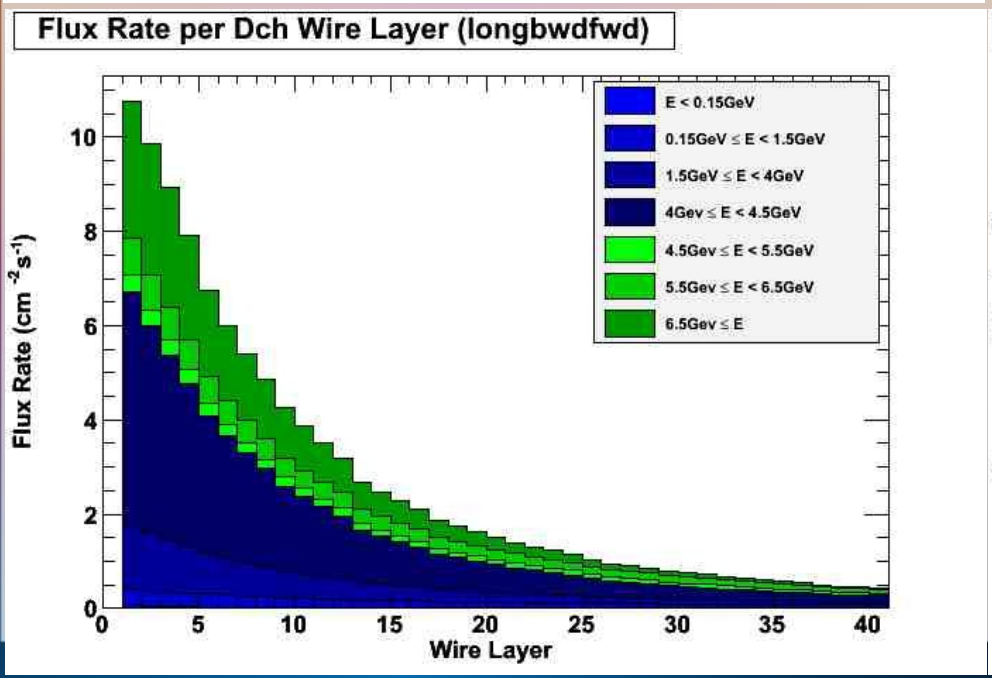


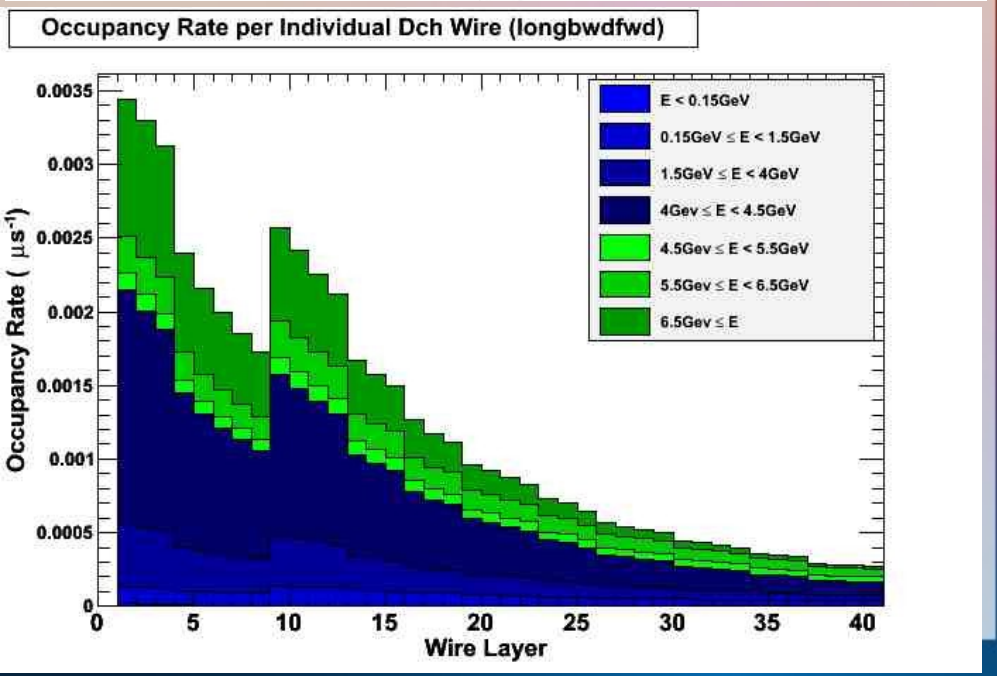


Longbwdfwd Geometry: Occupancy Rates

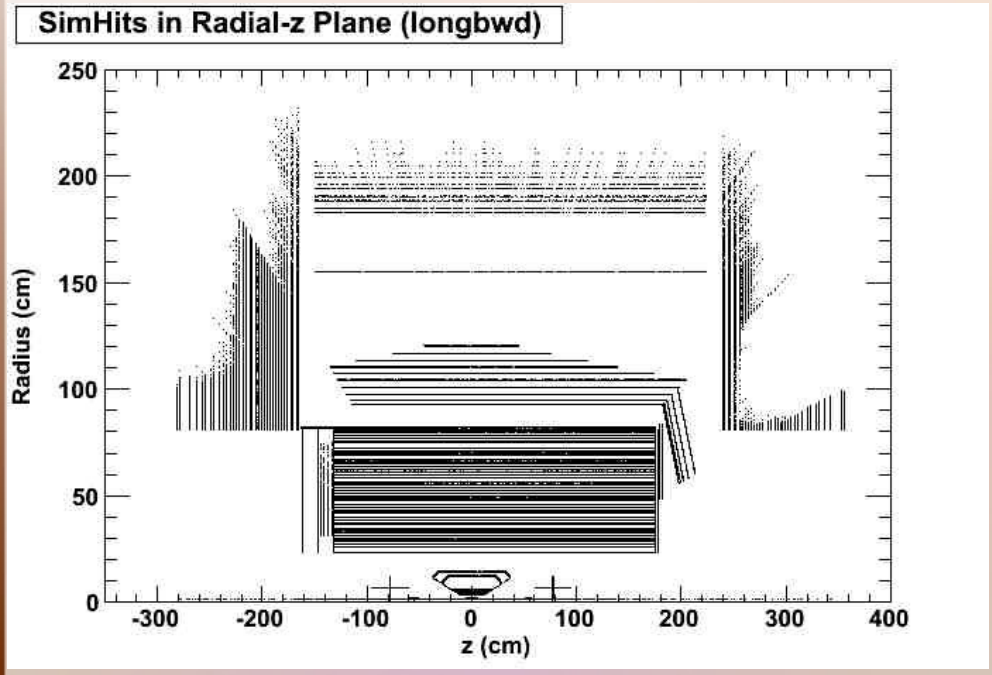


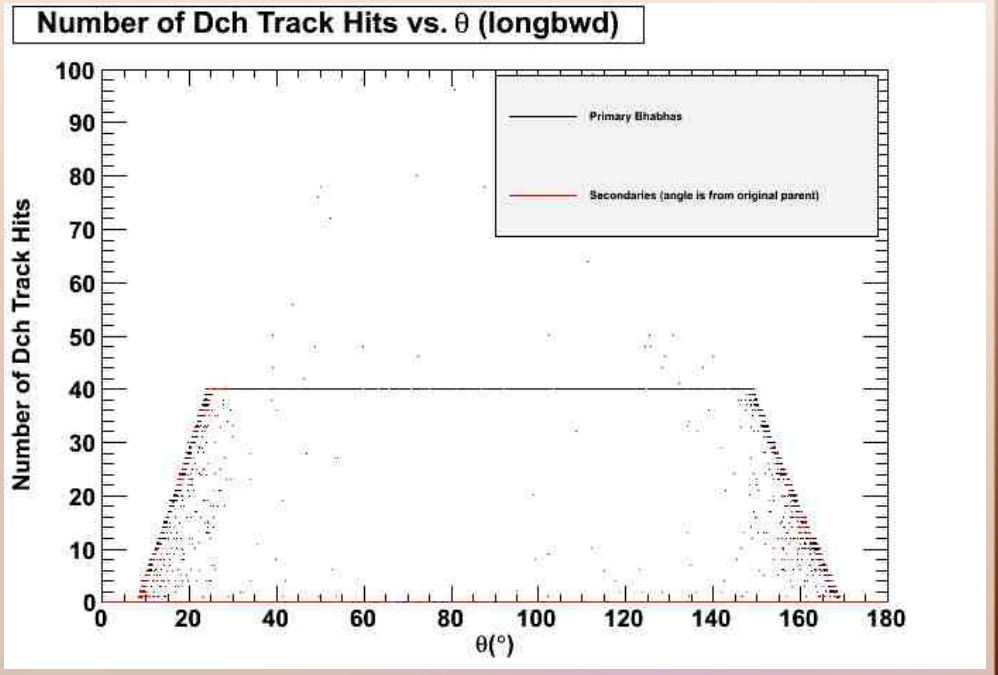


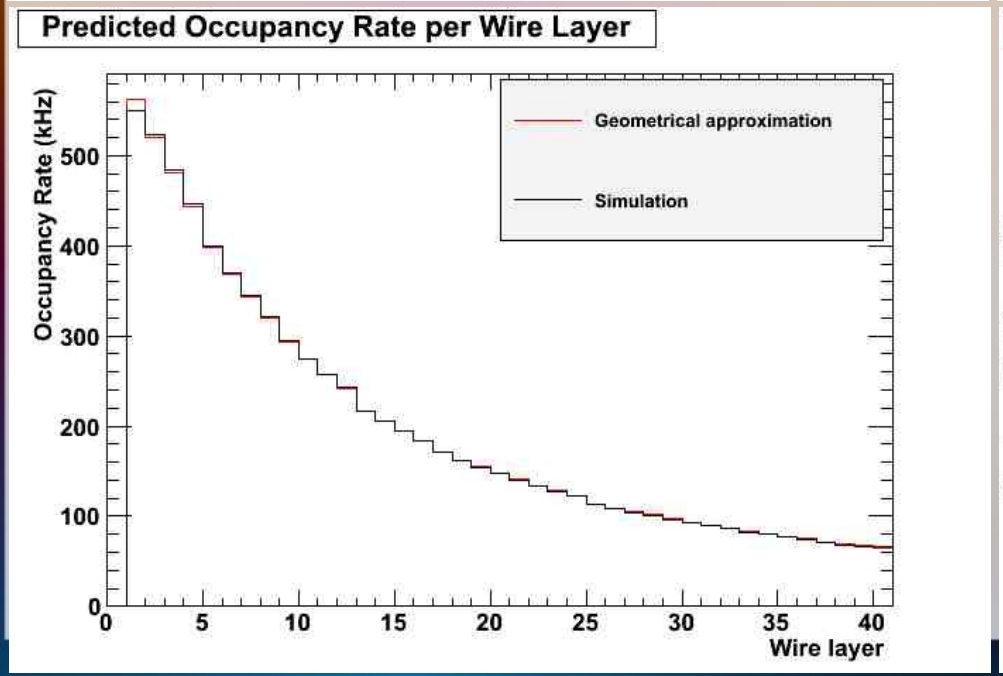


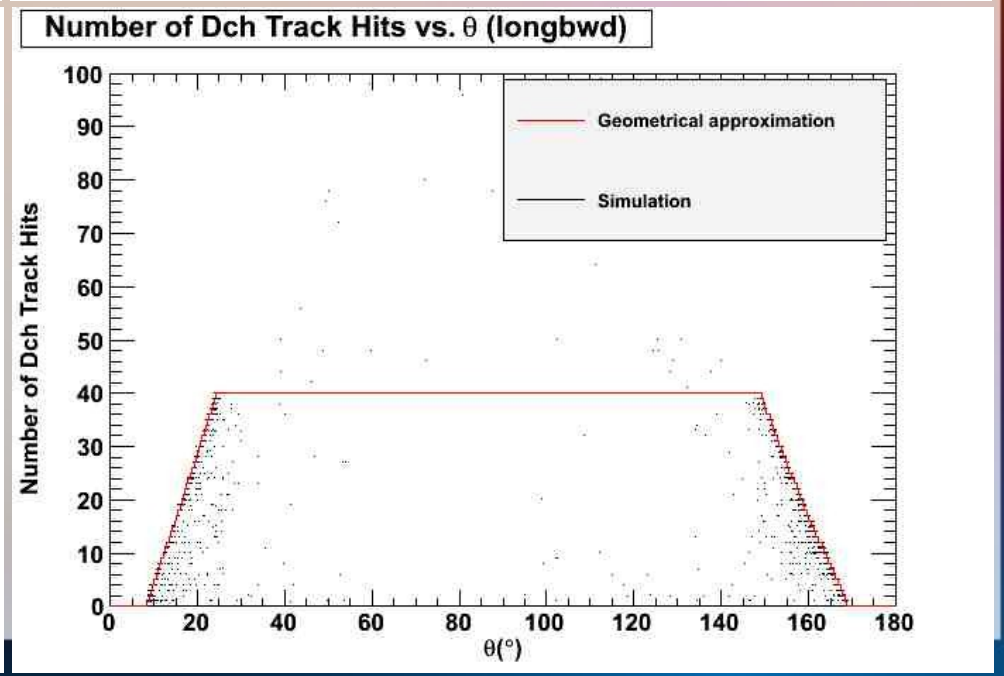


Longbwdfwd Geometry: SimHit Checks

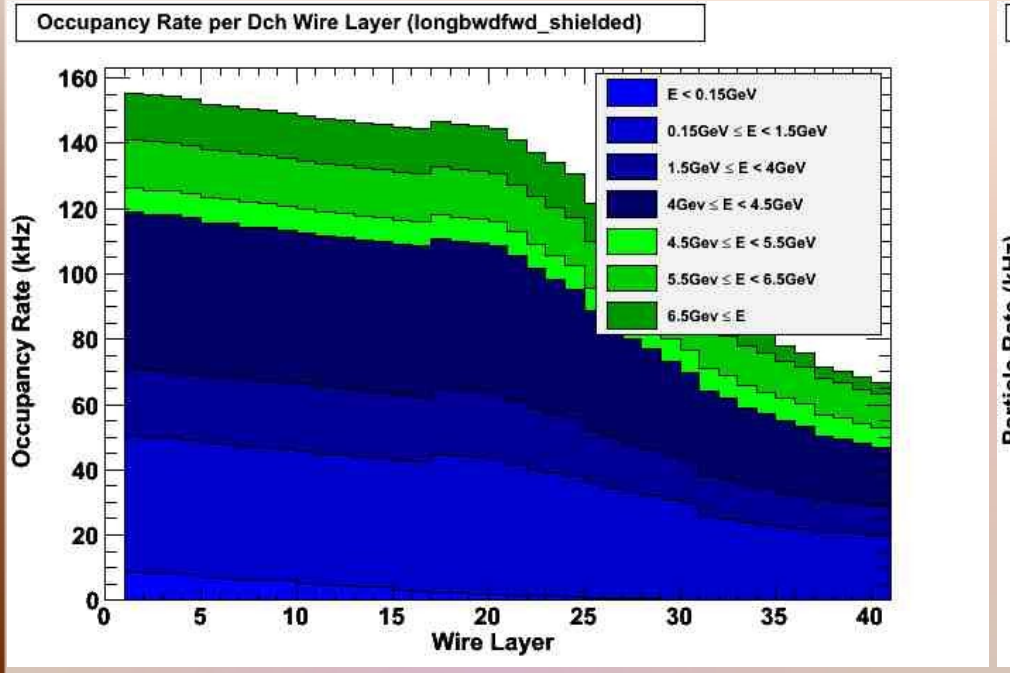


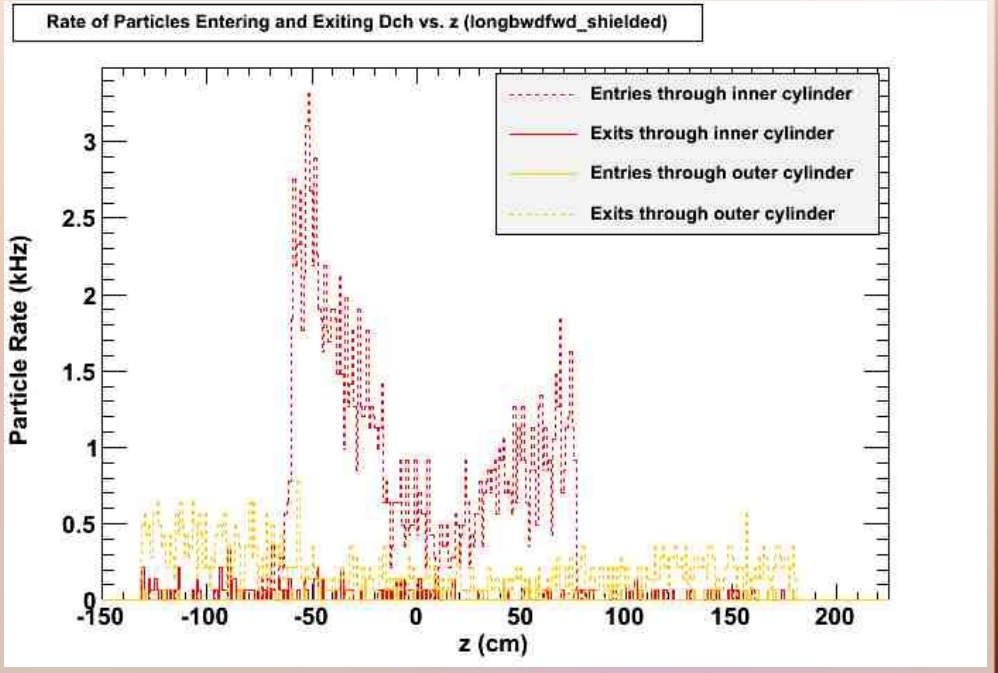


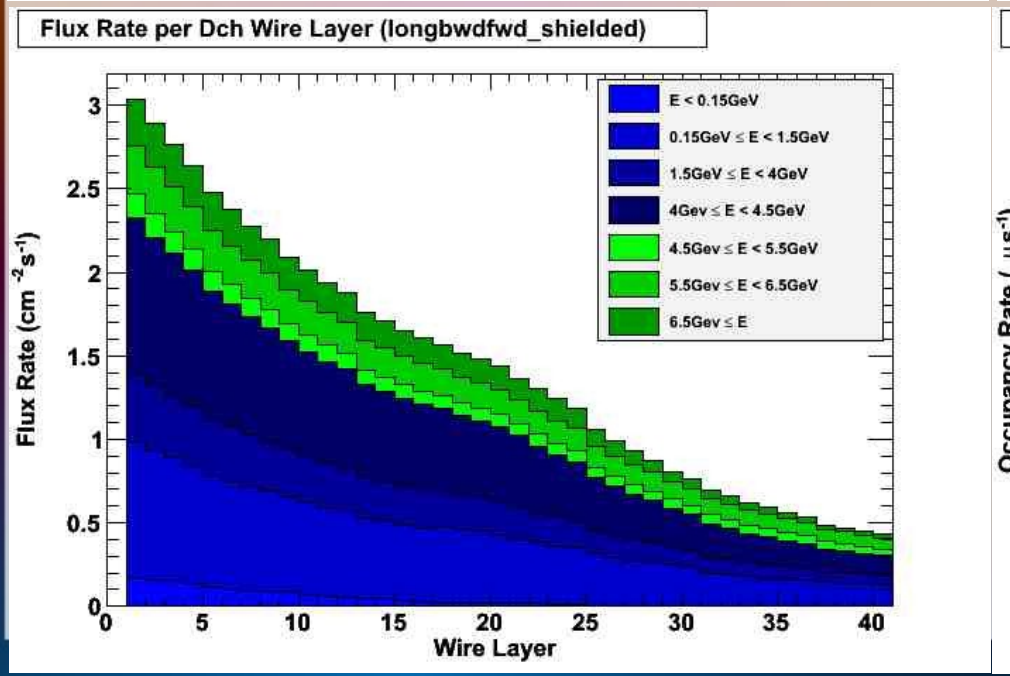


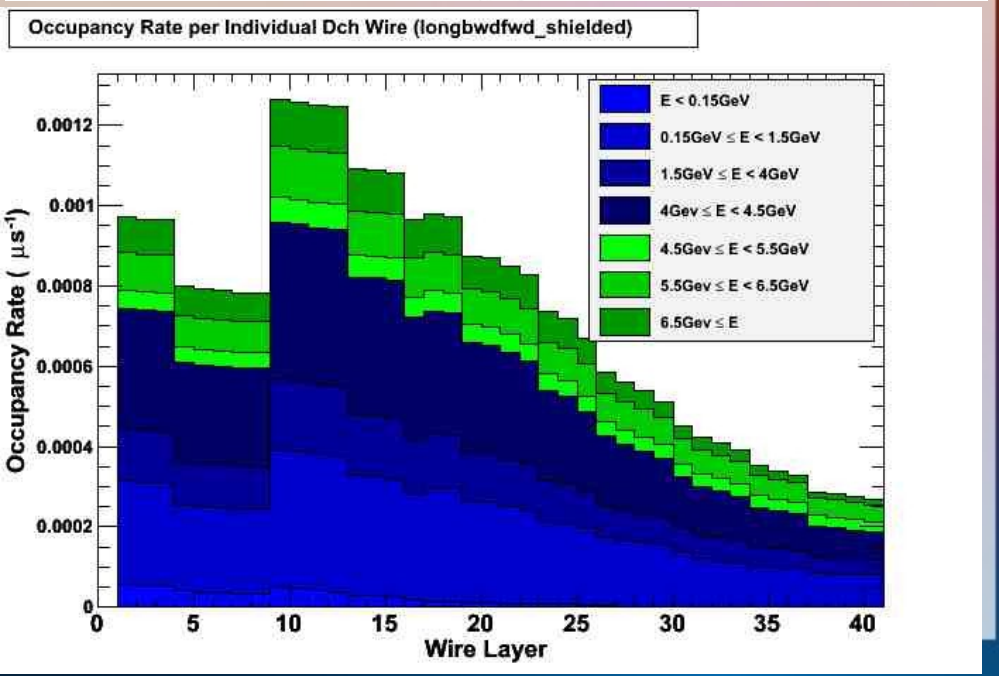


Longbwdfwd Geometry (shielded): Occupancy Rates

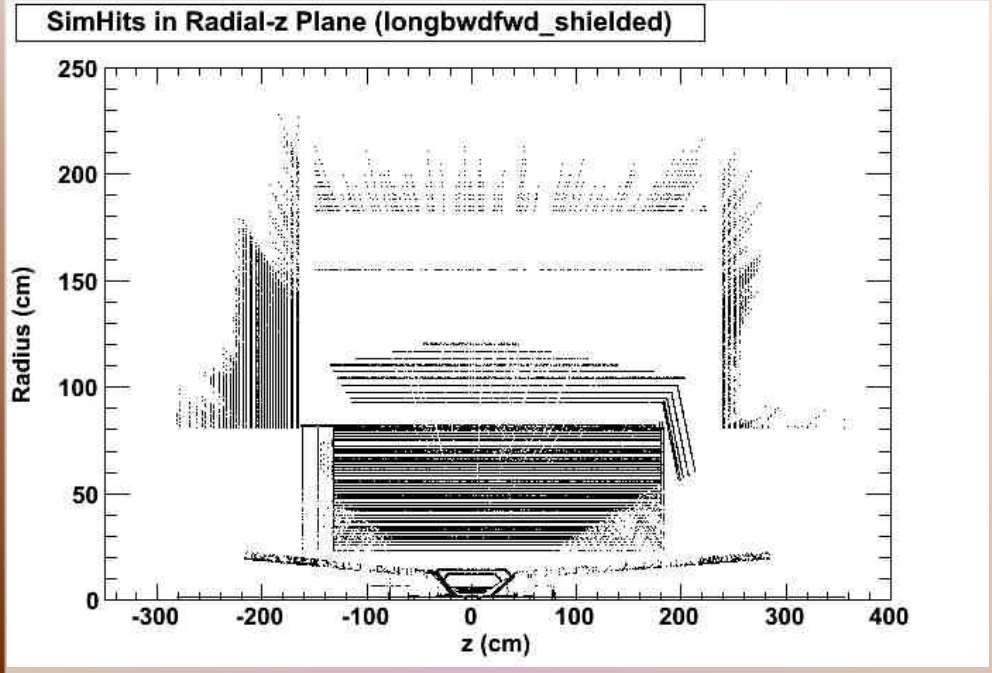


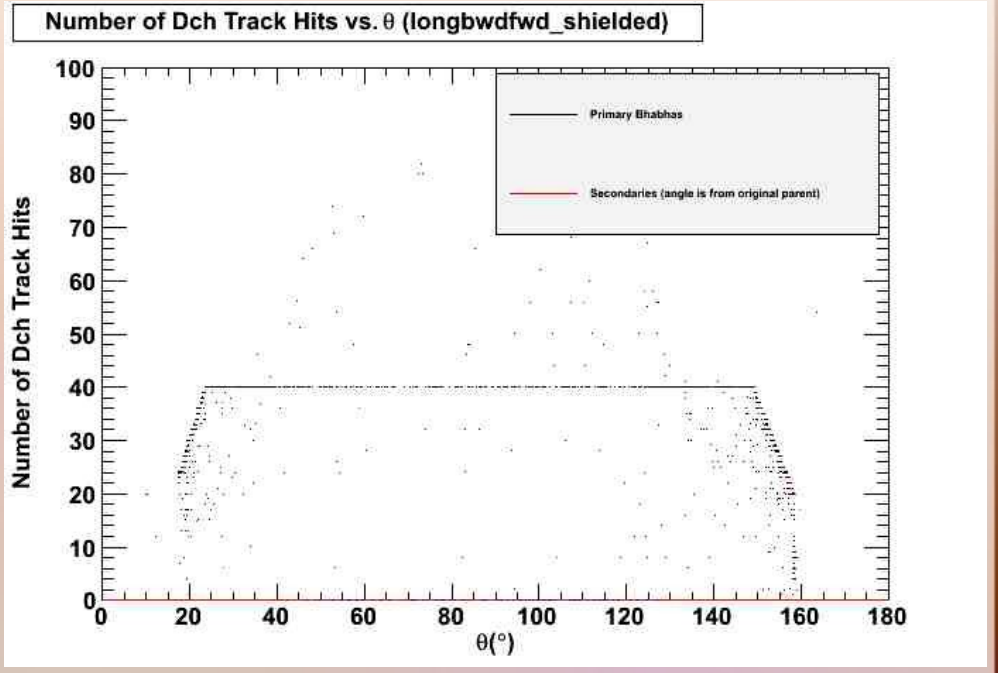


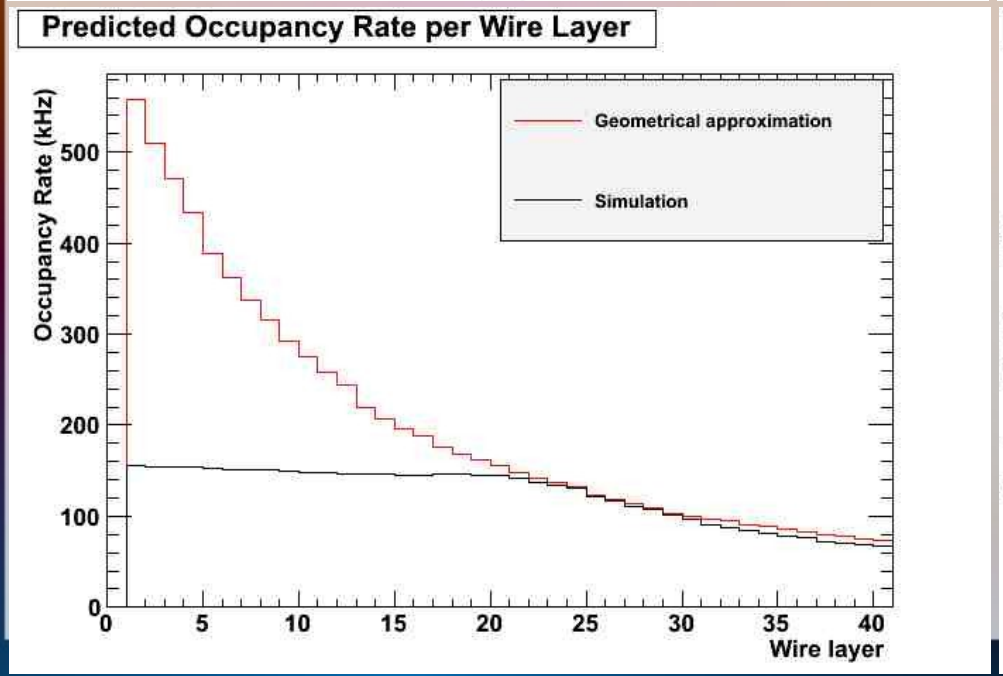


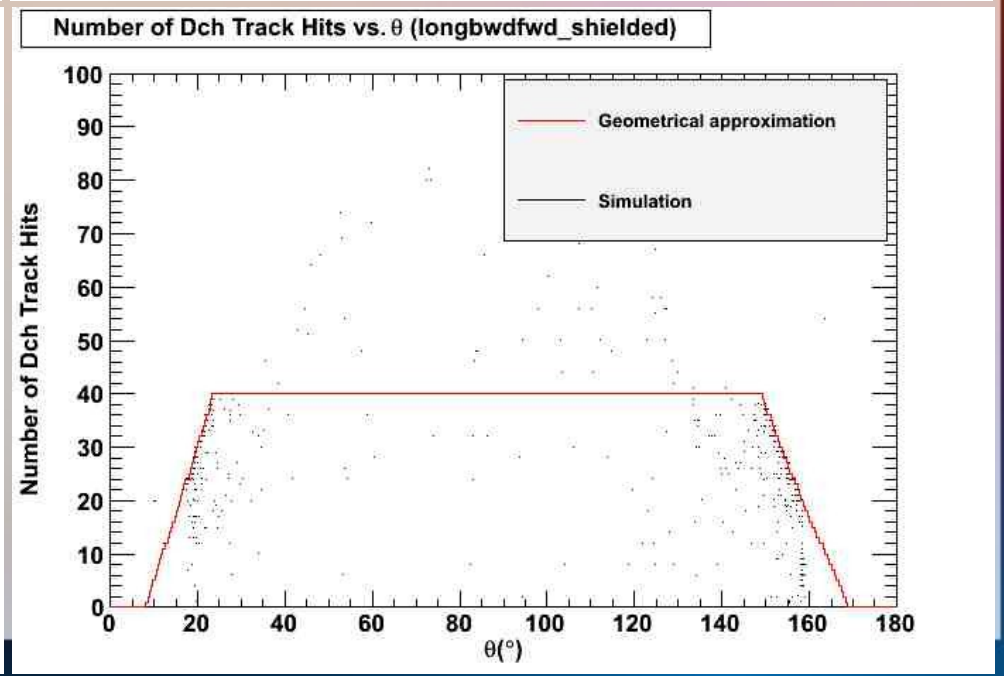


Longbwdfwd Geometry (shielded): SimHit Checks

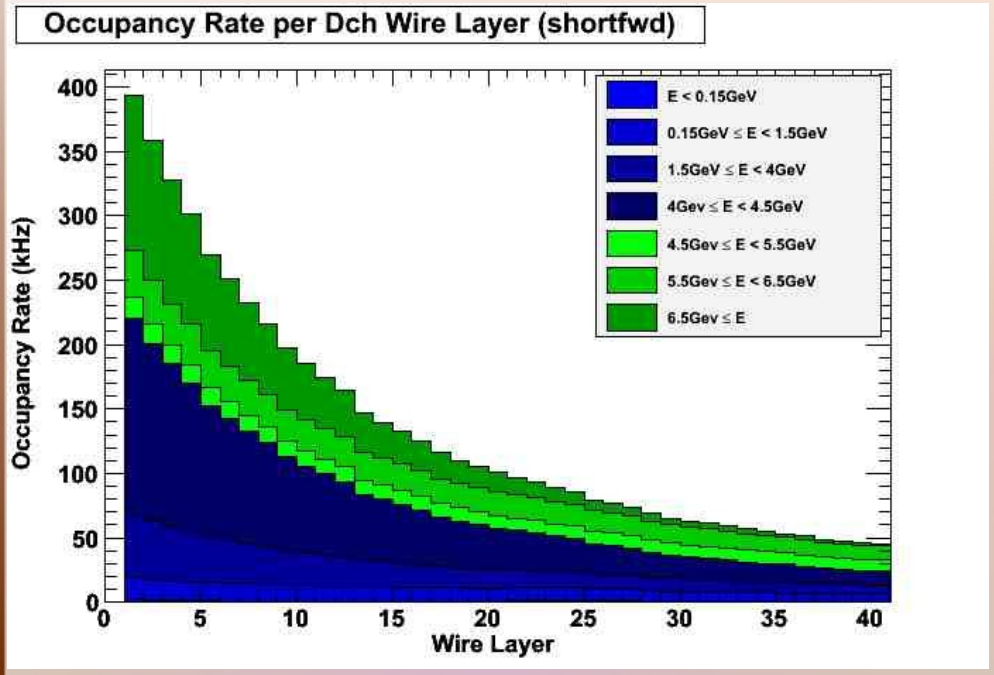


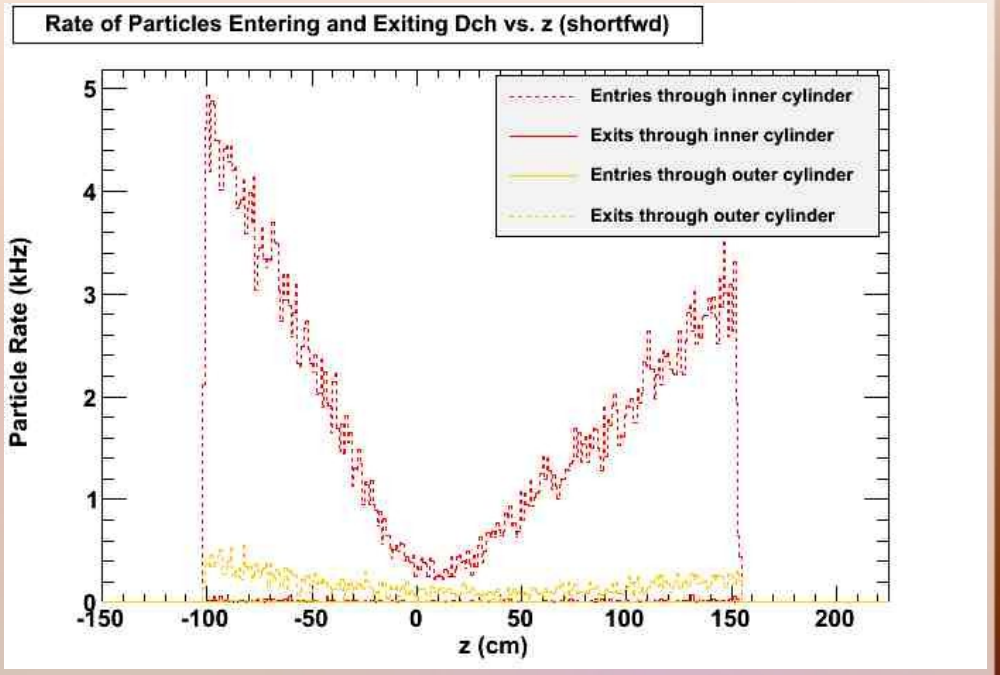


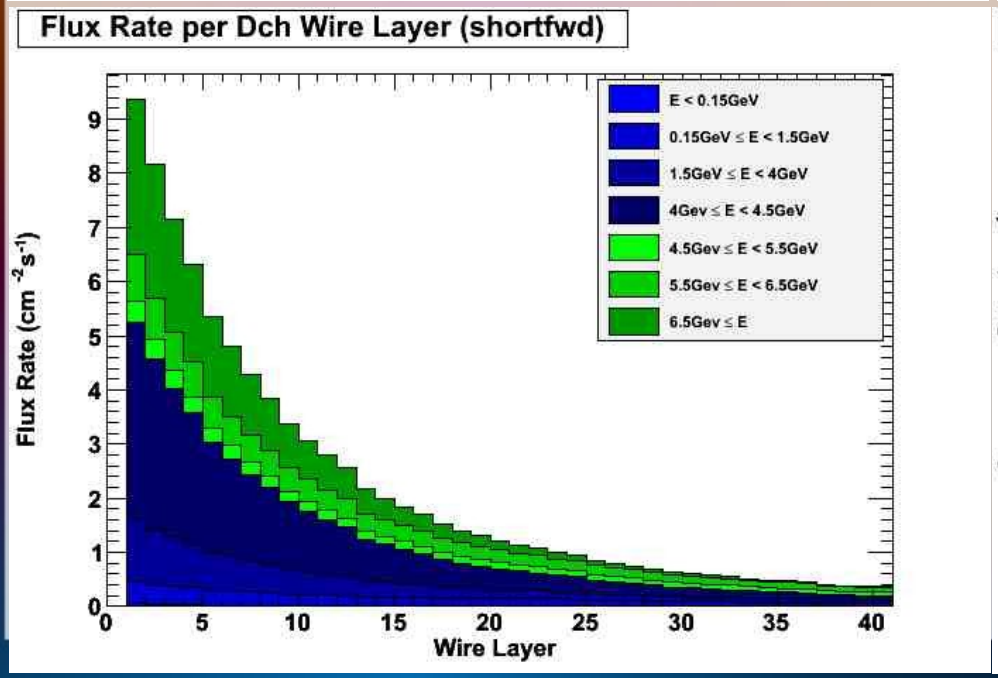


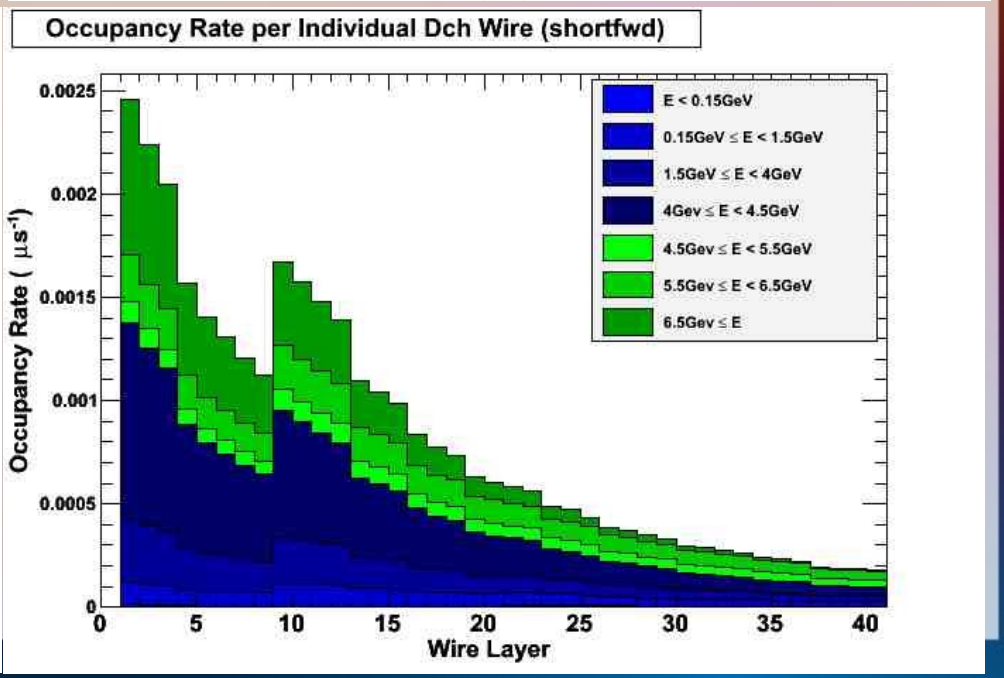


Shortfwd Geometry: Occupancy Rates

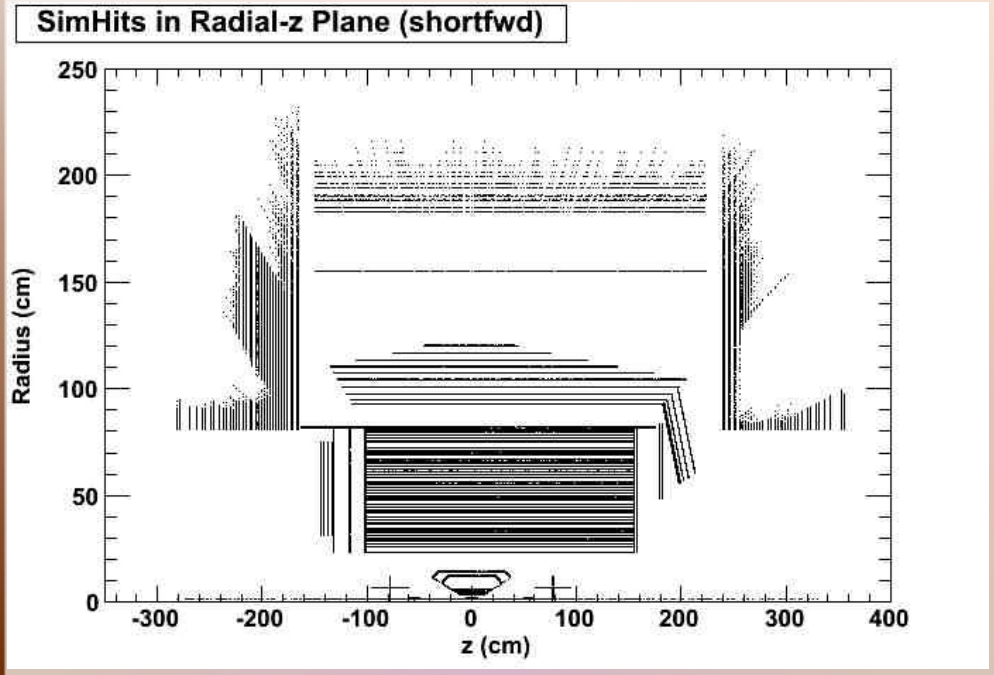


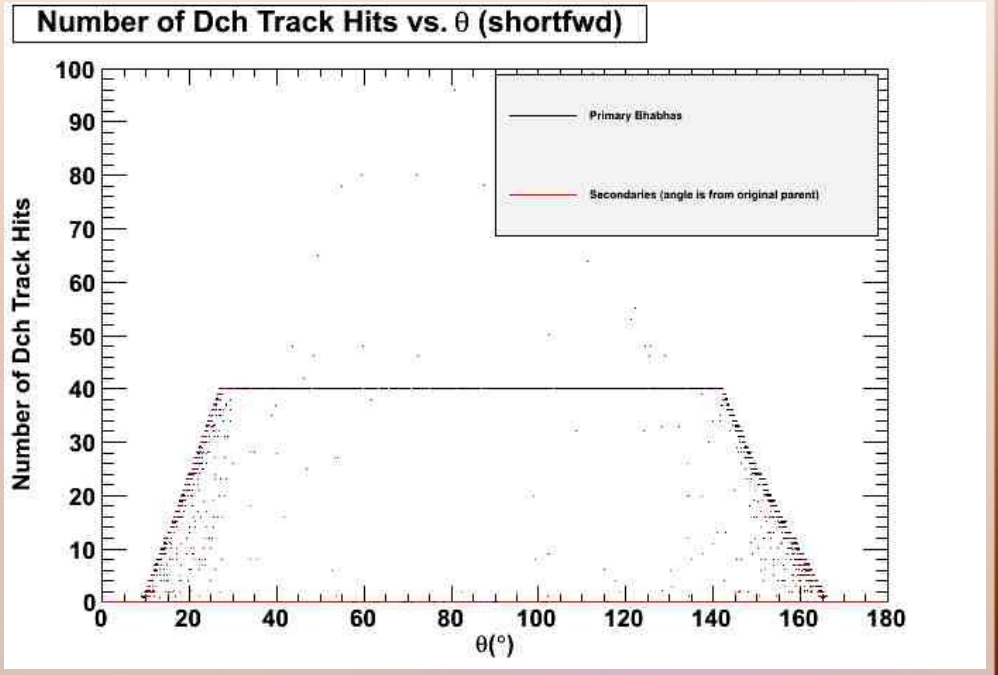


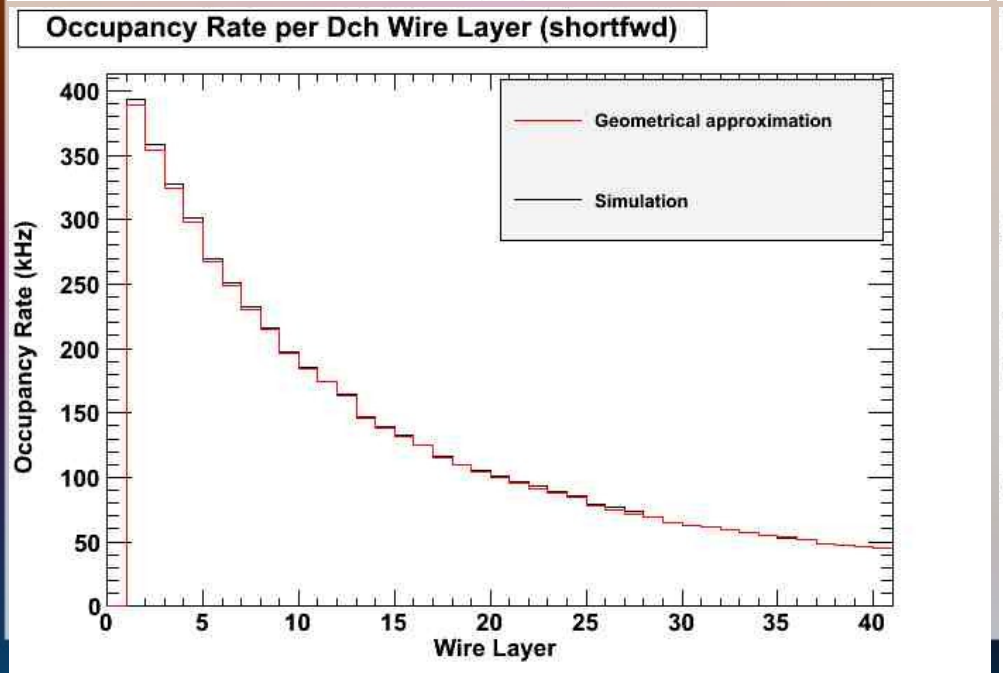


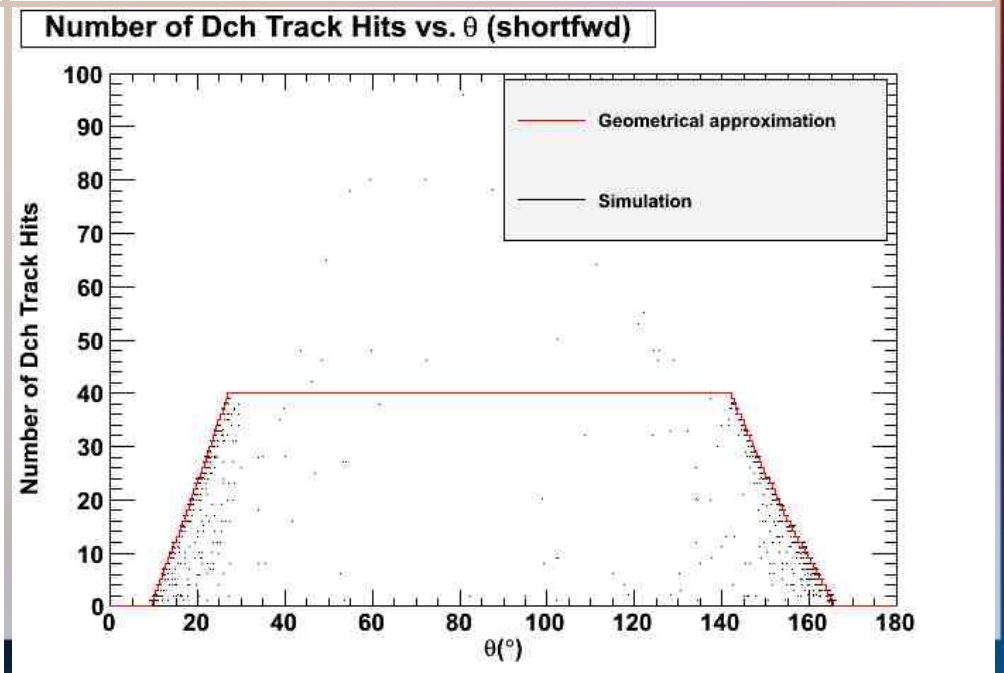


Shortfwd Geometry: SimHit Checks

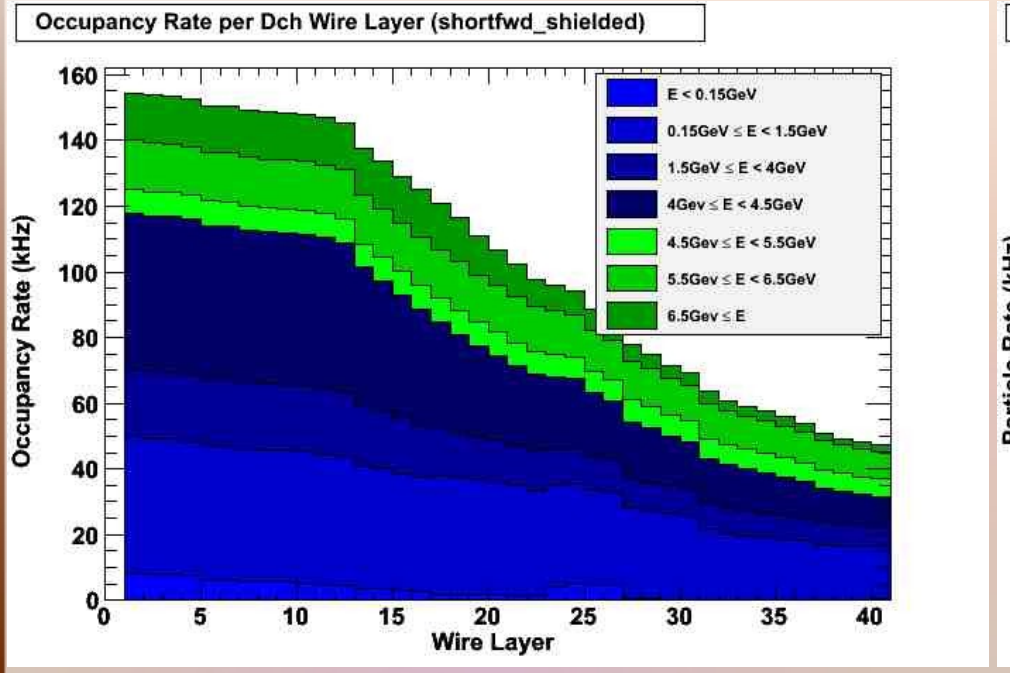


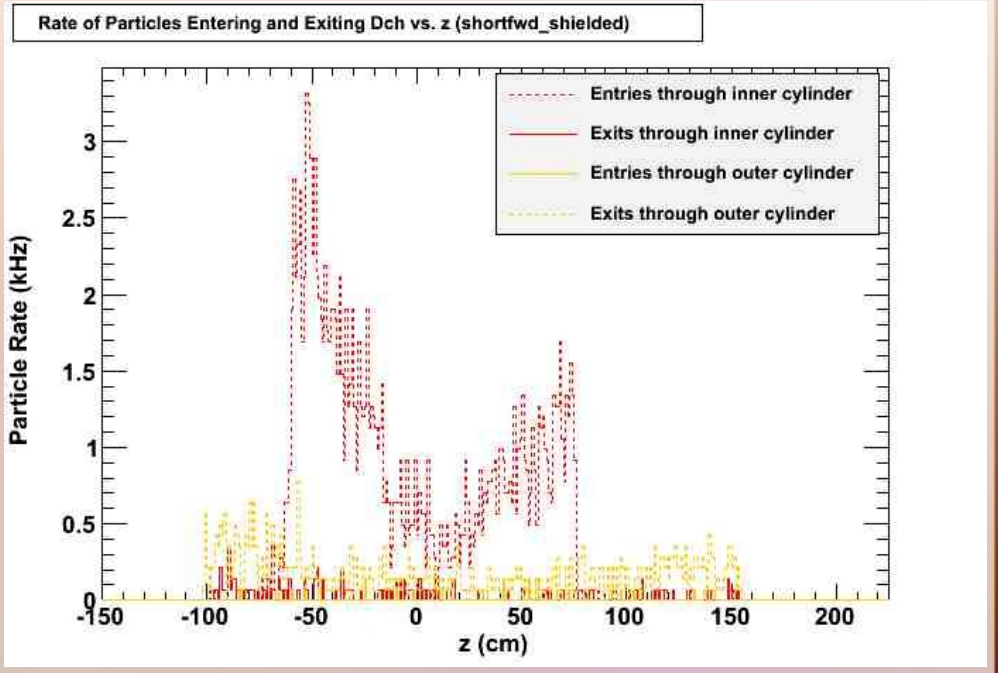


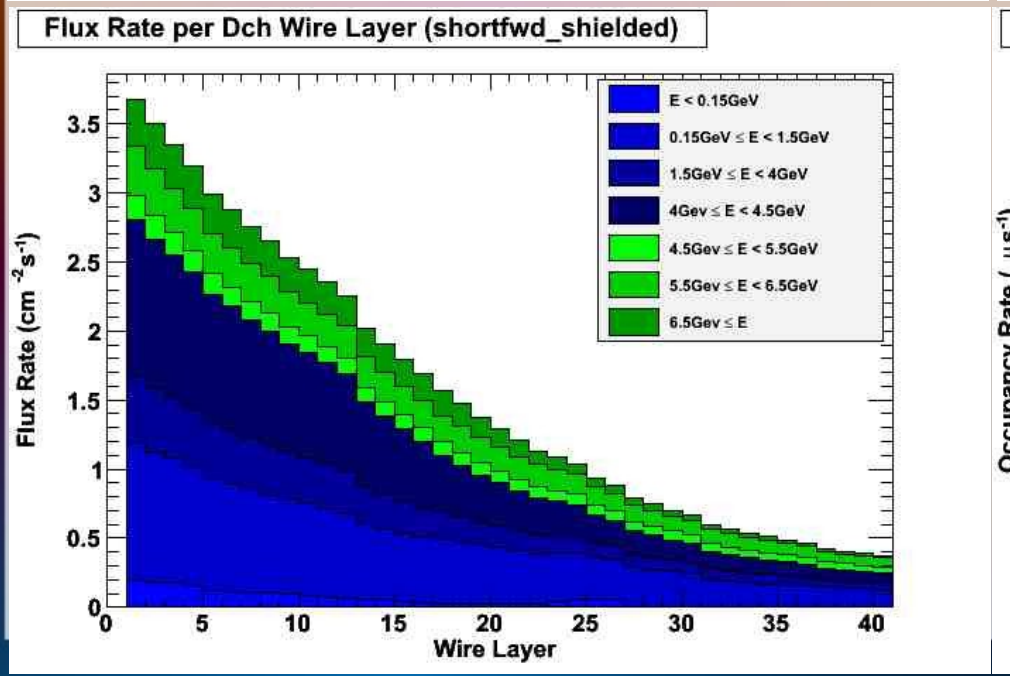


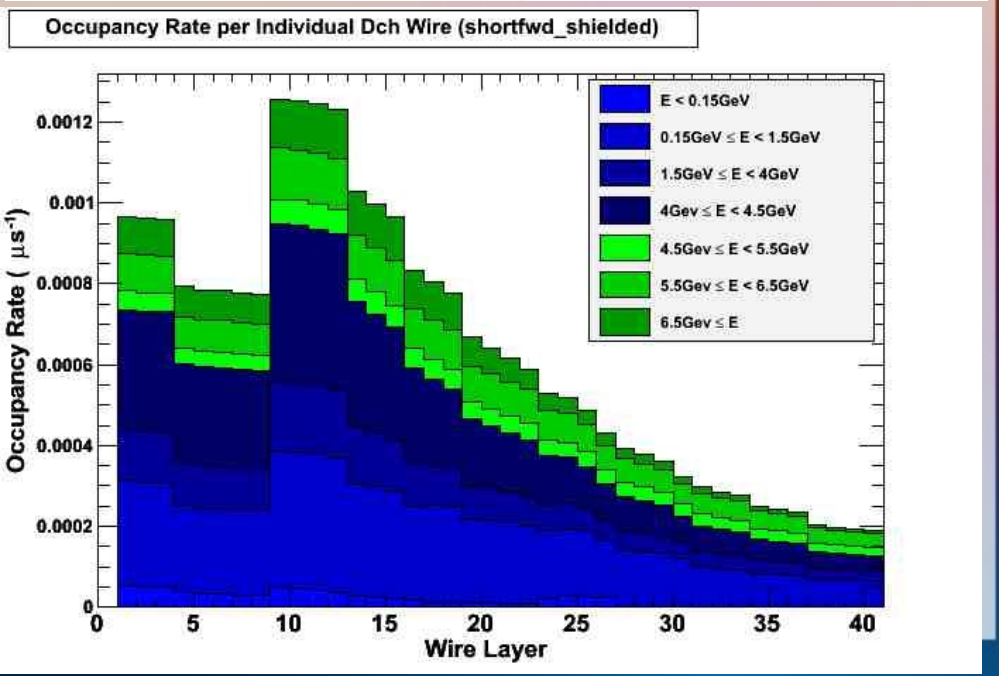


Shortfwd Geometry (shielded): Occupancy Rates

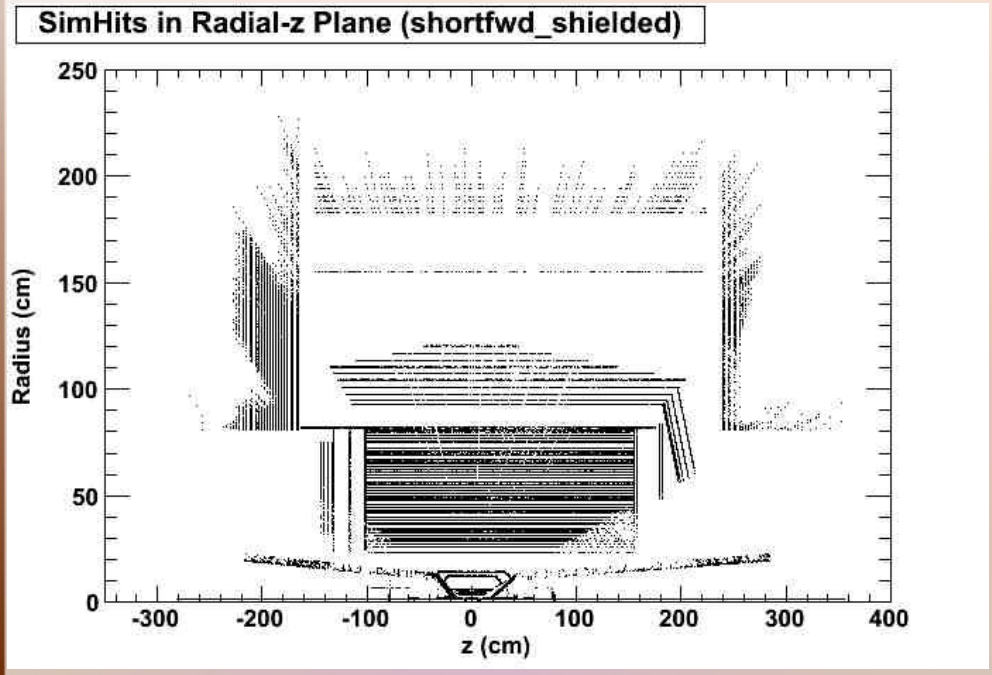


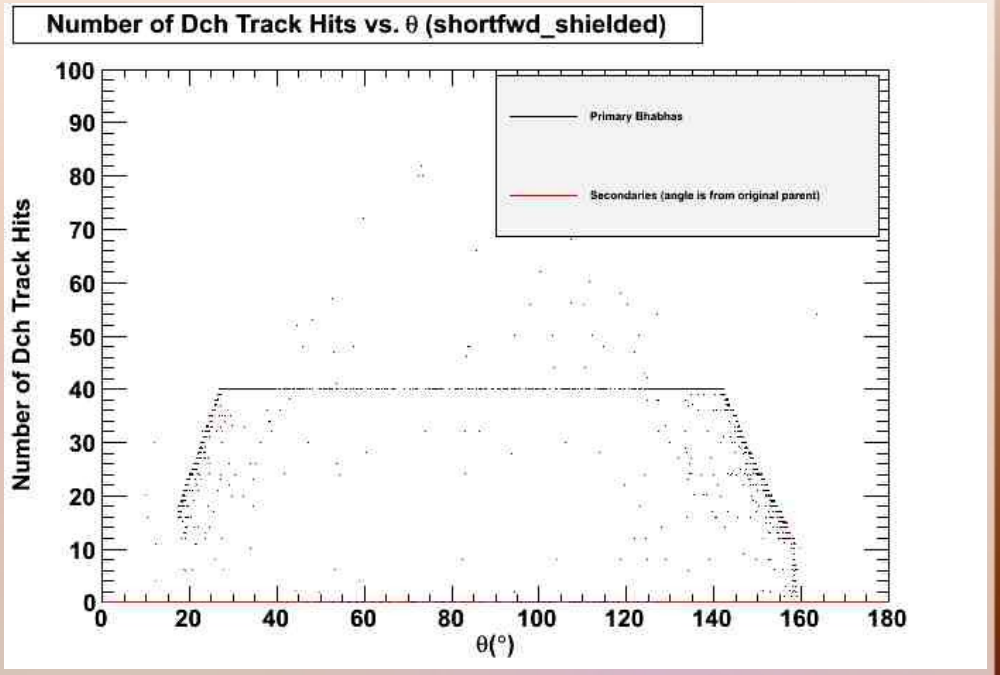


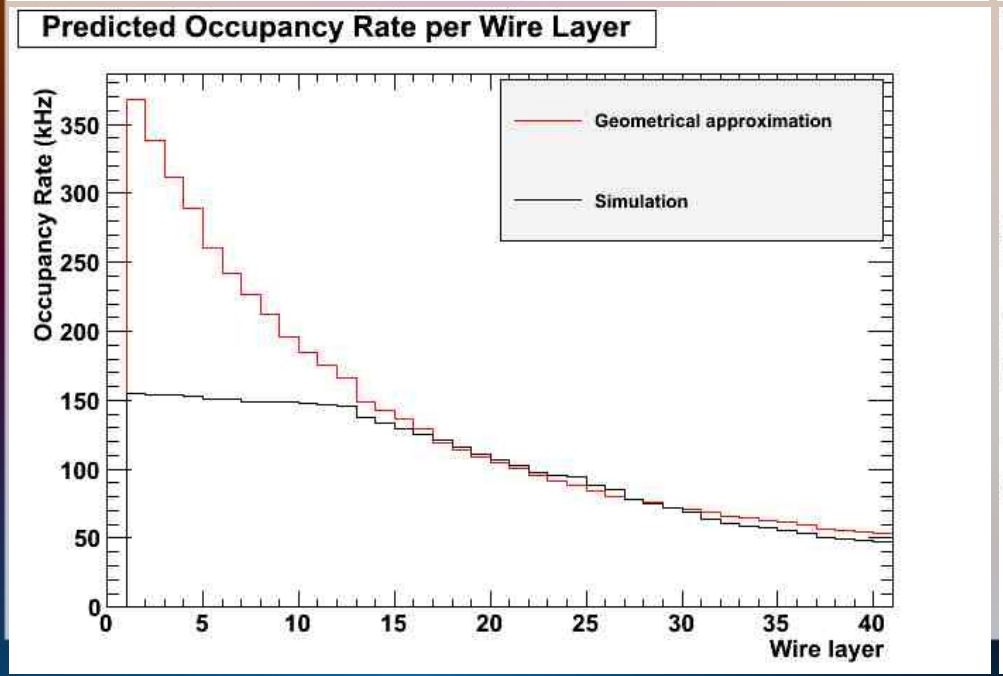


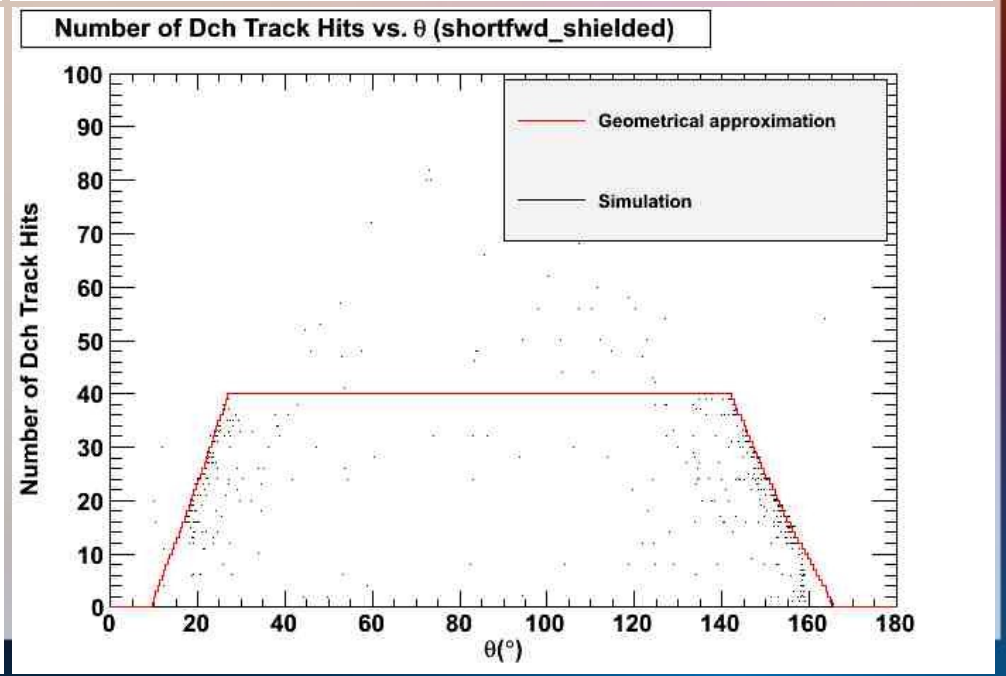


Shortfwd Geometry (shielded): SimHit Checks

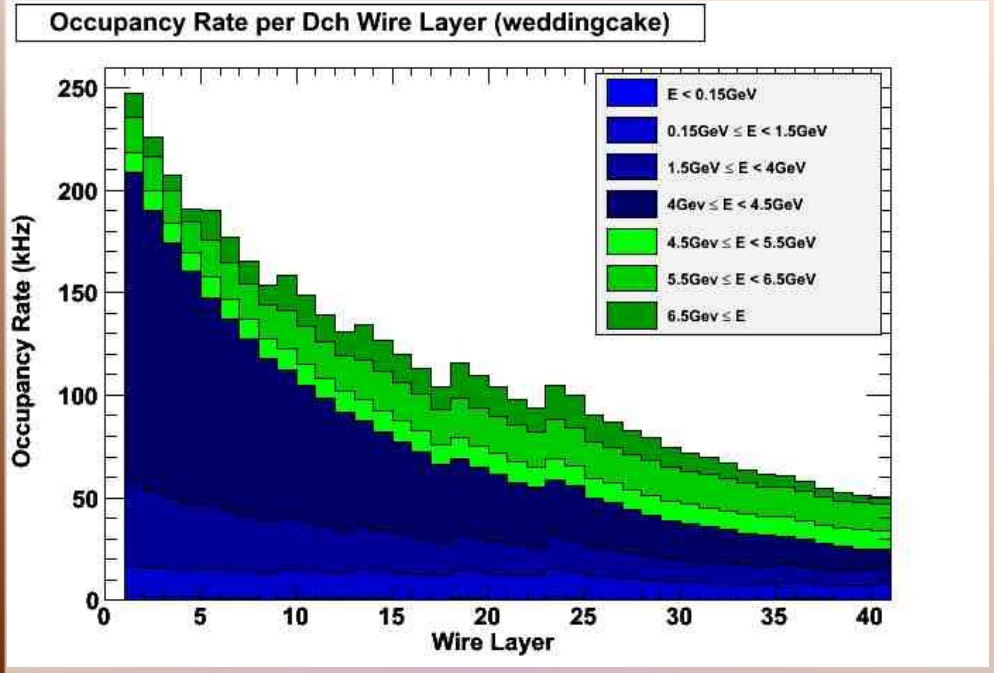


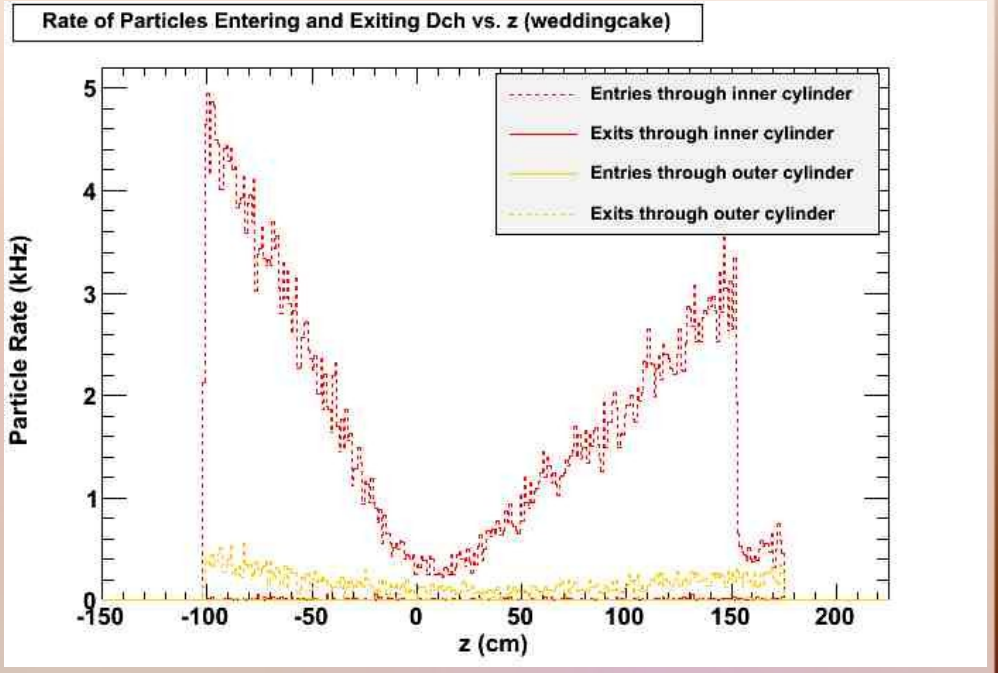


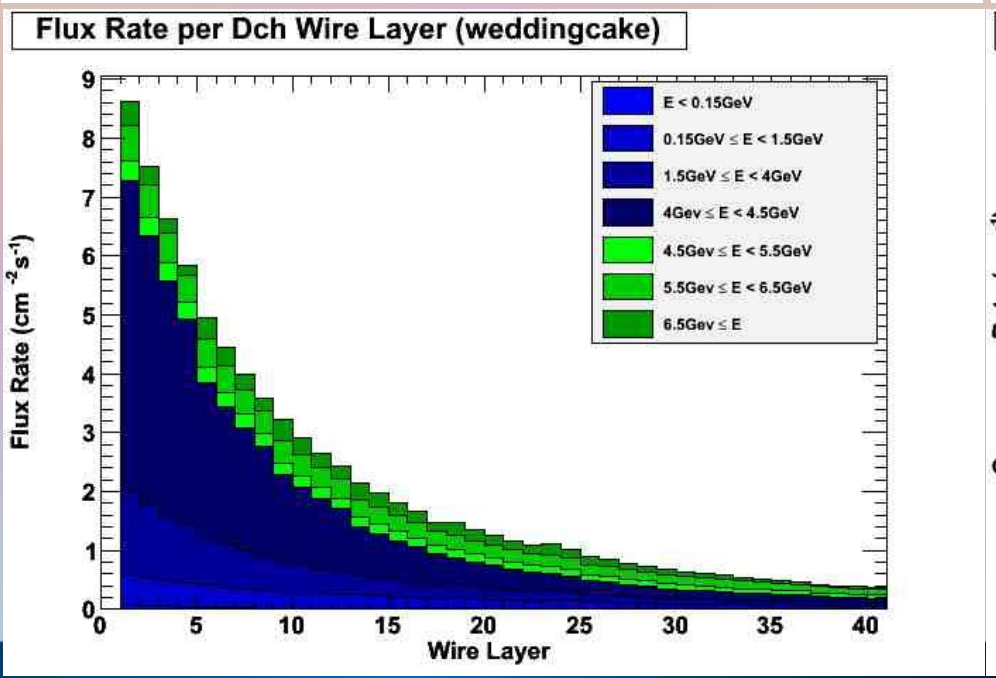


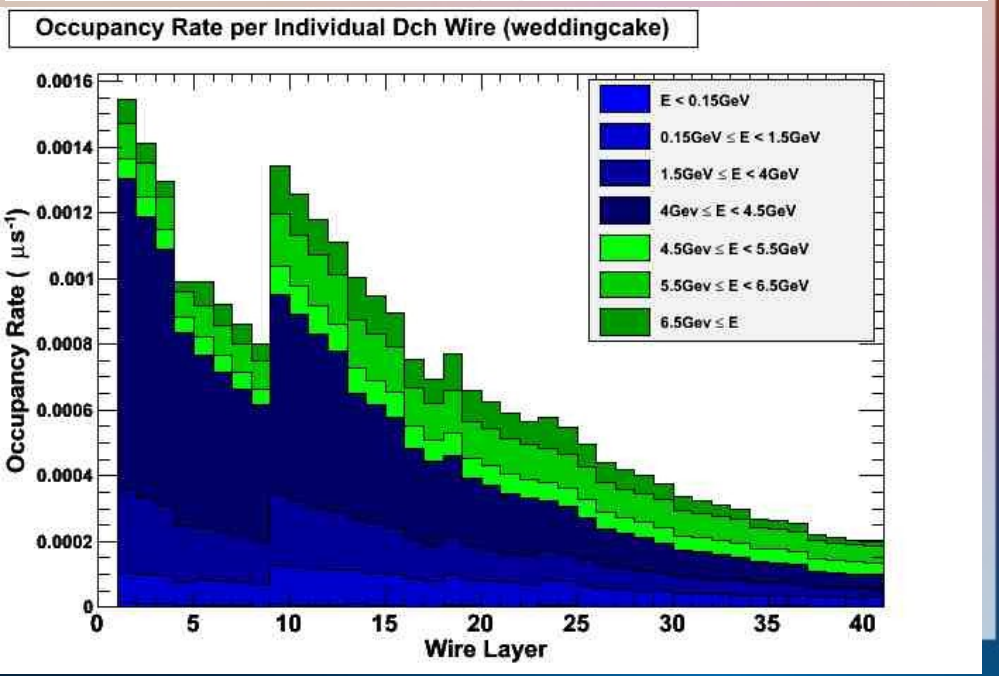


Weddingcake Geometry: Occupancy Rates

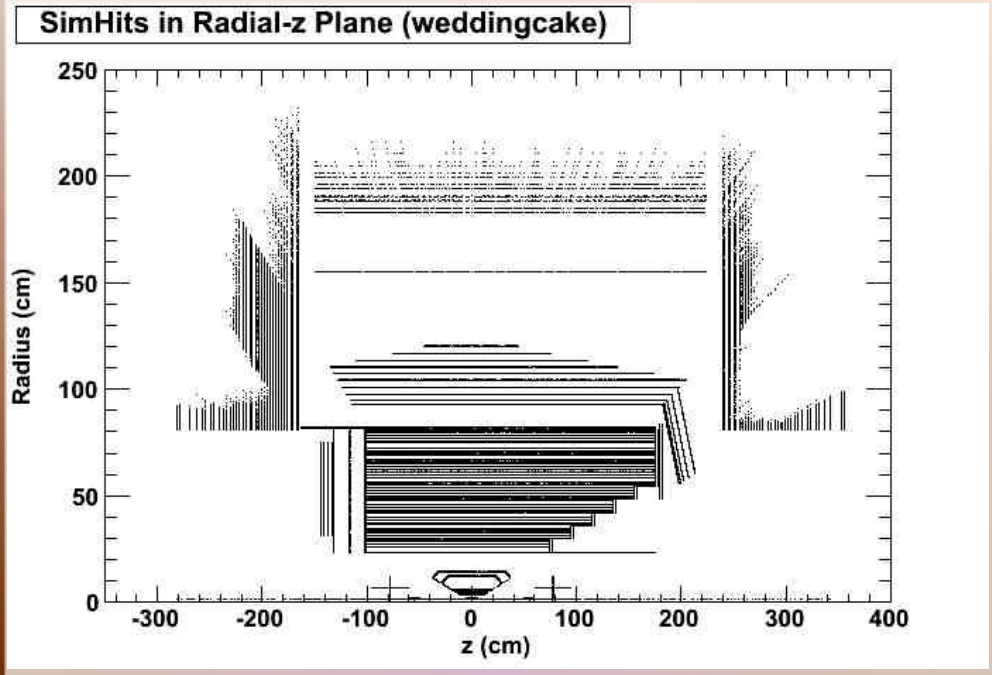


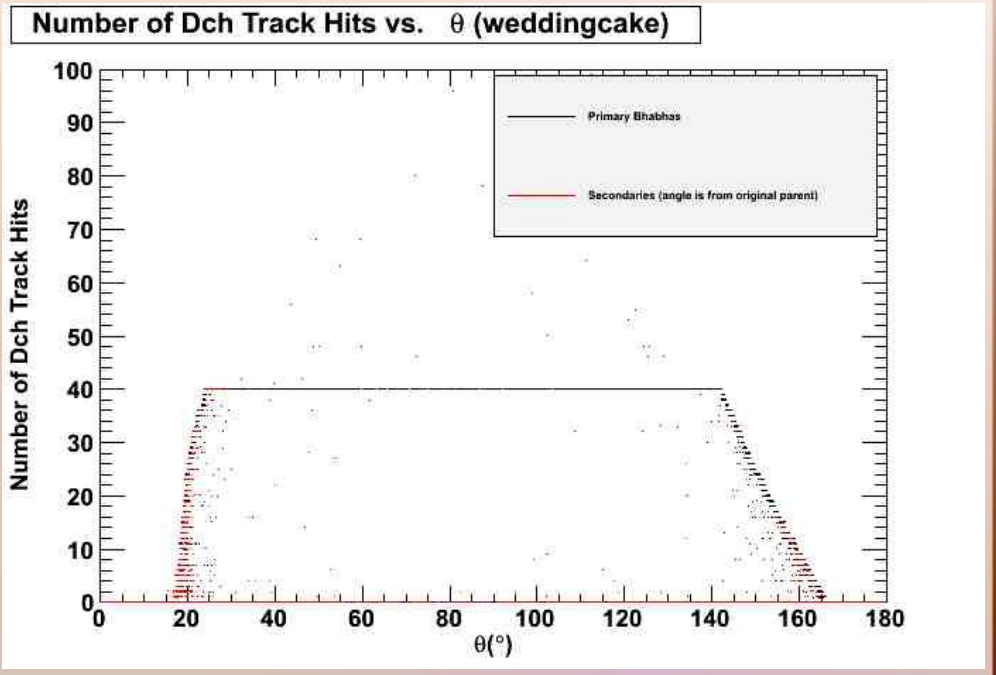


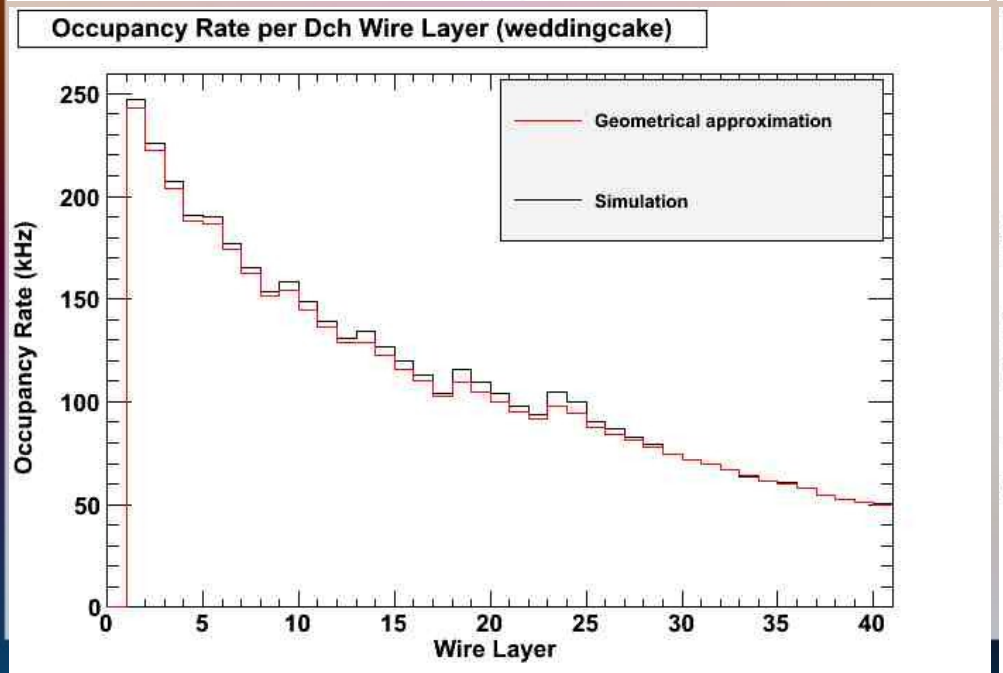


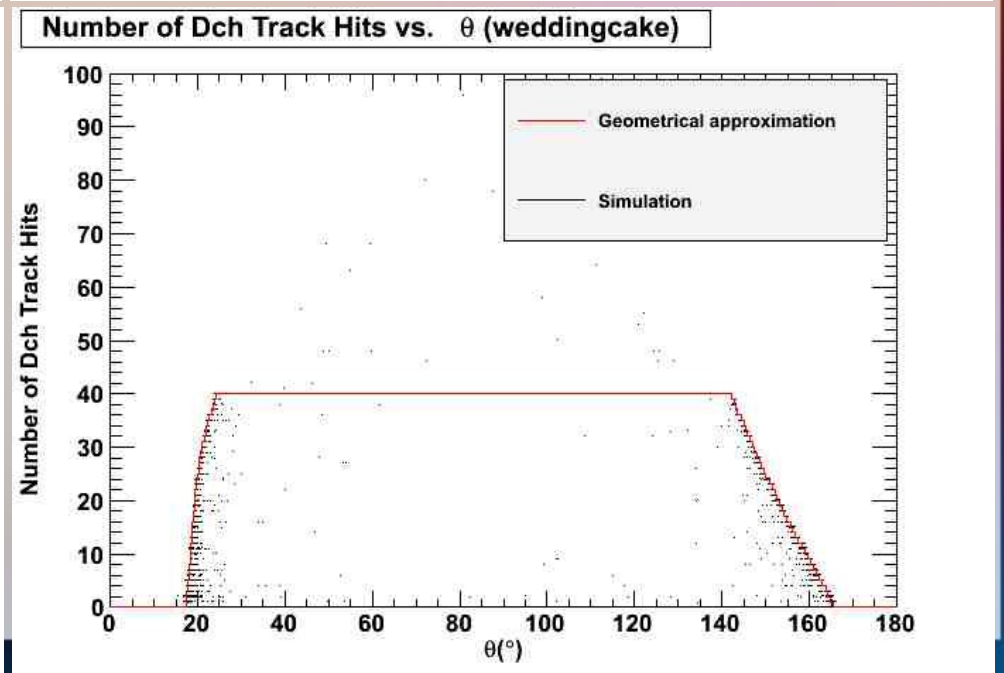


Weddingcake Geometry: SimHit Checks

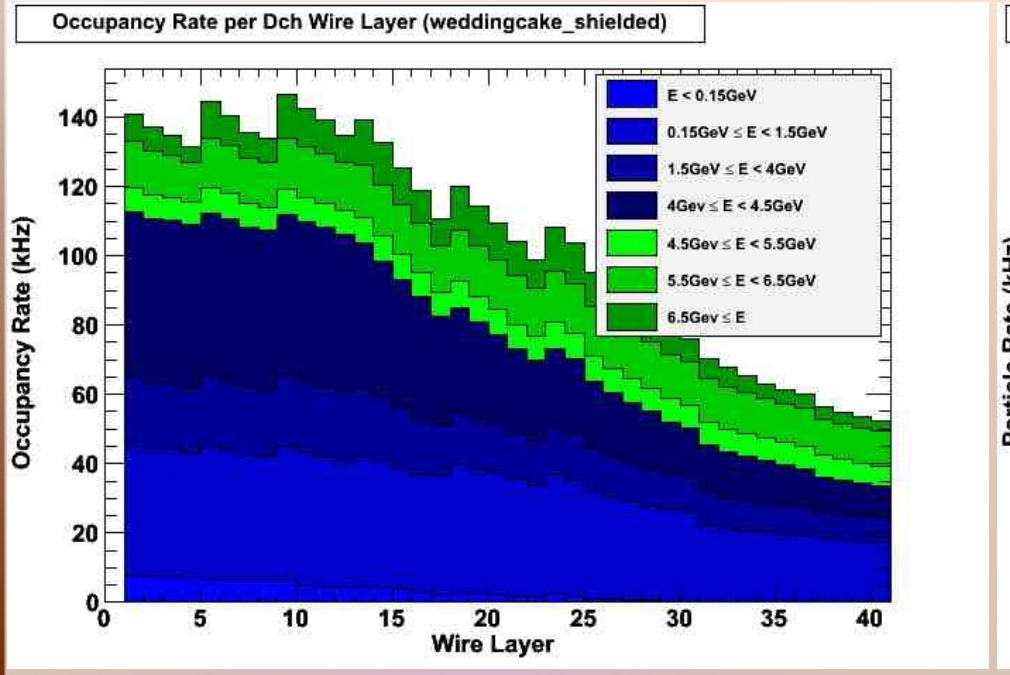


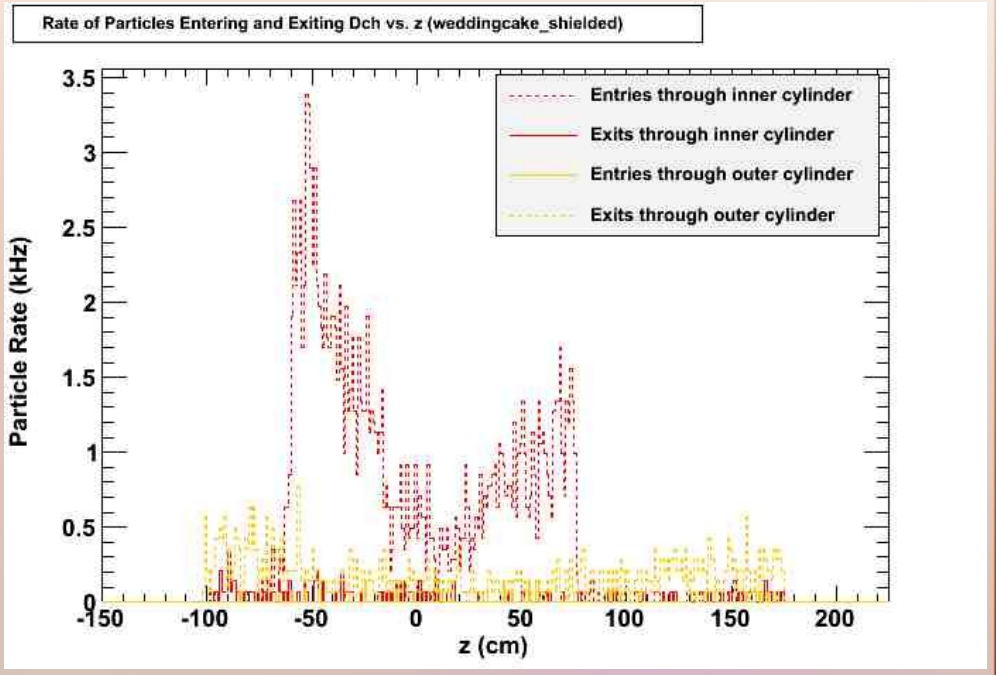


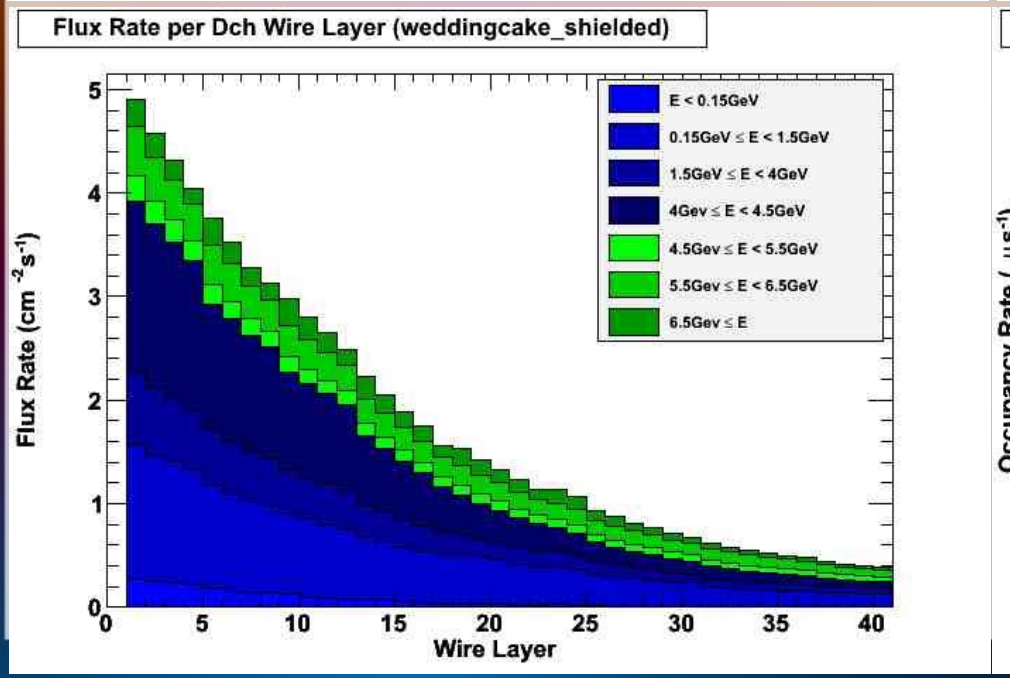


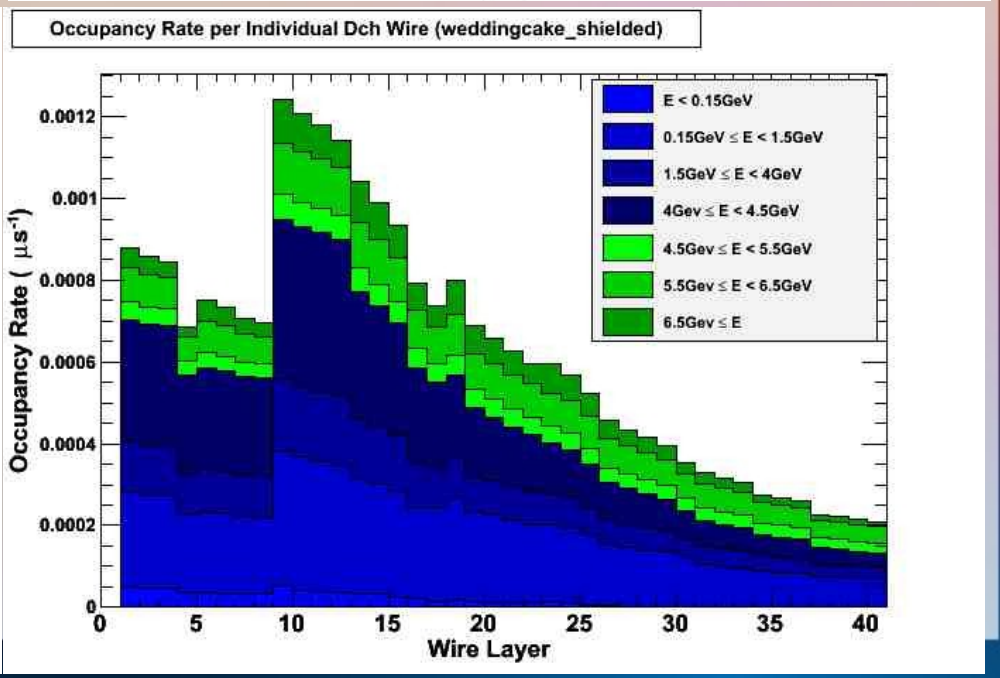


Weddingcake Geometry (shielded): Occupancy Rates

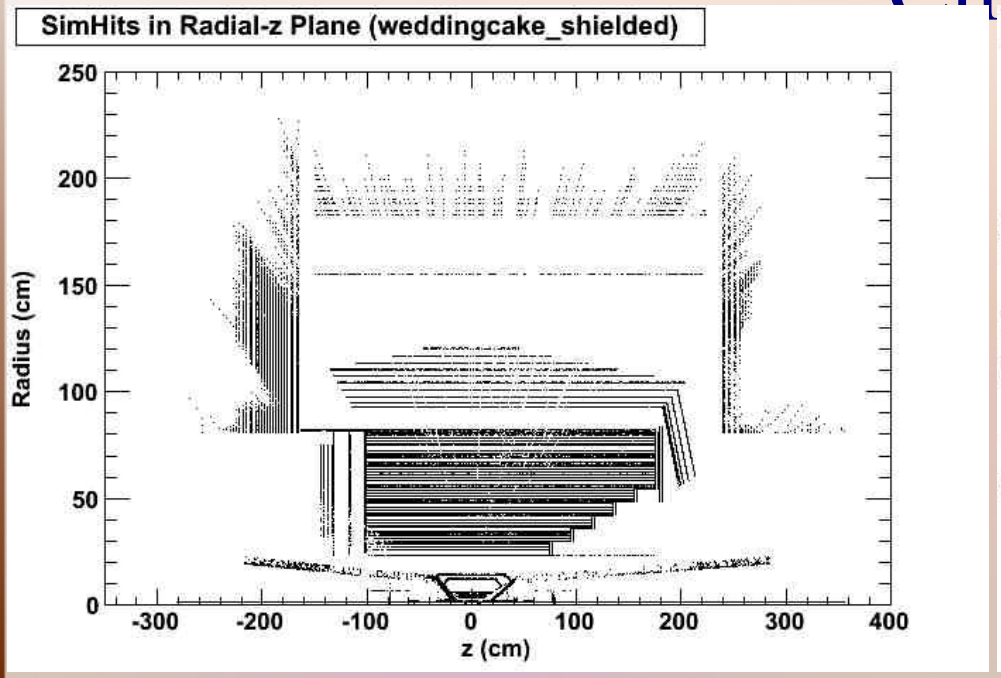


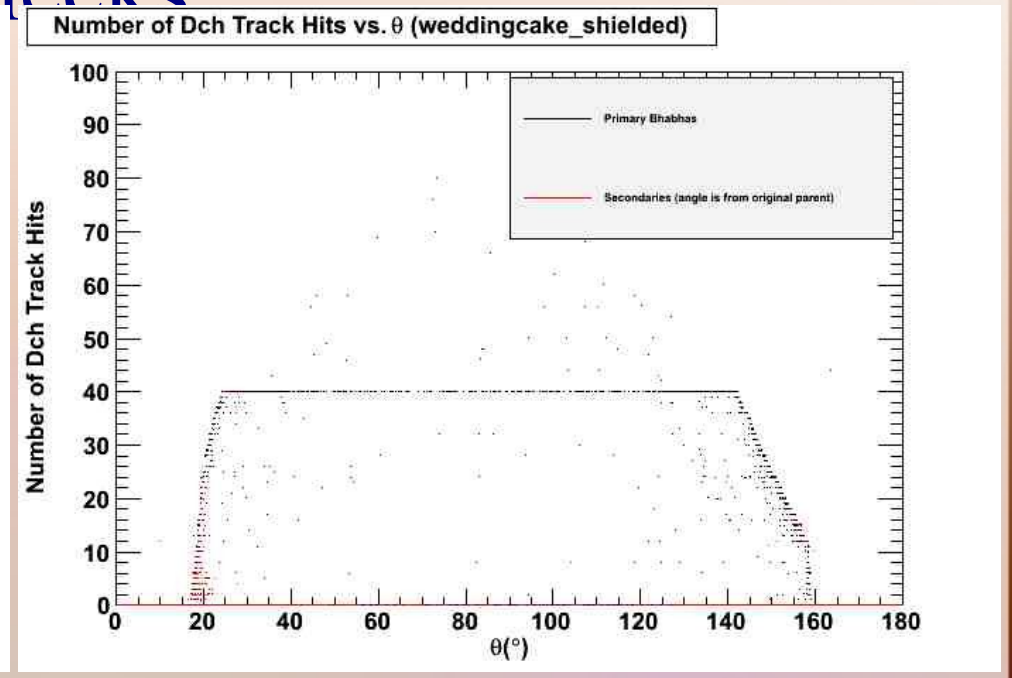


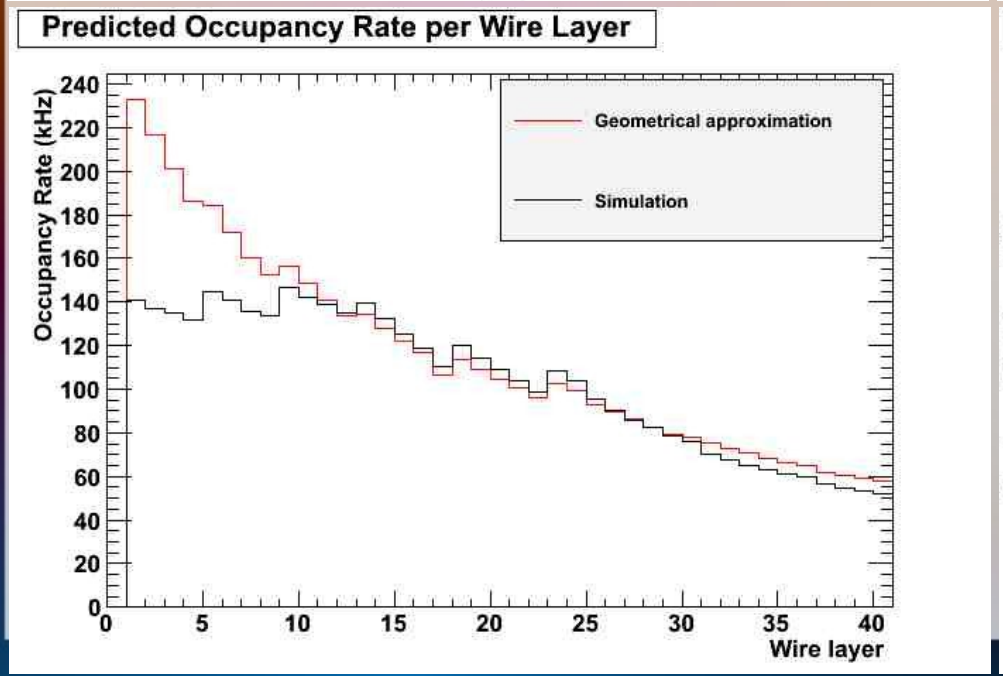


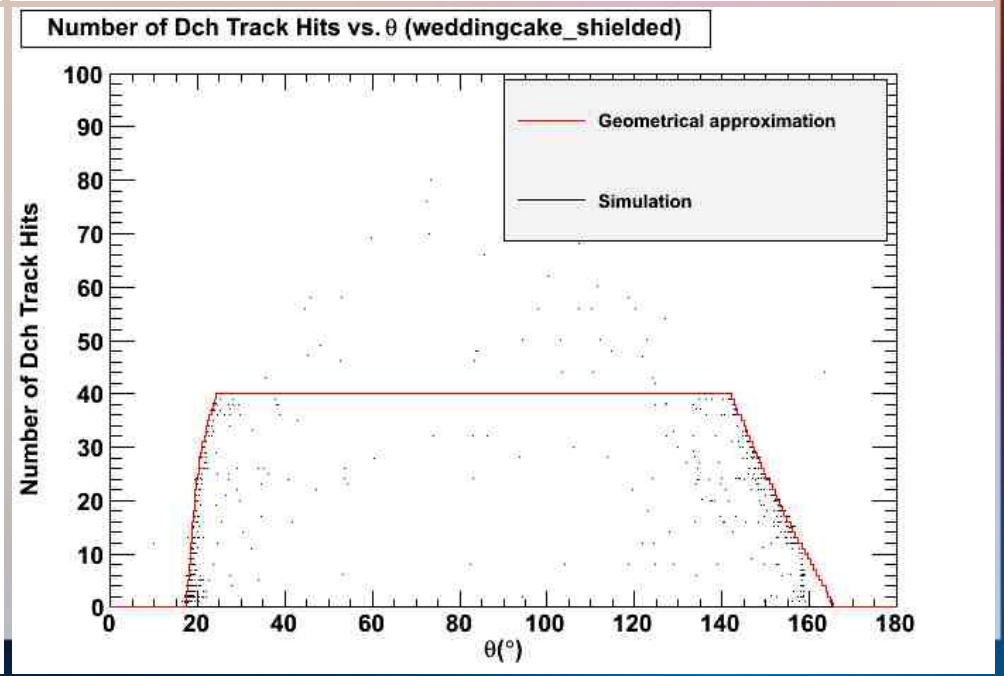


Weddingcake Geometry (shielded): SimHit Checks

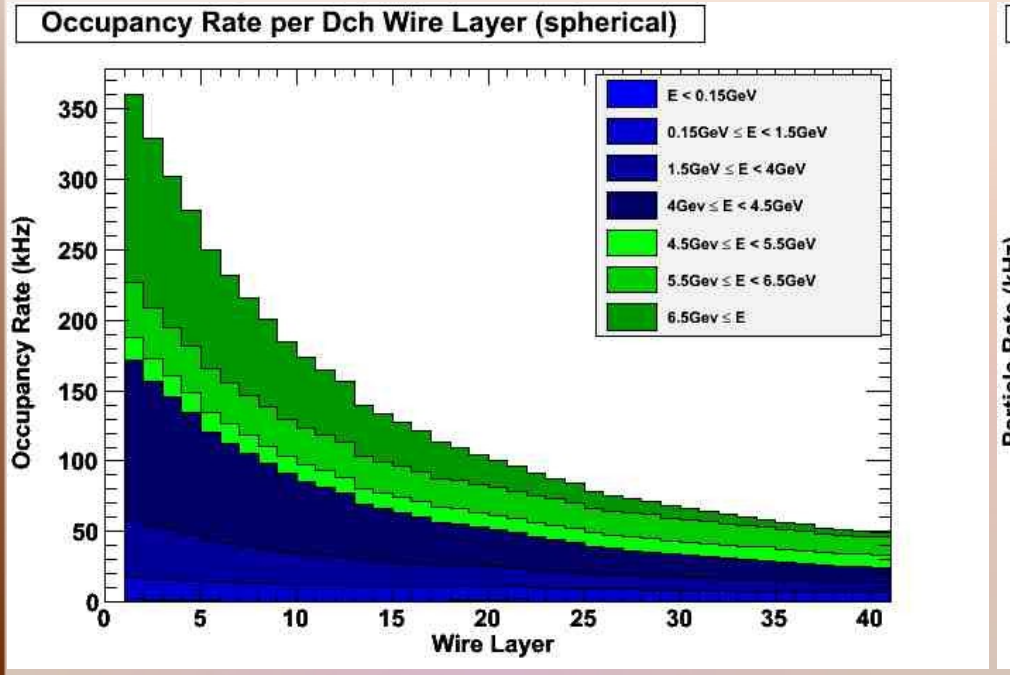


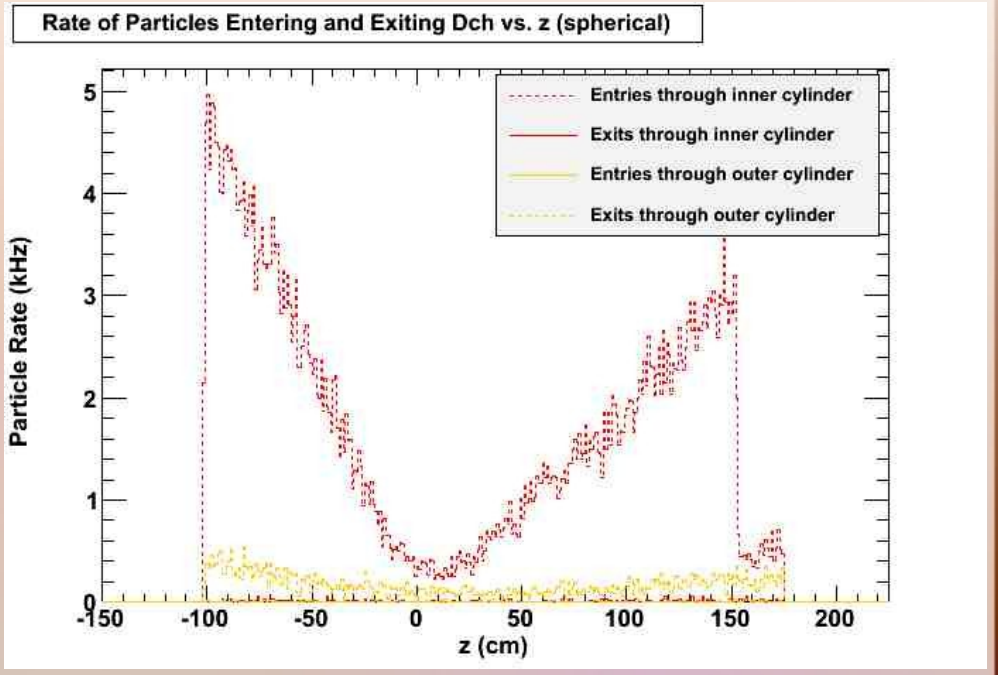


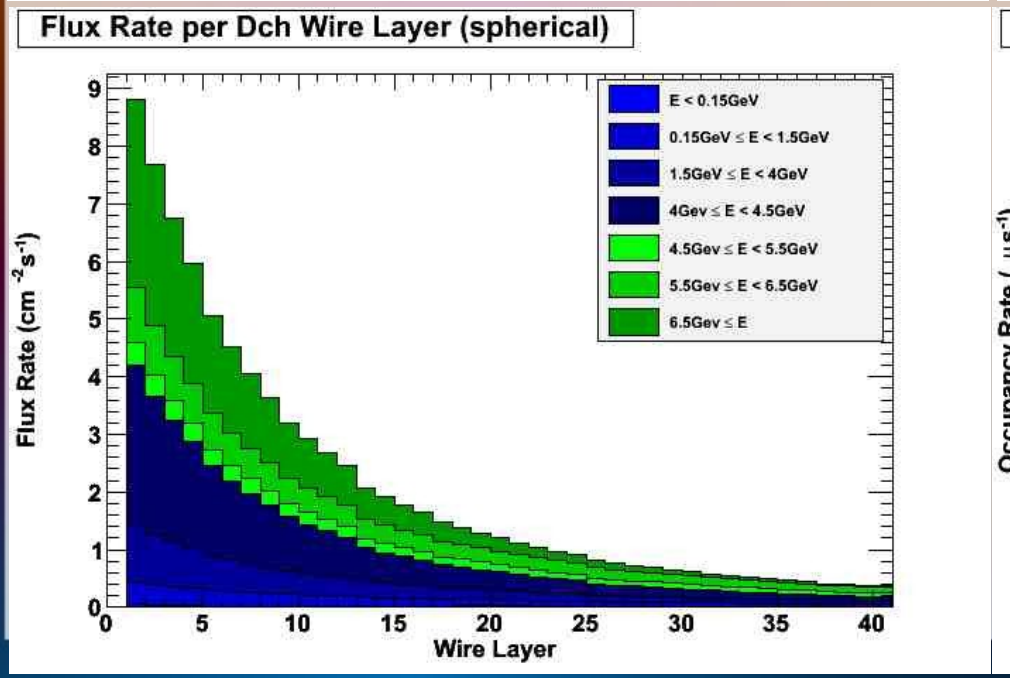


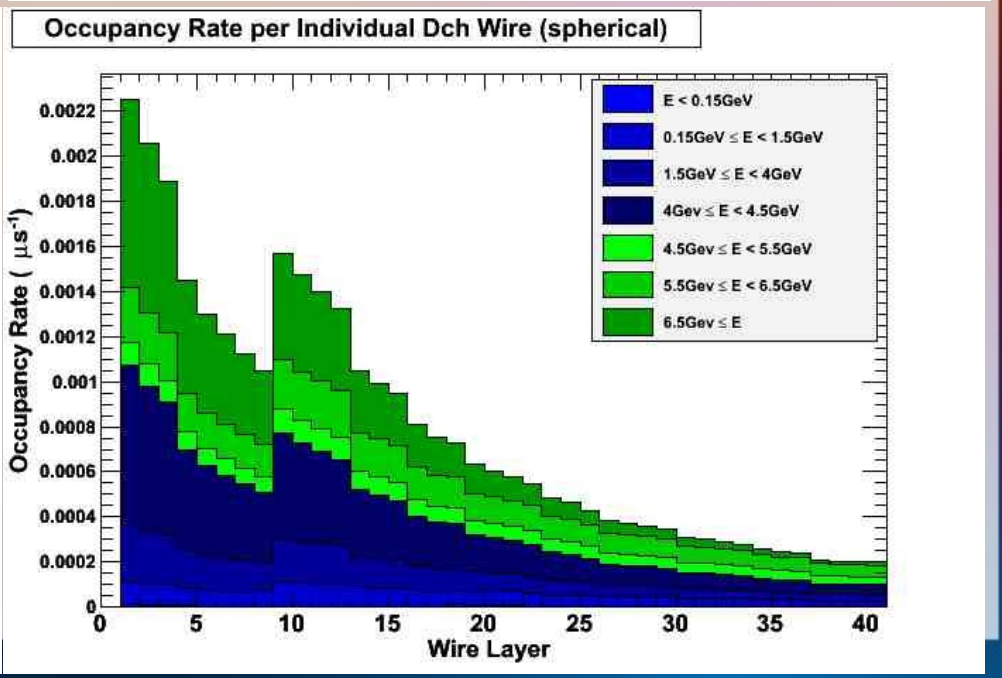


Spherical Geometry: Occupancy Rates

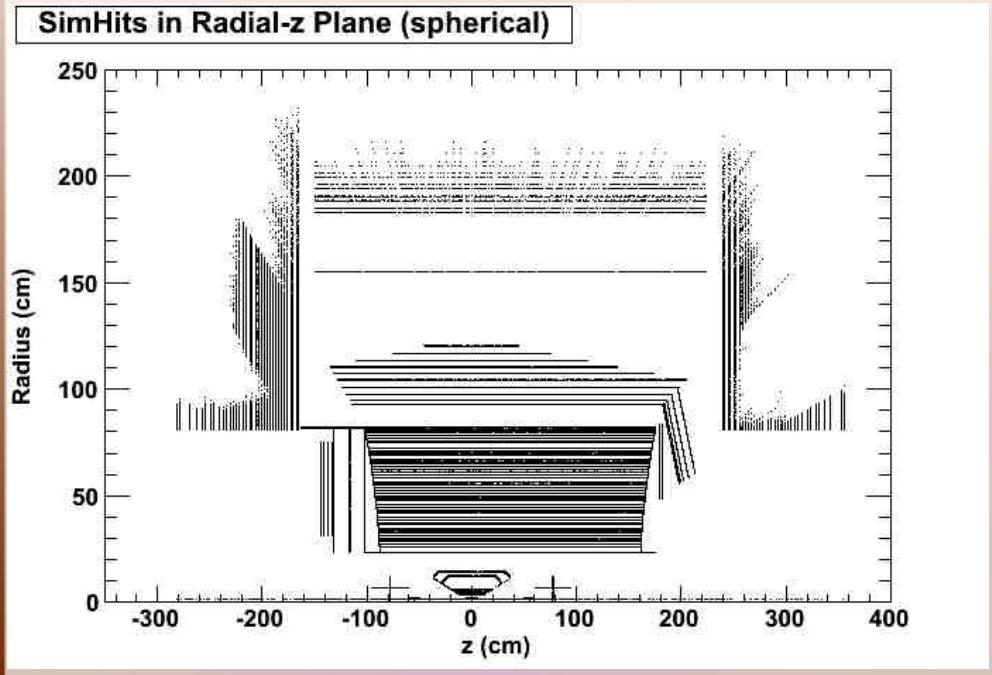


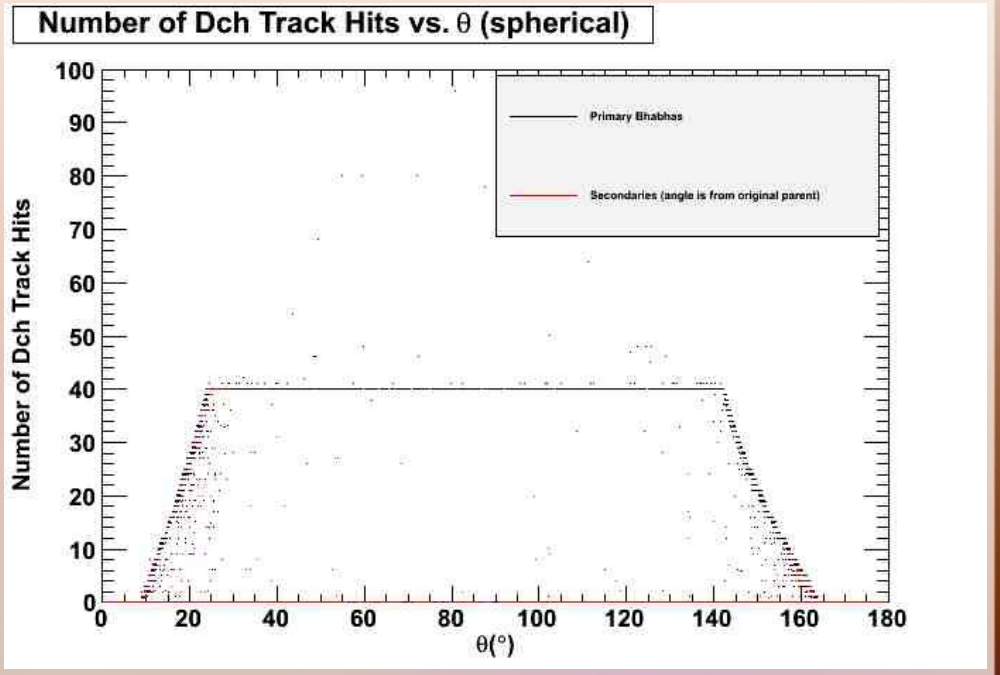


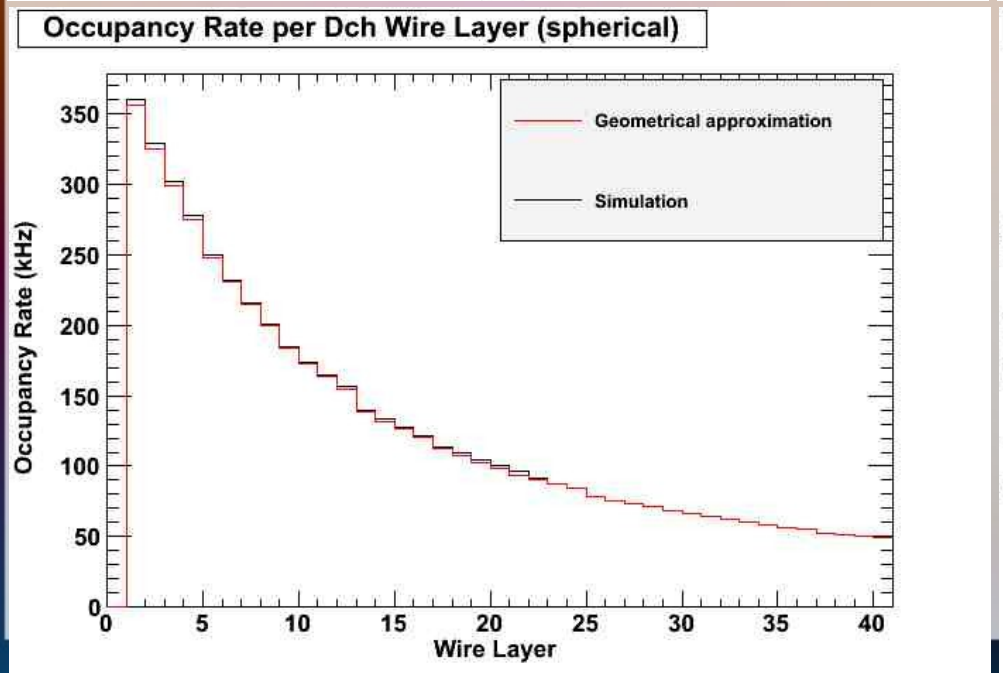


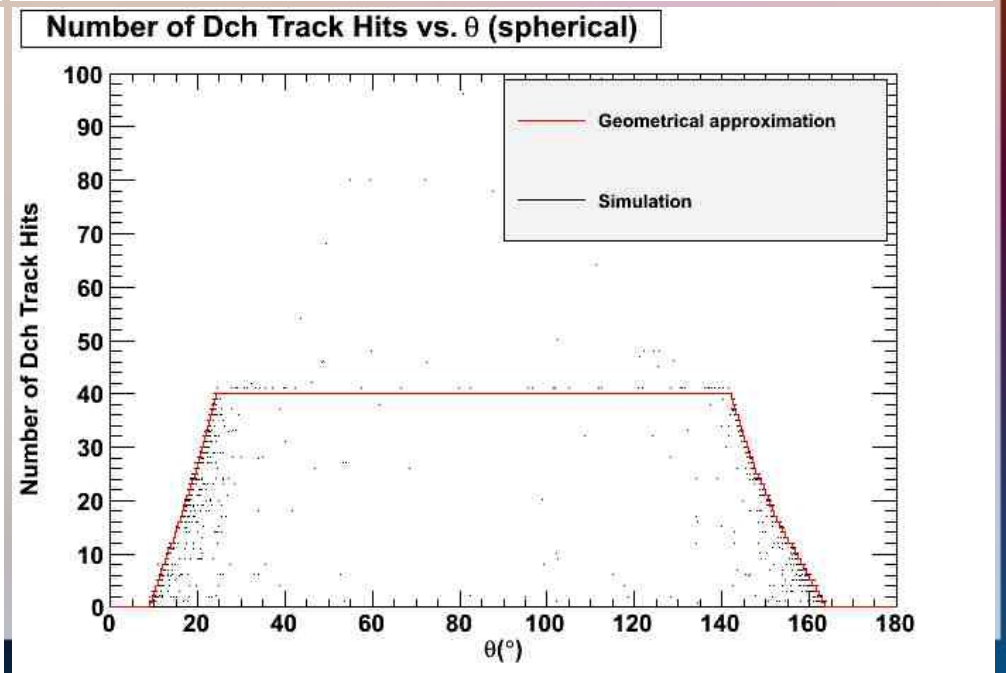


Spherical Geometry: SimHit Checks

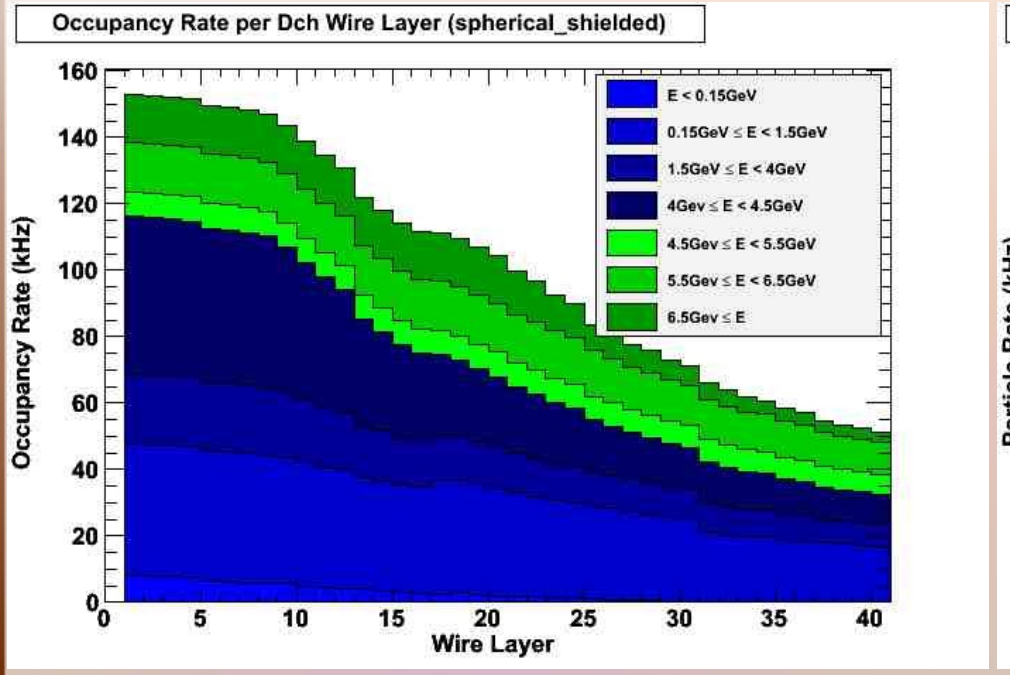


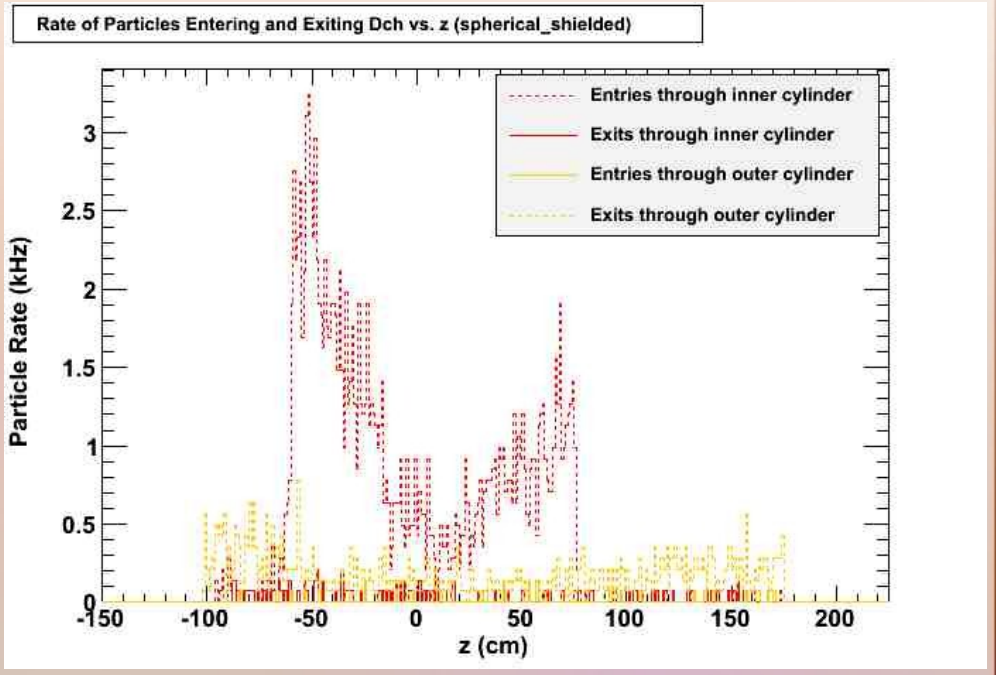


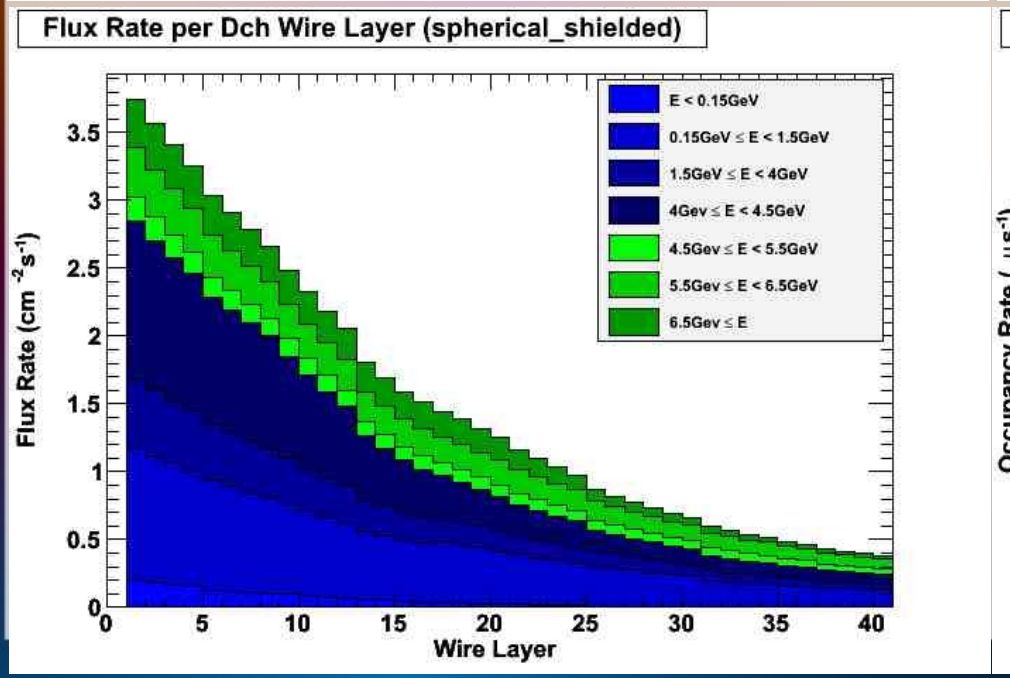


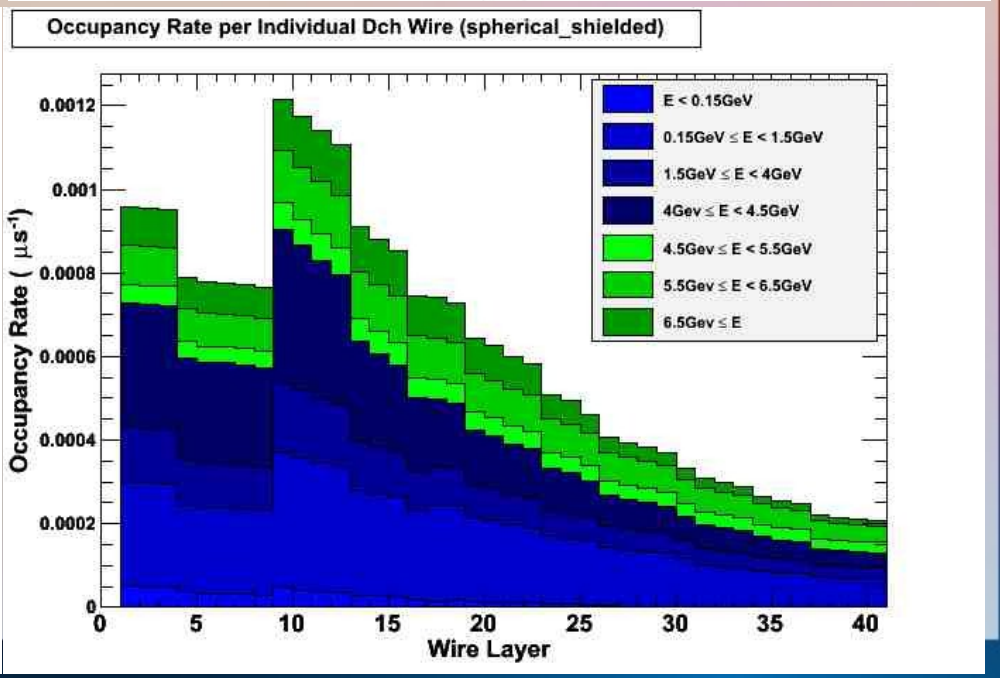


Spherical Geometry (shielded): Occupancy Rates

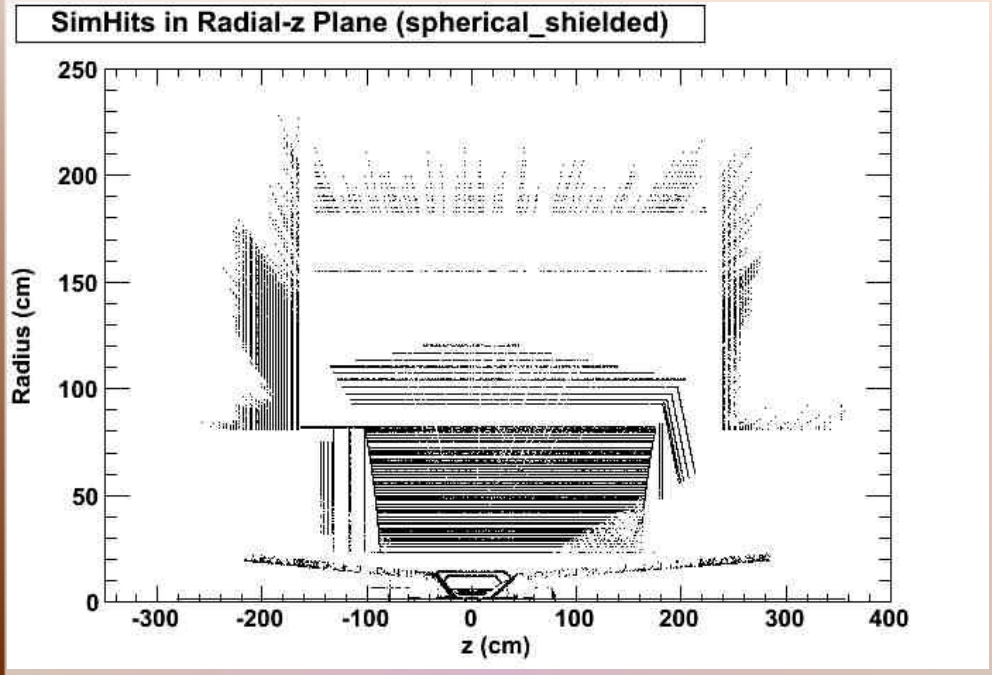


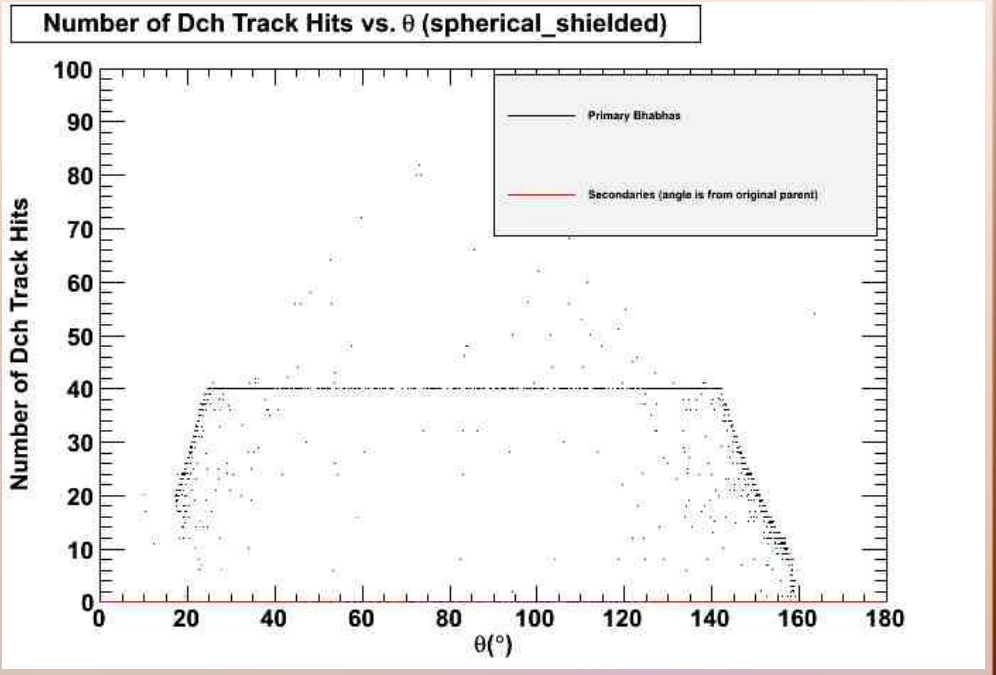


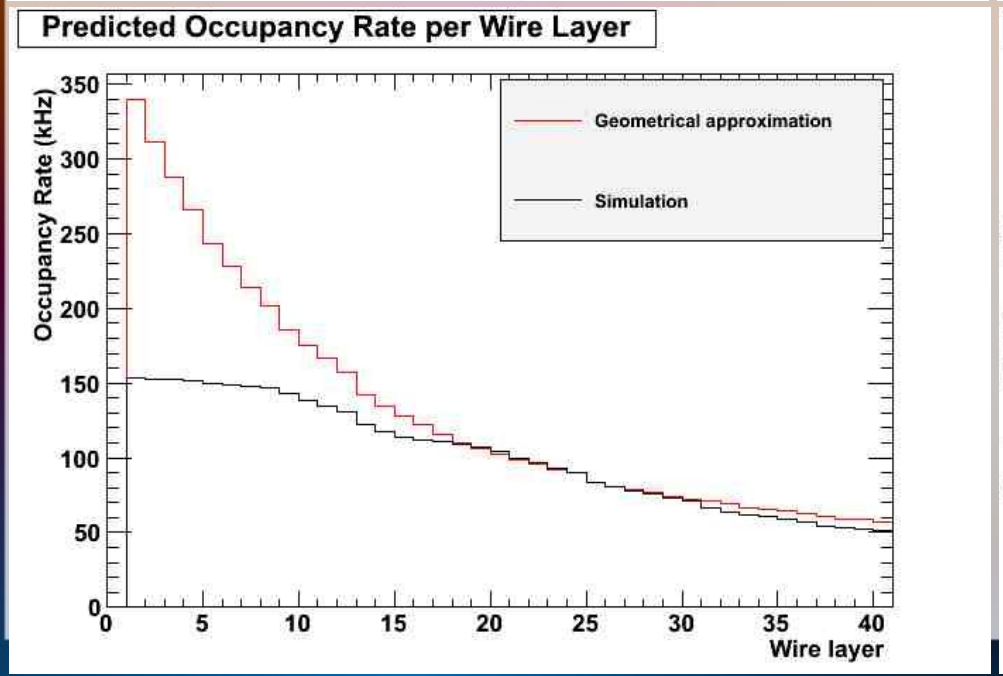


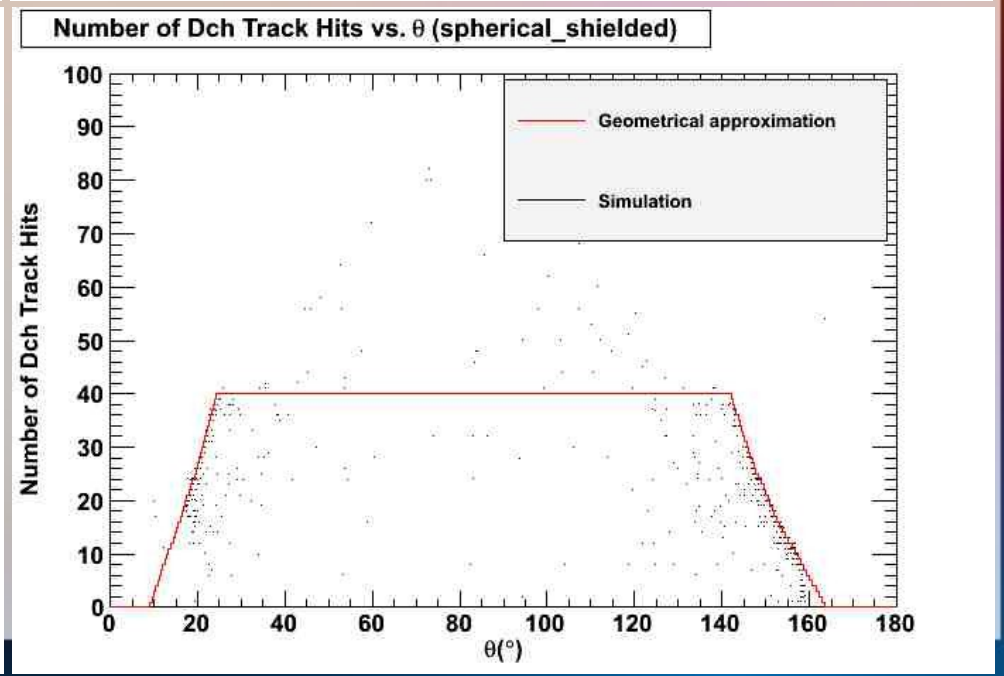


Spherical Geometry (shielded): SimHit Checks

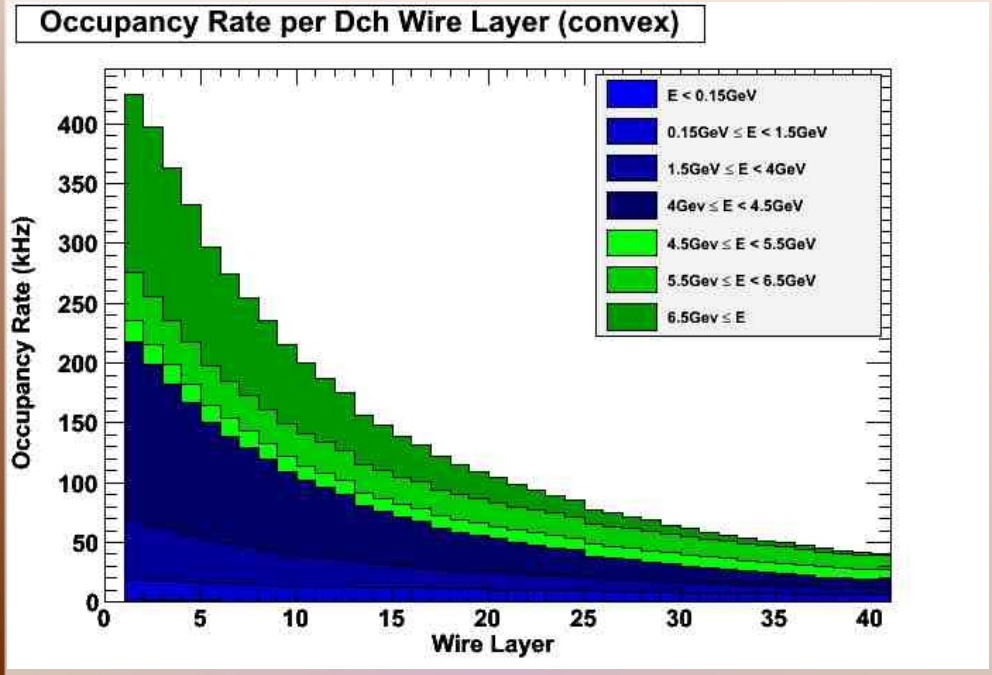


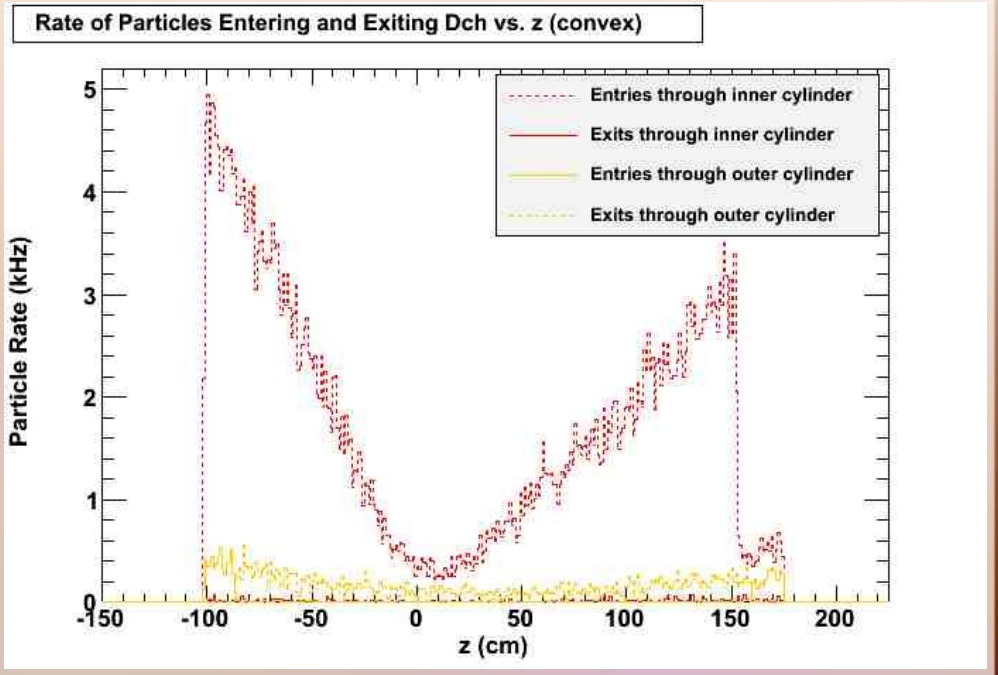


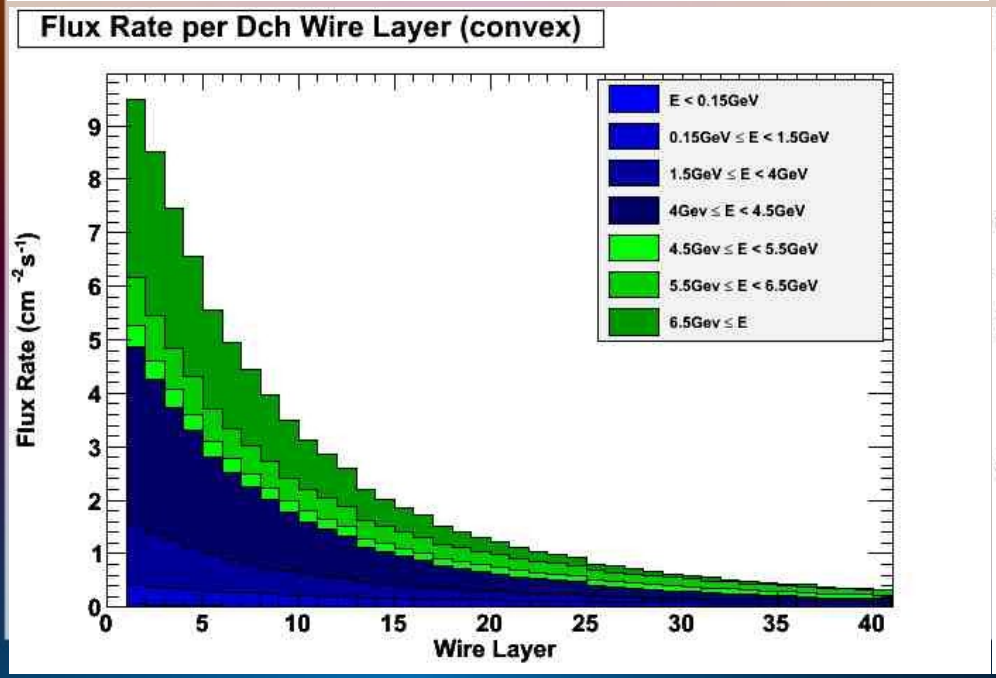


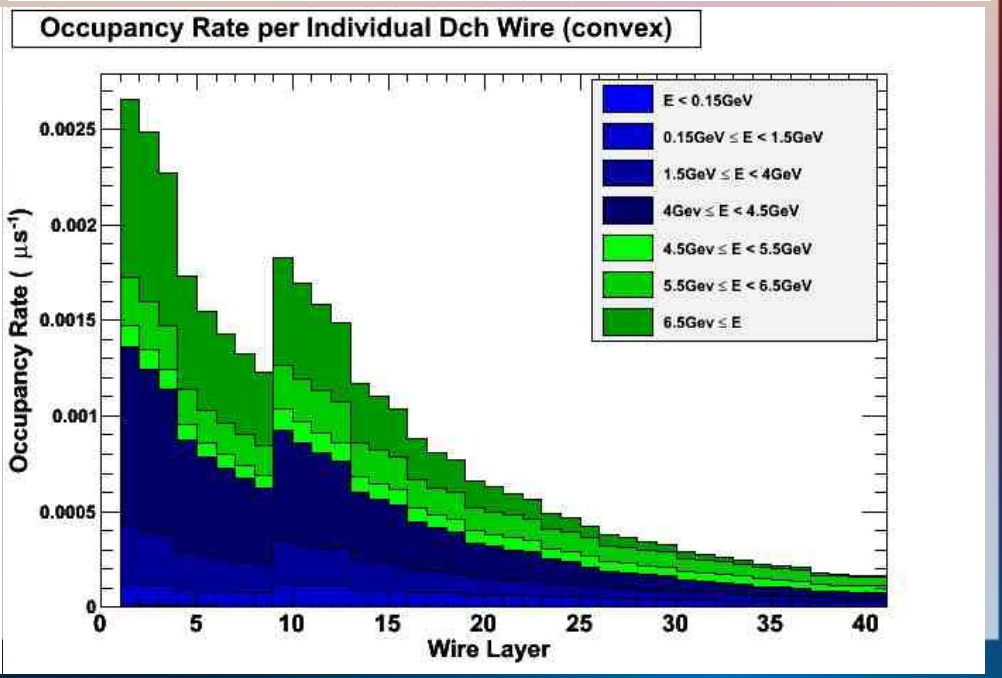


Convex Geometry: Occupancy Rates

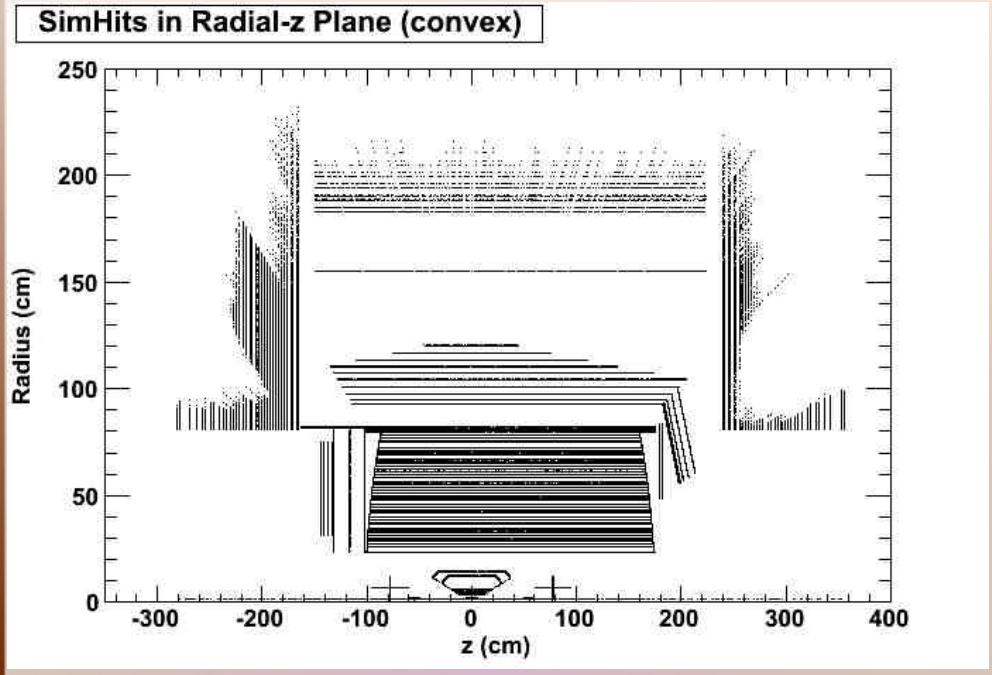


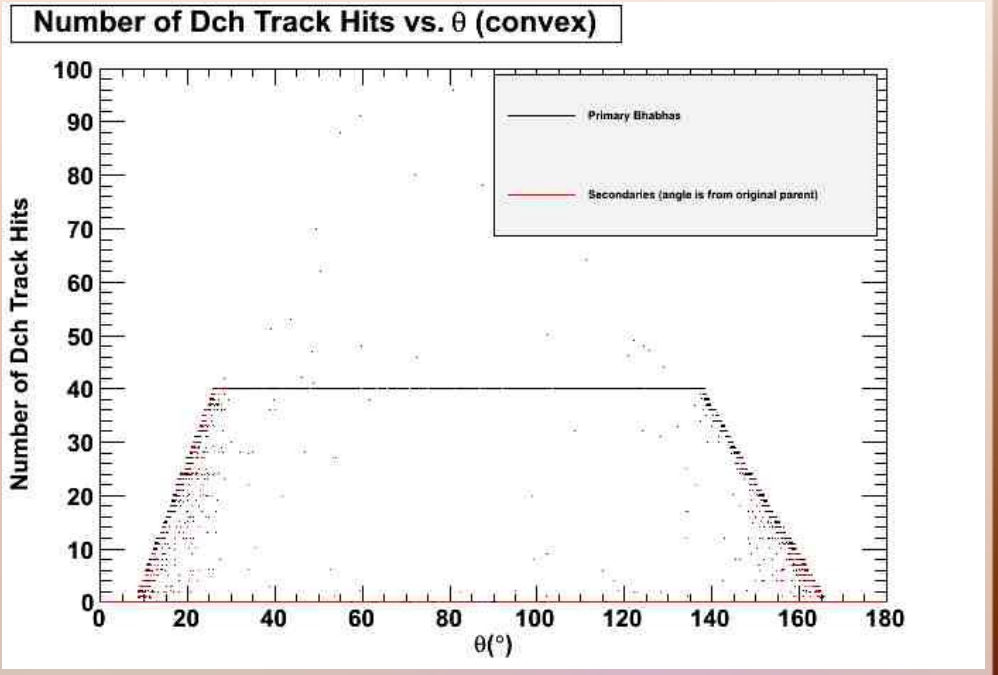


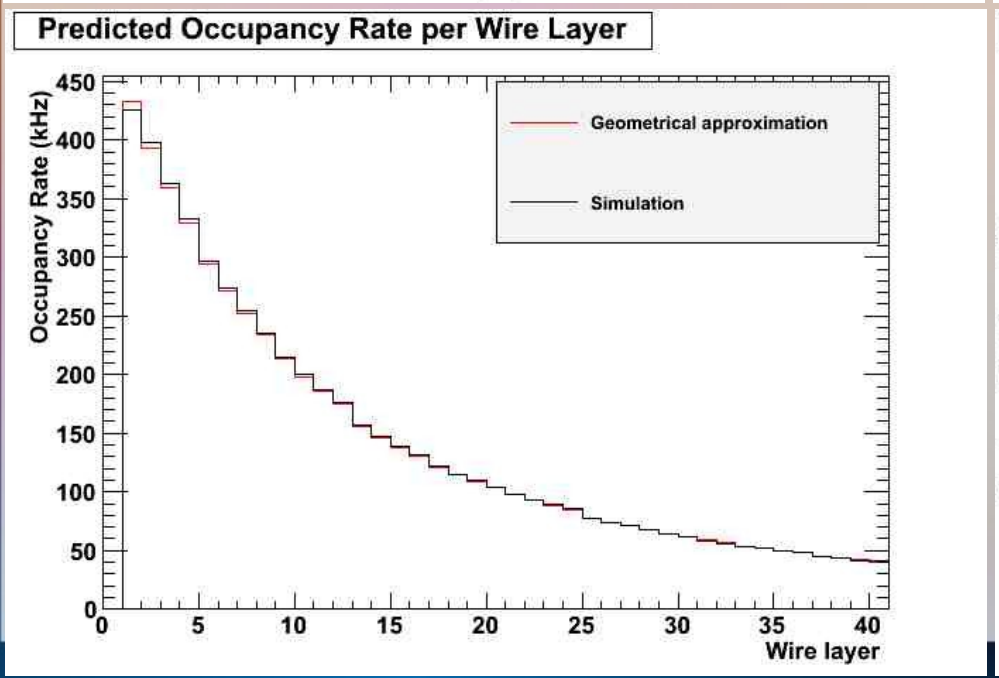


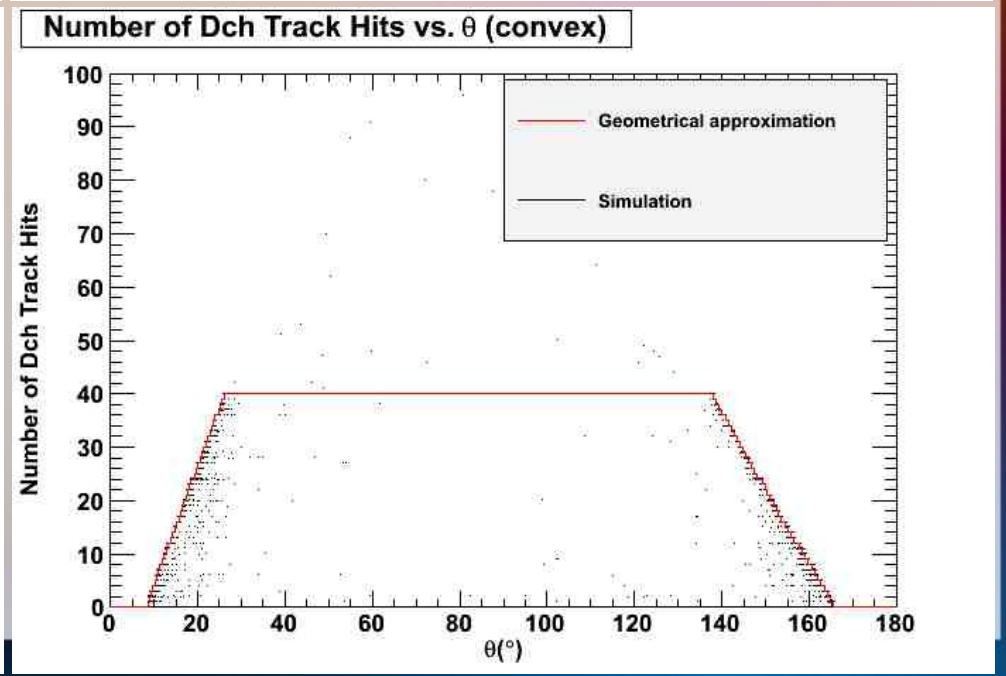


Convex Geometry: SimHit Checks

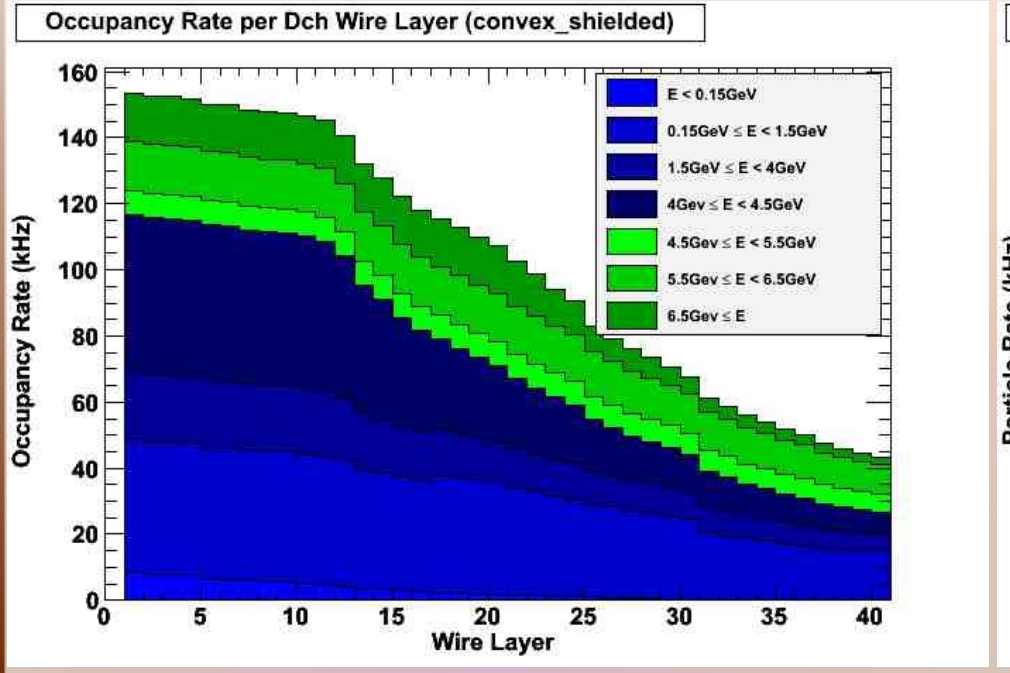


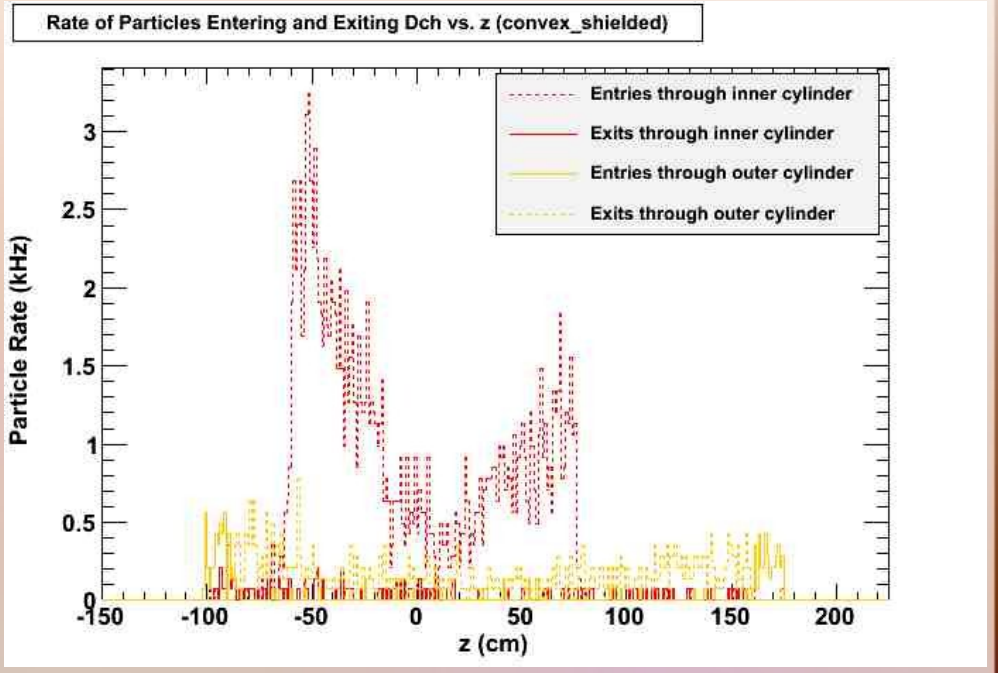


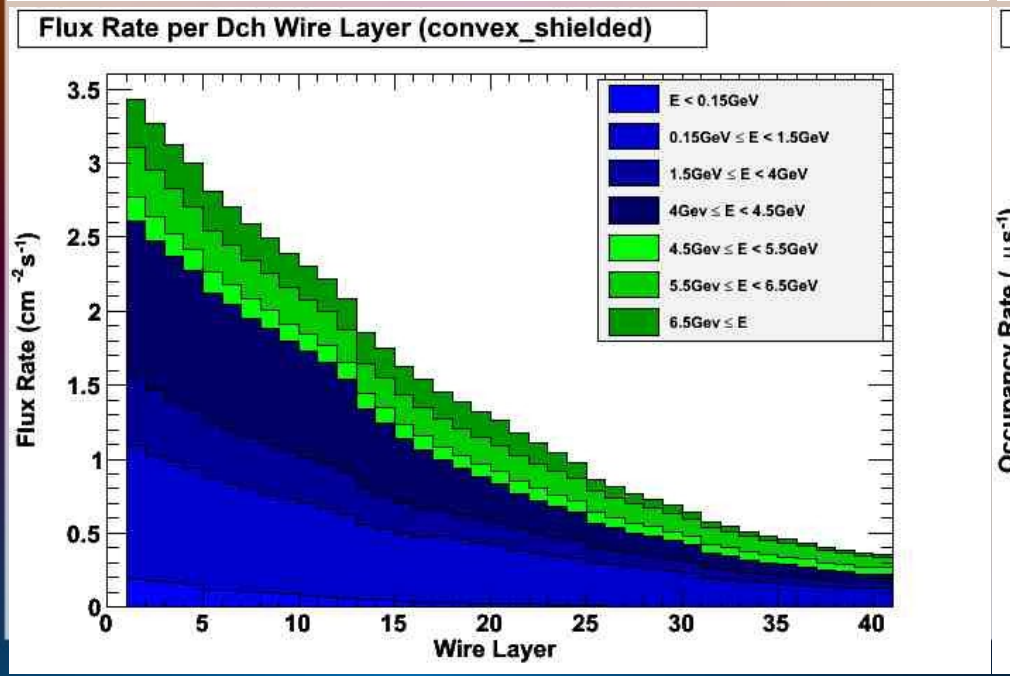


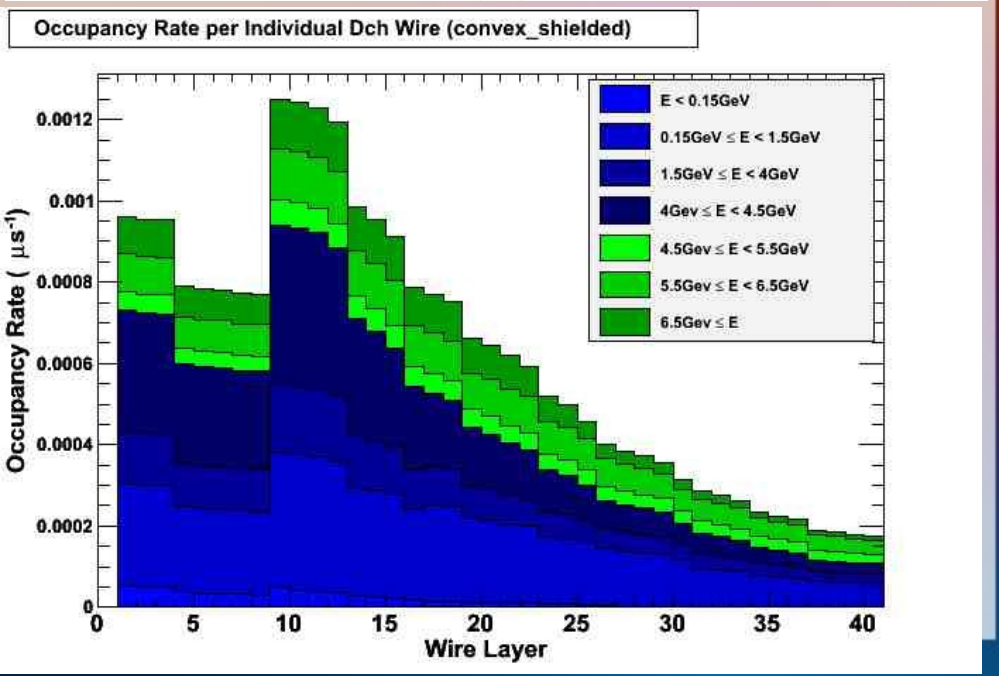


Convex Geometry (shielded): Occupancy Rates









Convex Geometry (shielded): SimHit Checks