Faraday Cup: Geant4 Simulation

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Faraday Cup defined in Geant4

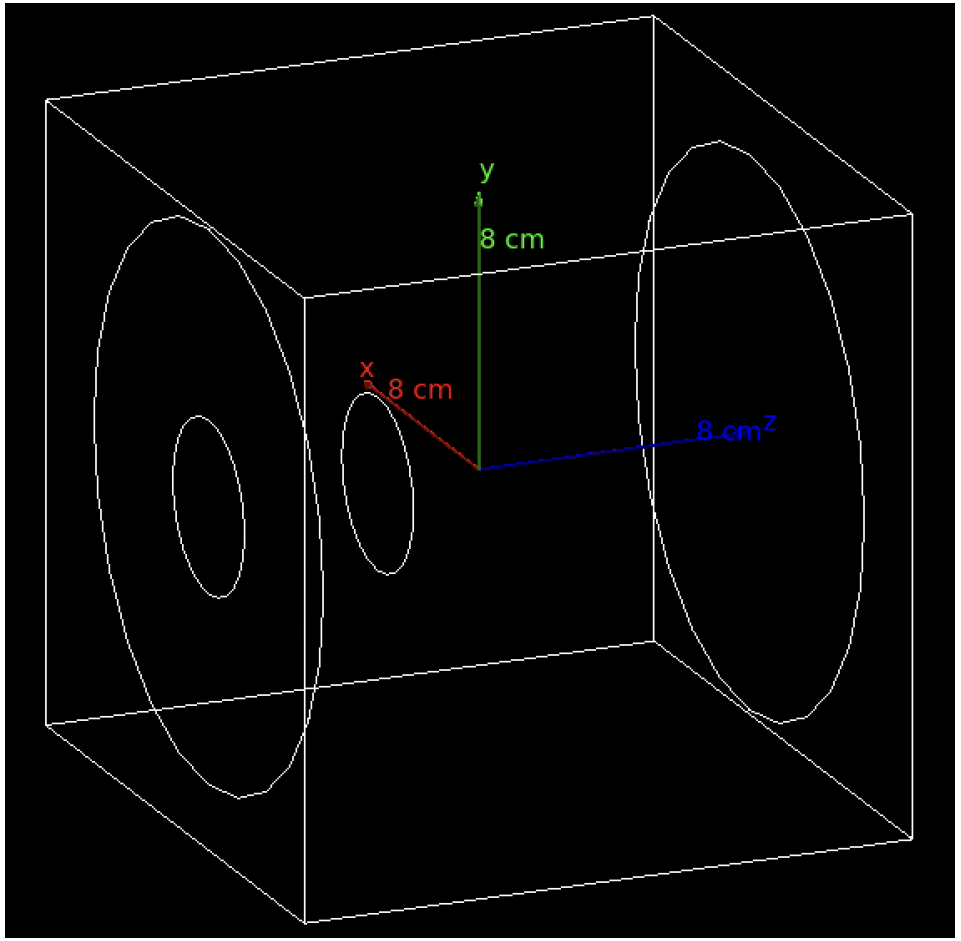
Geometry:

Big cylinder : diameter 16 cm, longitude 16cm

Hole: diameter 5cm, long entrance 3cm

Material:

95% Tungsten (W), 5% Copper (Cu)



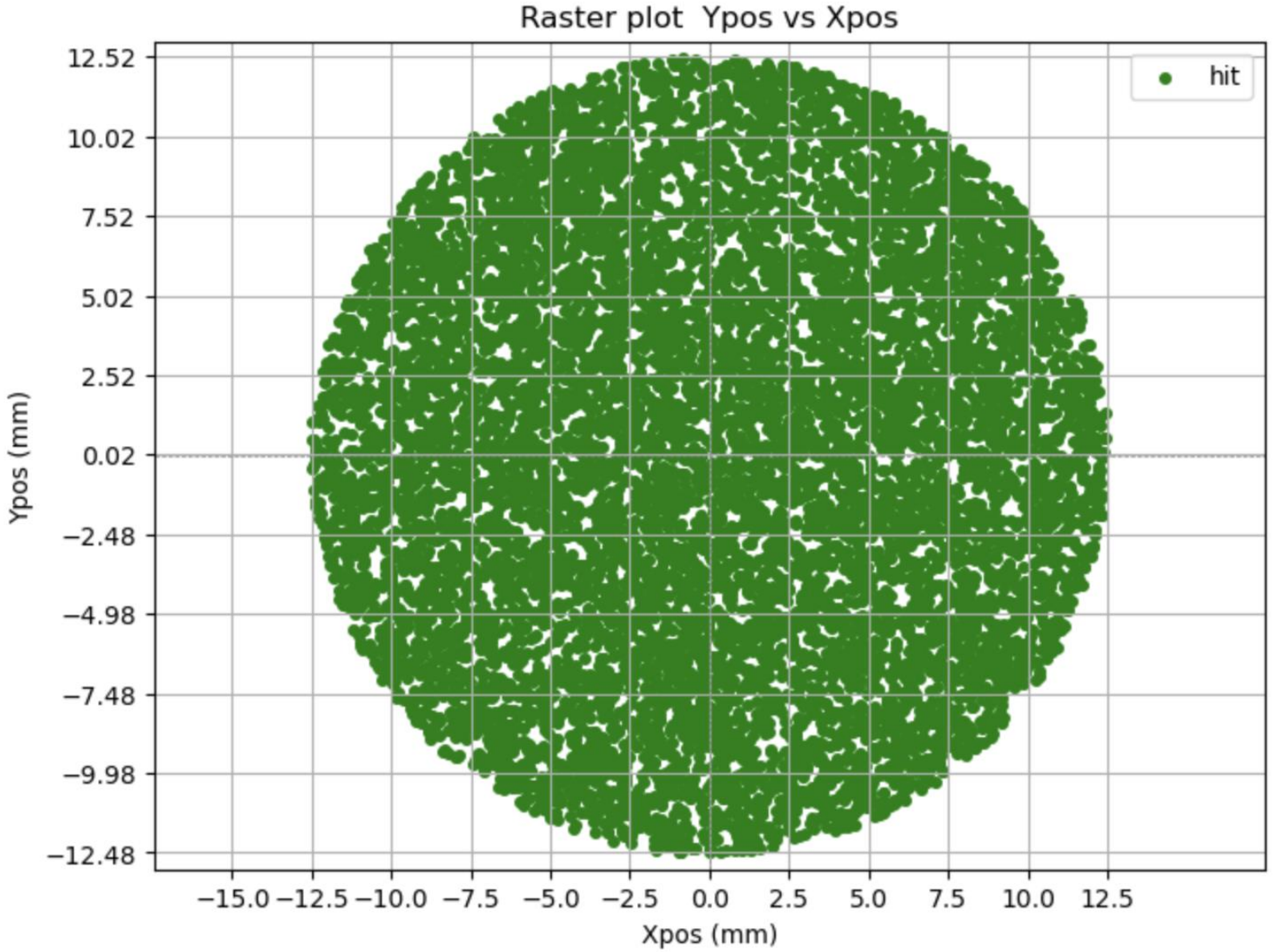
Faraday Cup: Random distribution of the raster

Final Test:

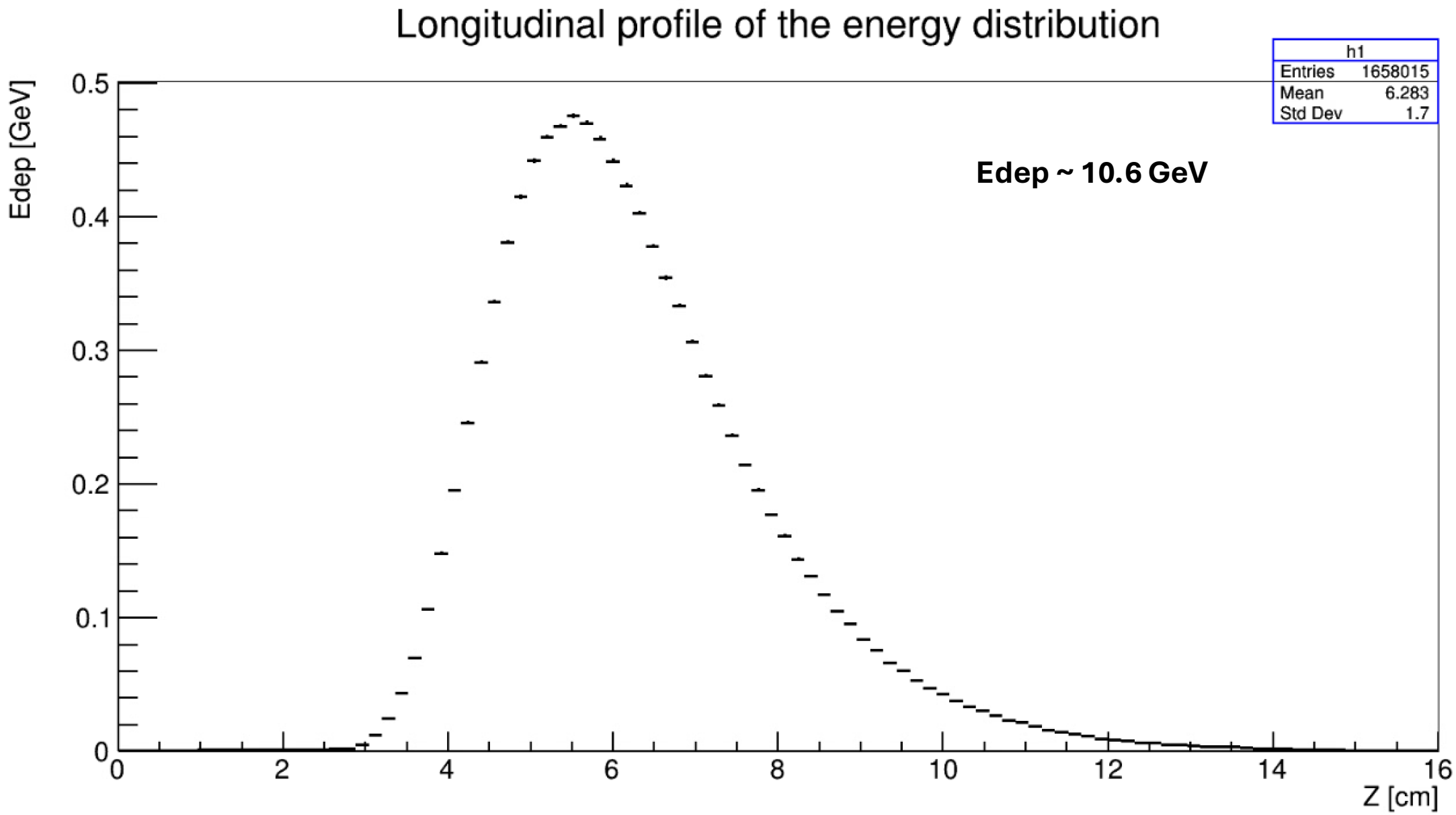
I = 100nA
P = 1.1kW
Radius of Raster: 12.5mm

/gun/particle e-
/gun/energy 11 GeV
/run/beamOn/ 10 000

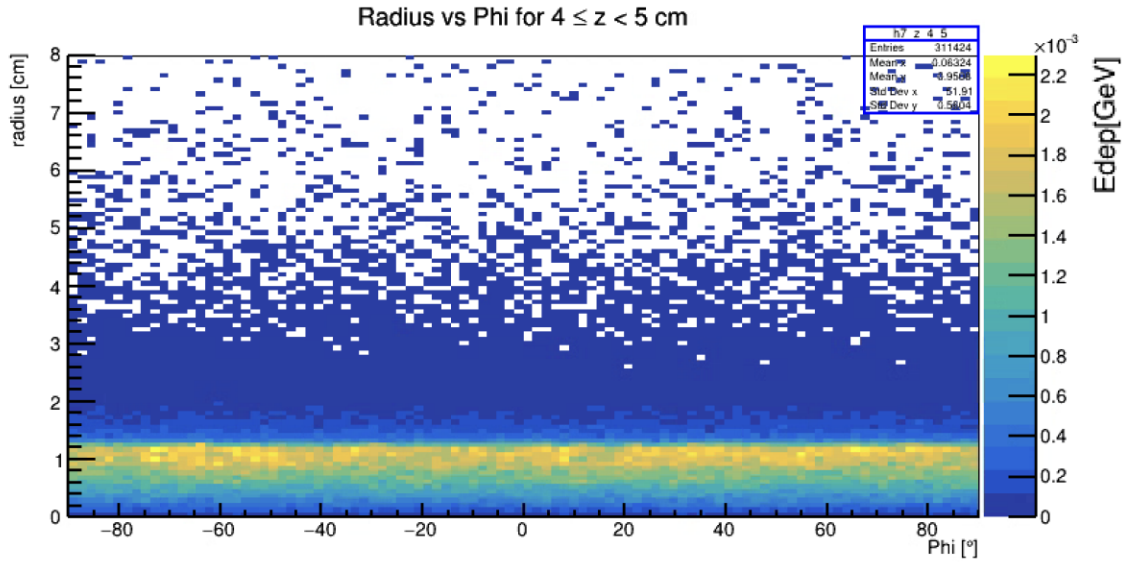
We optimize the simulation time, taking measures of energy every 100 steps!

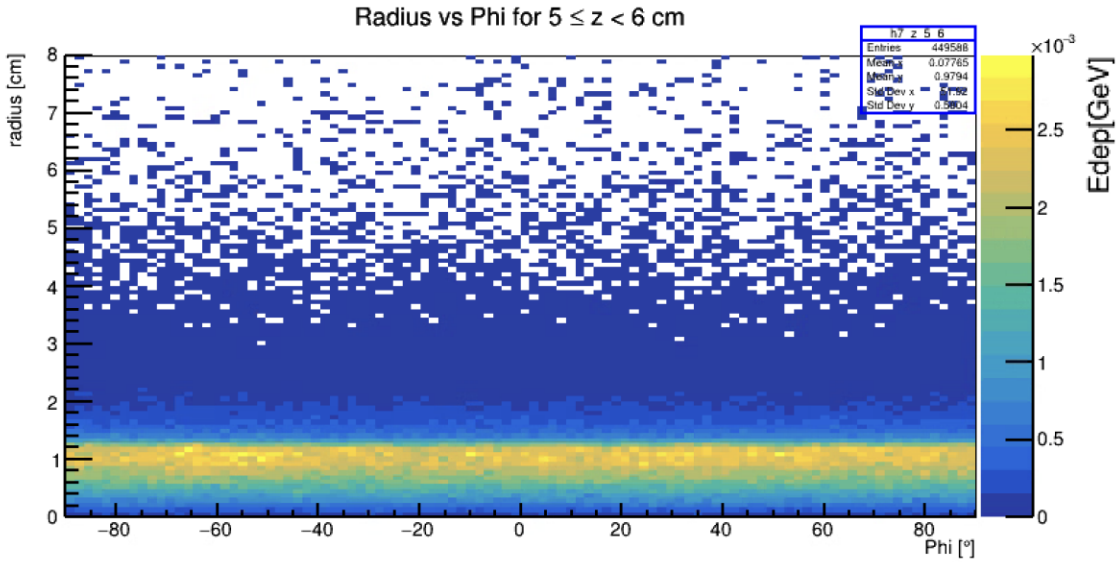


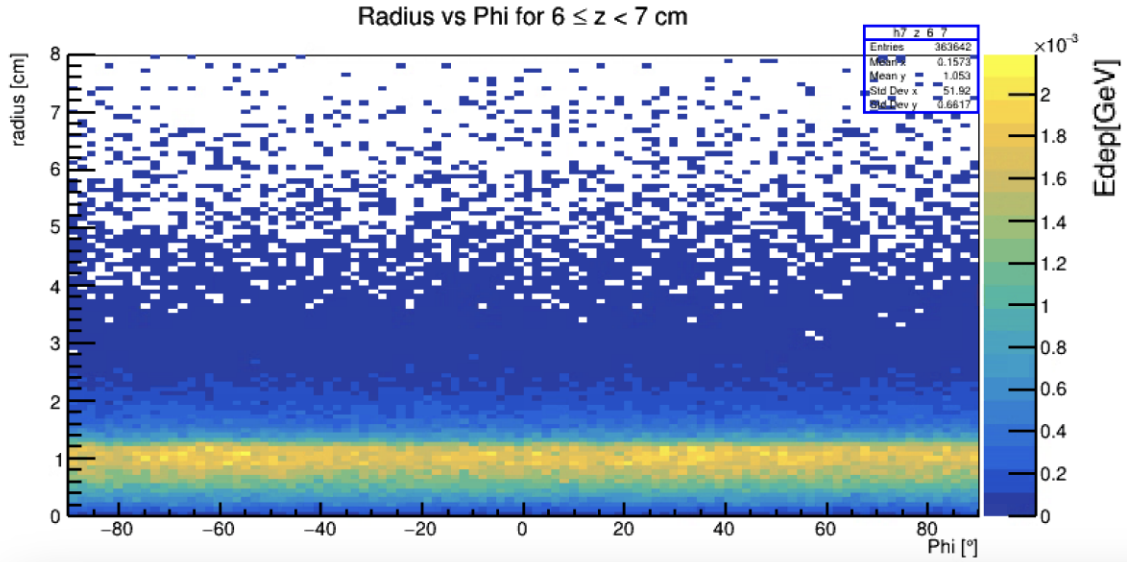
Faraday Cup: Results of Simulation

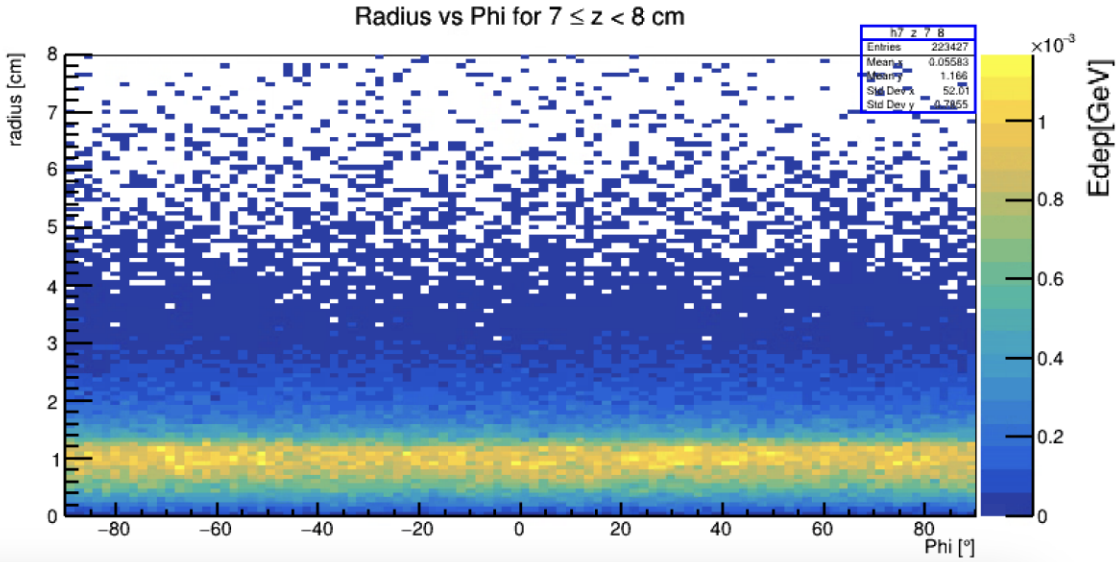


Faraday Cup: Results of Simulation

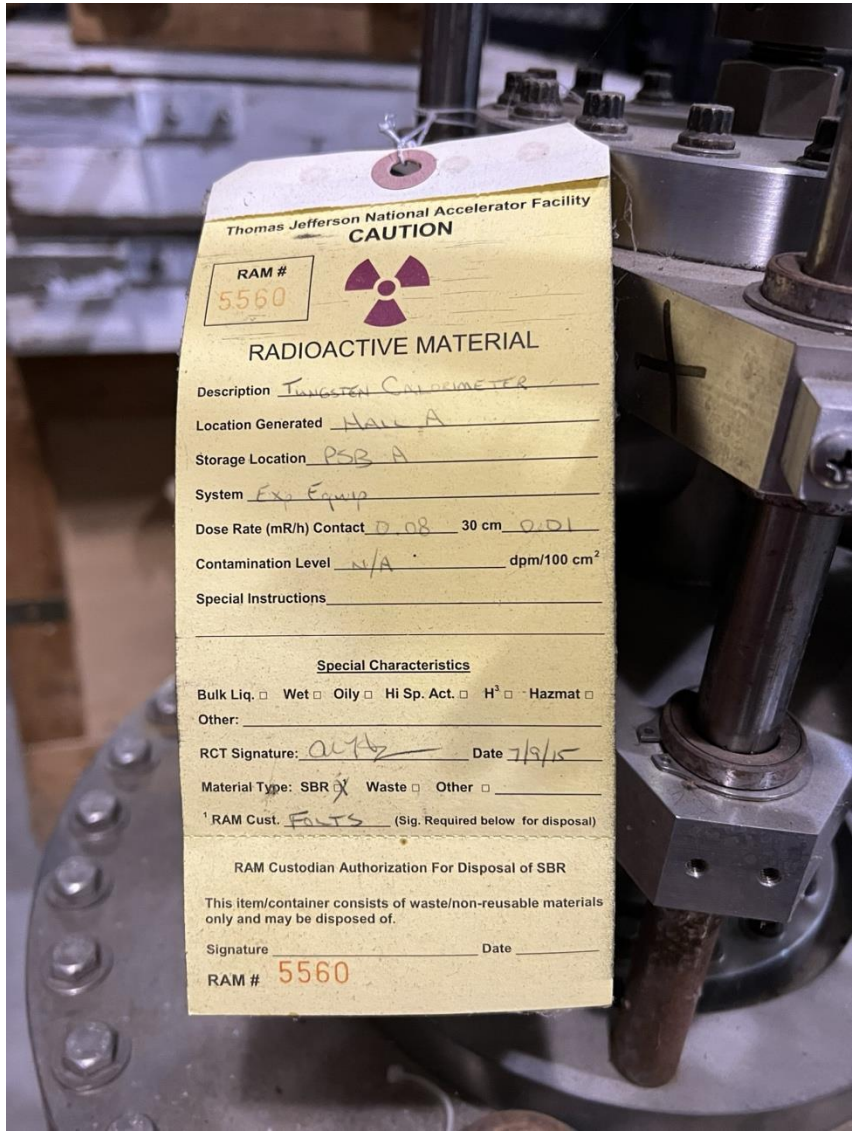








This is the tungsten calorimeter that we are considering turning into a FC.



Location: ***Physics Storage Building***

Next tasks!

- Calculation of Power vs radii in the FC for each value of z (Dave Mack and Hector)
- Set up the location for the FC in Hall C
- Meeting with David Gaskell for this discussion