

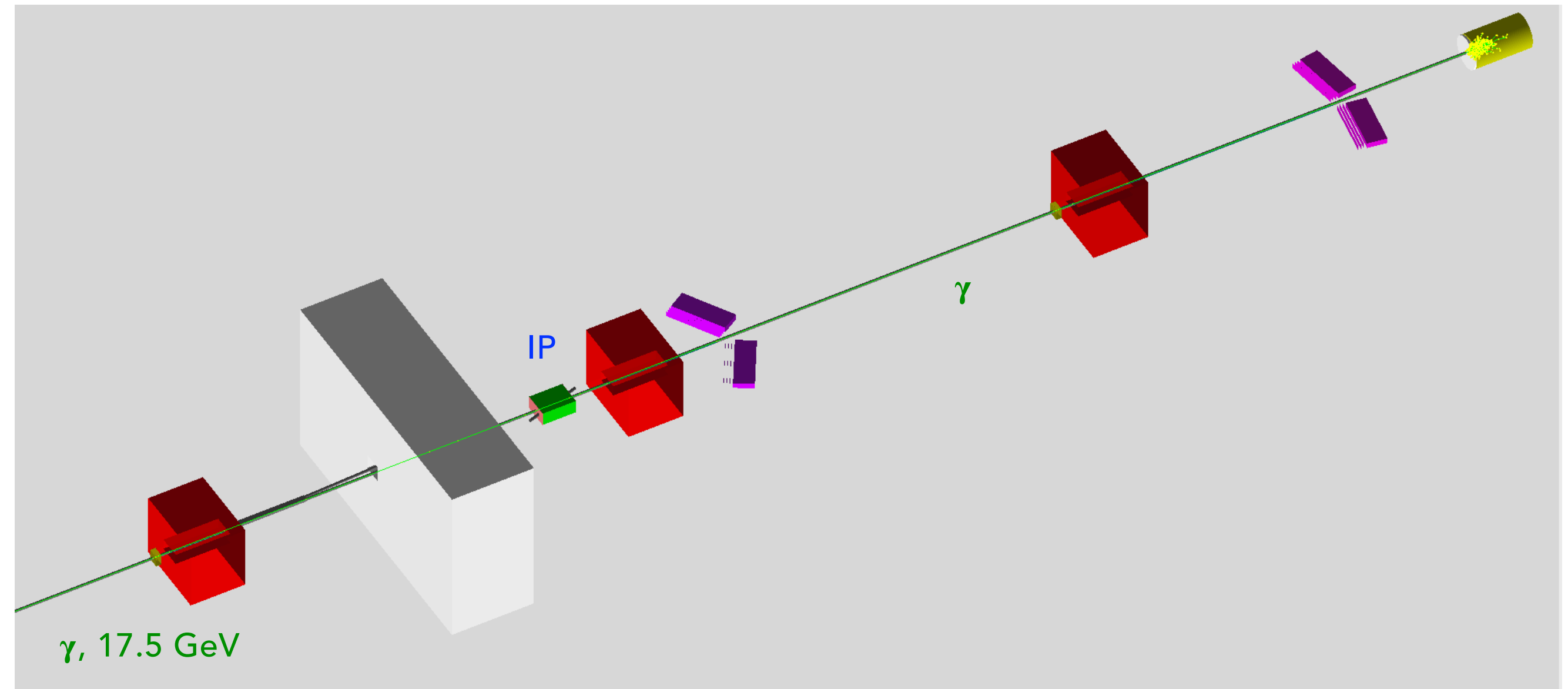
GCAL in Luxe setup

Borysova Maryna (KINR)

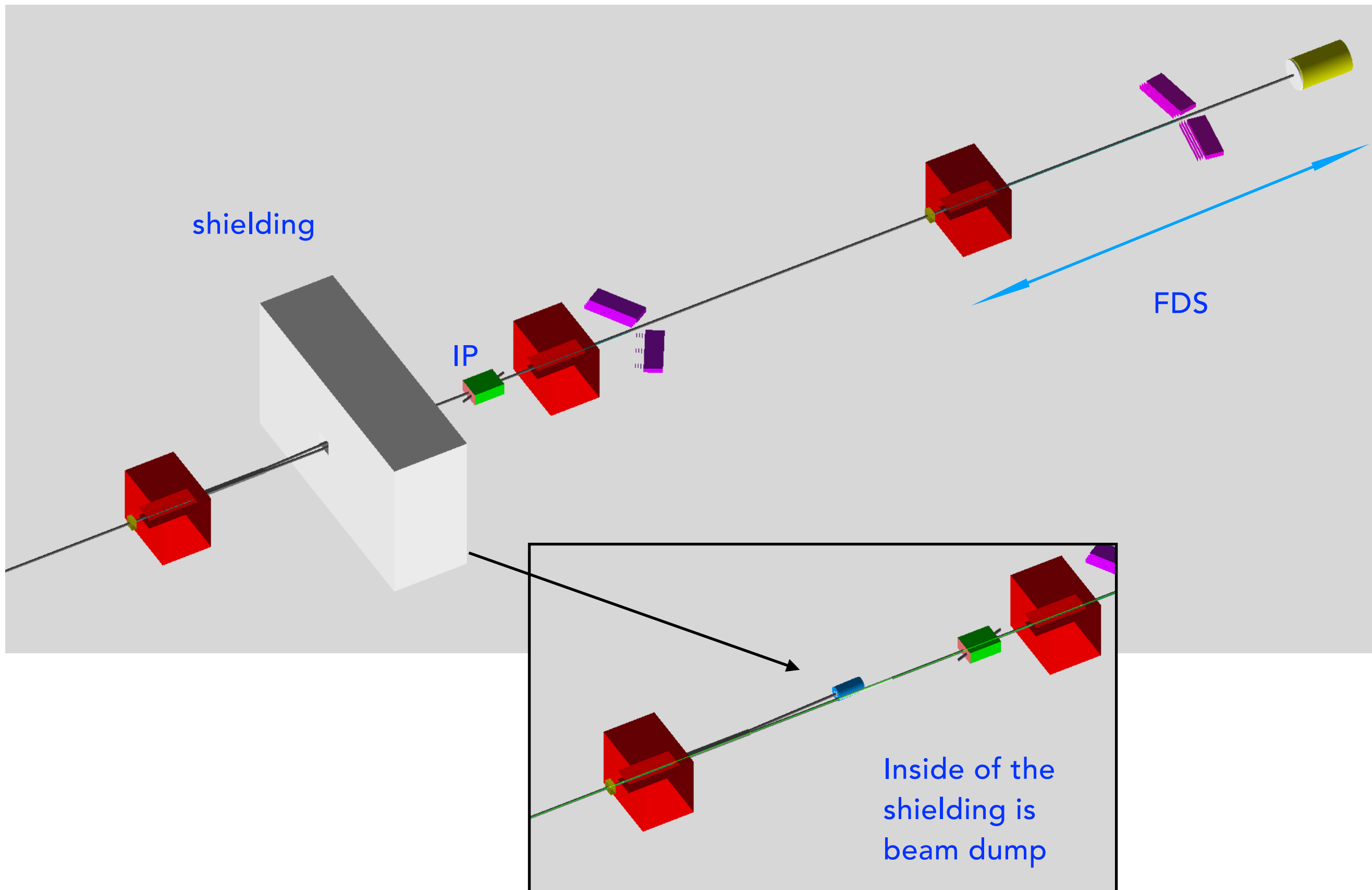
16/09/19

LUXE weekly technical meetings

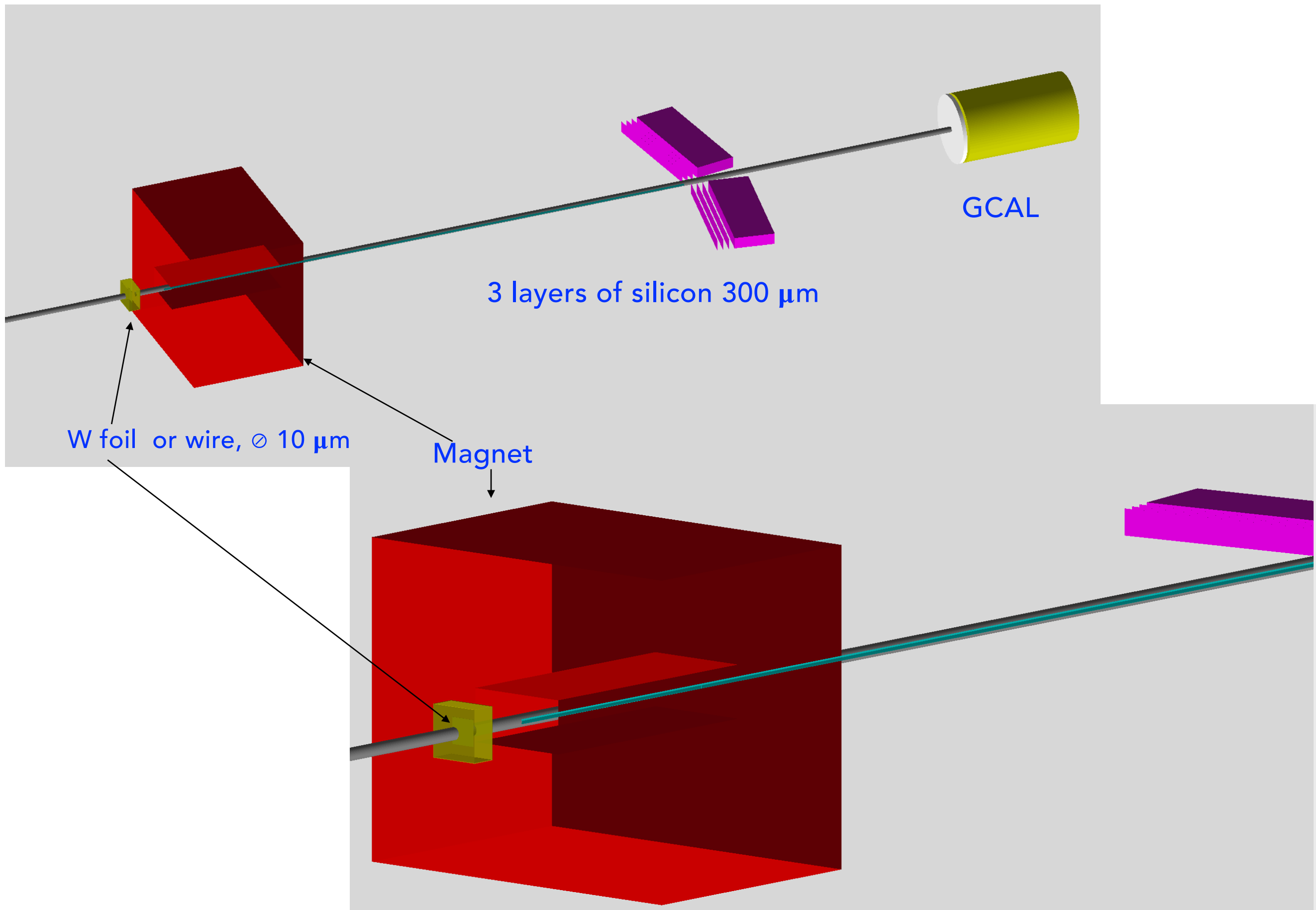
Luxe setup in Geant layout



FDS in Luxe setup



FDS in Geant layout



GCAL

Distance from IP 16,75 m

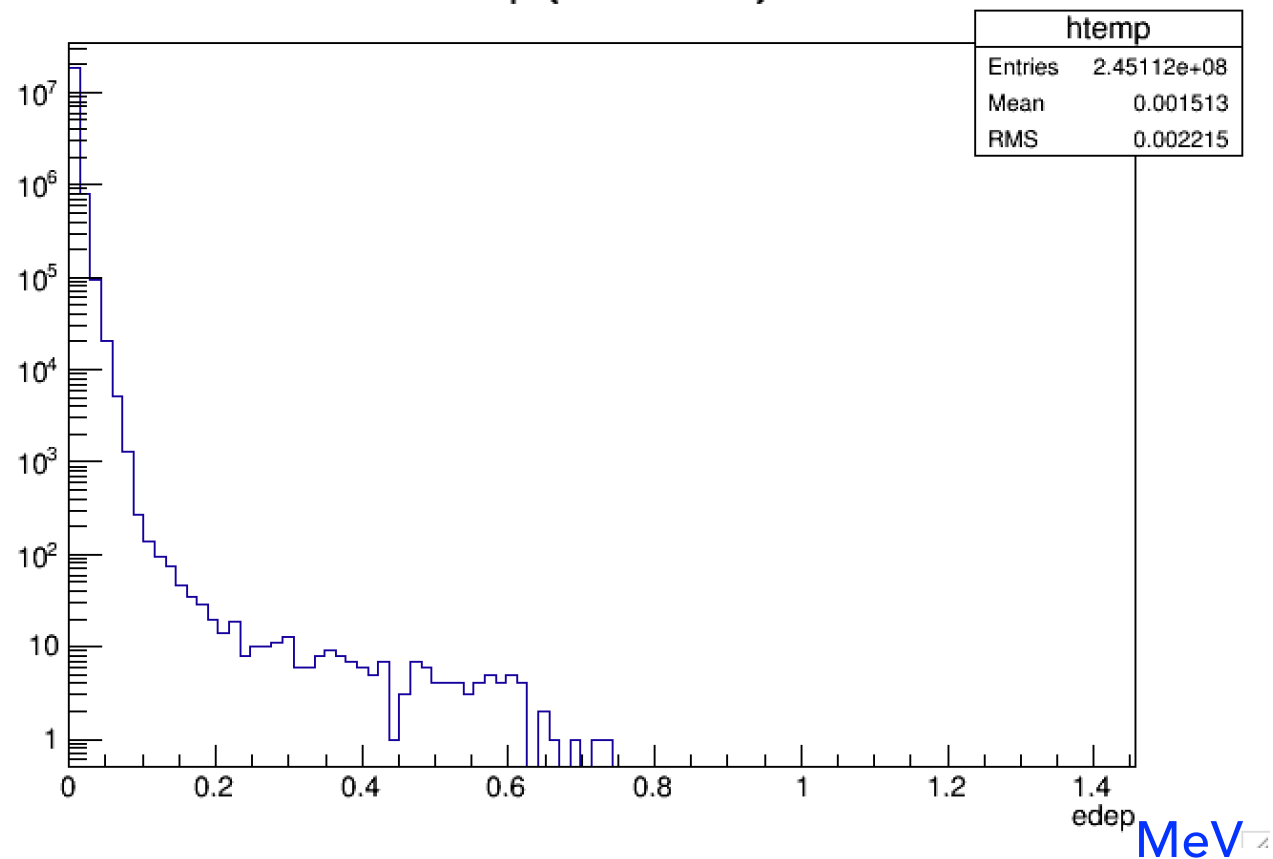
Distance from Compton detector 3m

R= 30 cm

W 3.5 mm

Iron Dump 100 cm

edep {detid==20}



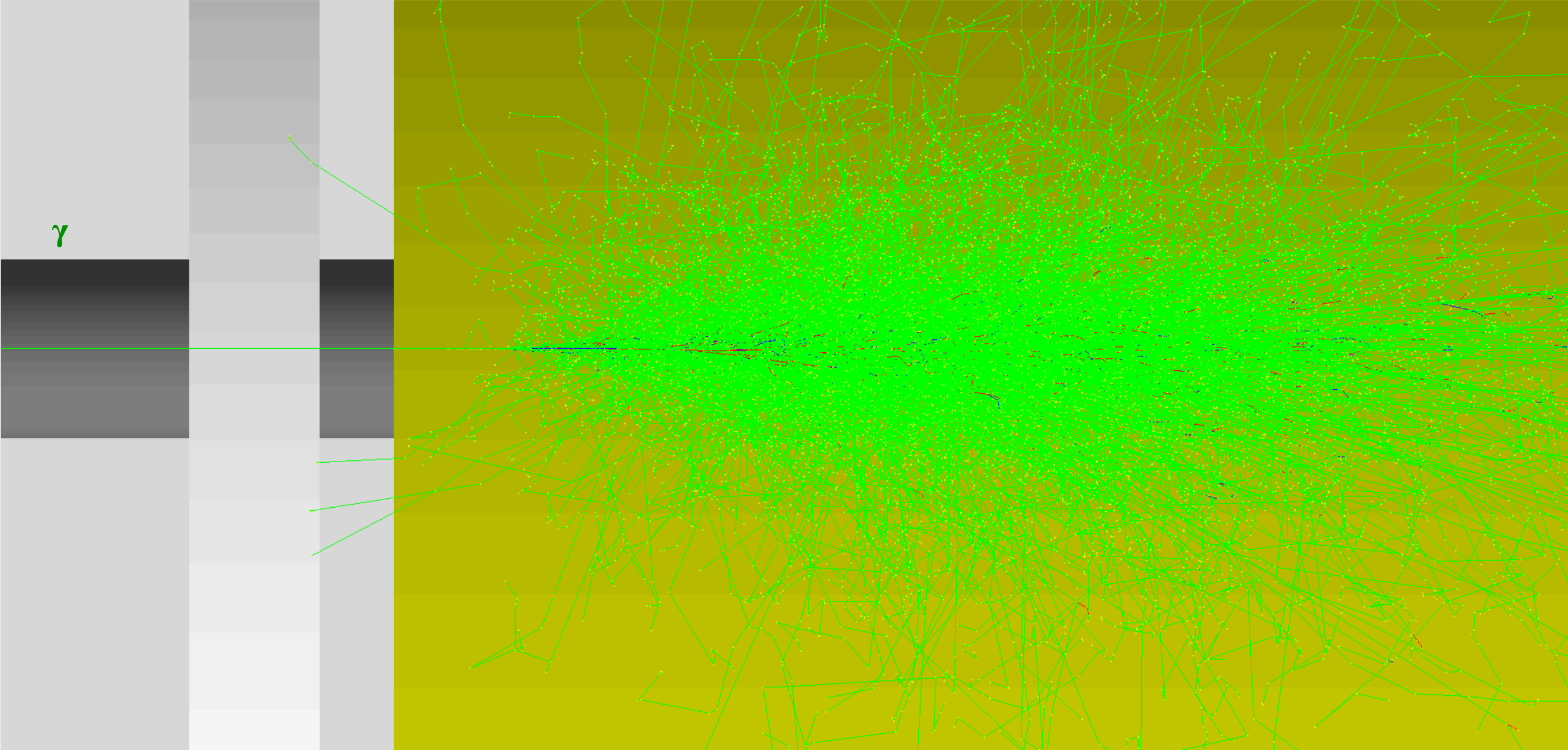
Compton Photons 17.5 GeV : 5.0 e+08

$\xi=0.26$

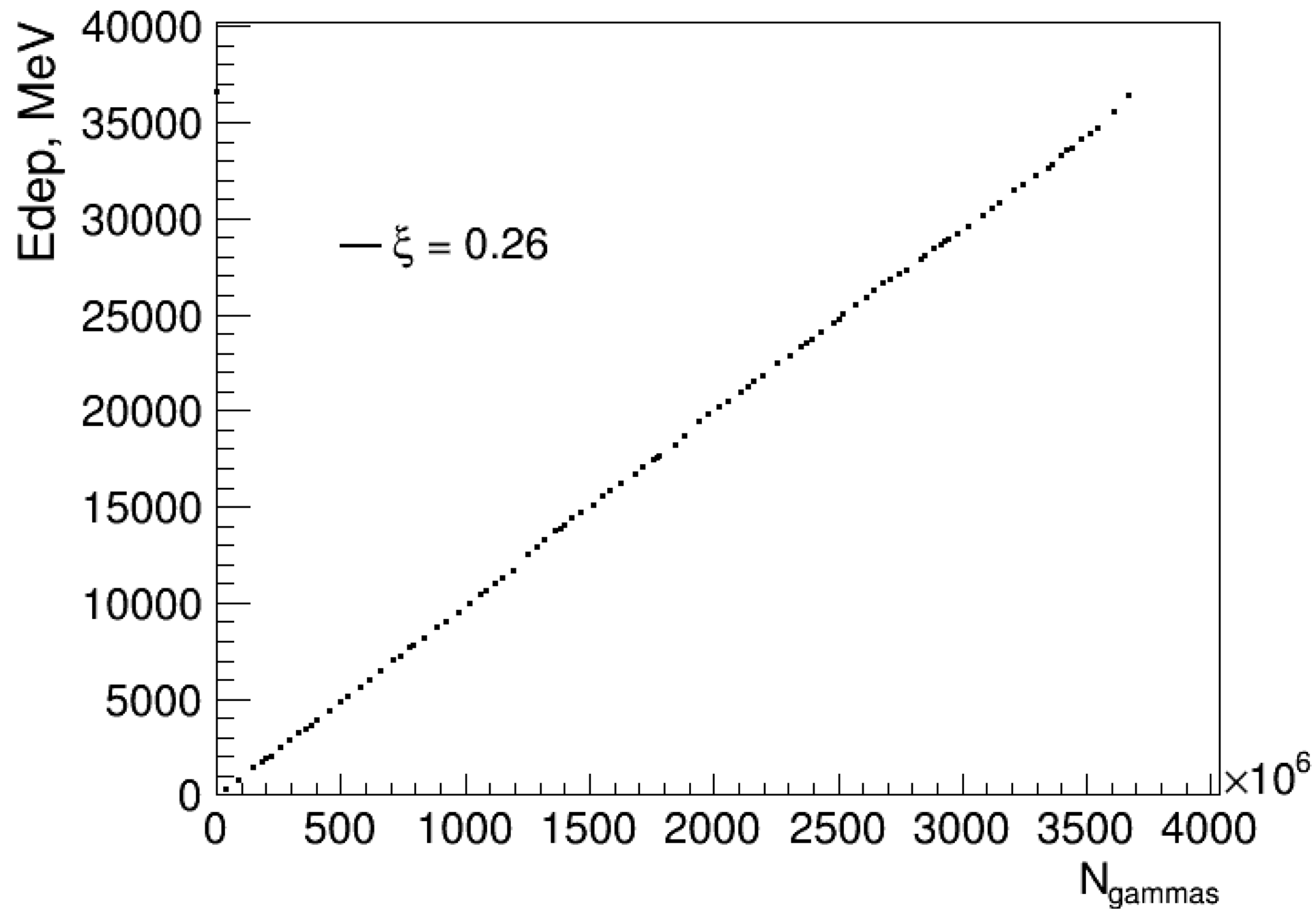
100 BX

Target: W foil 10 μm

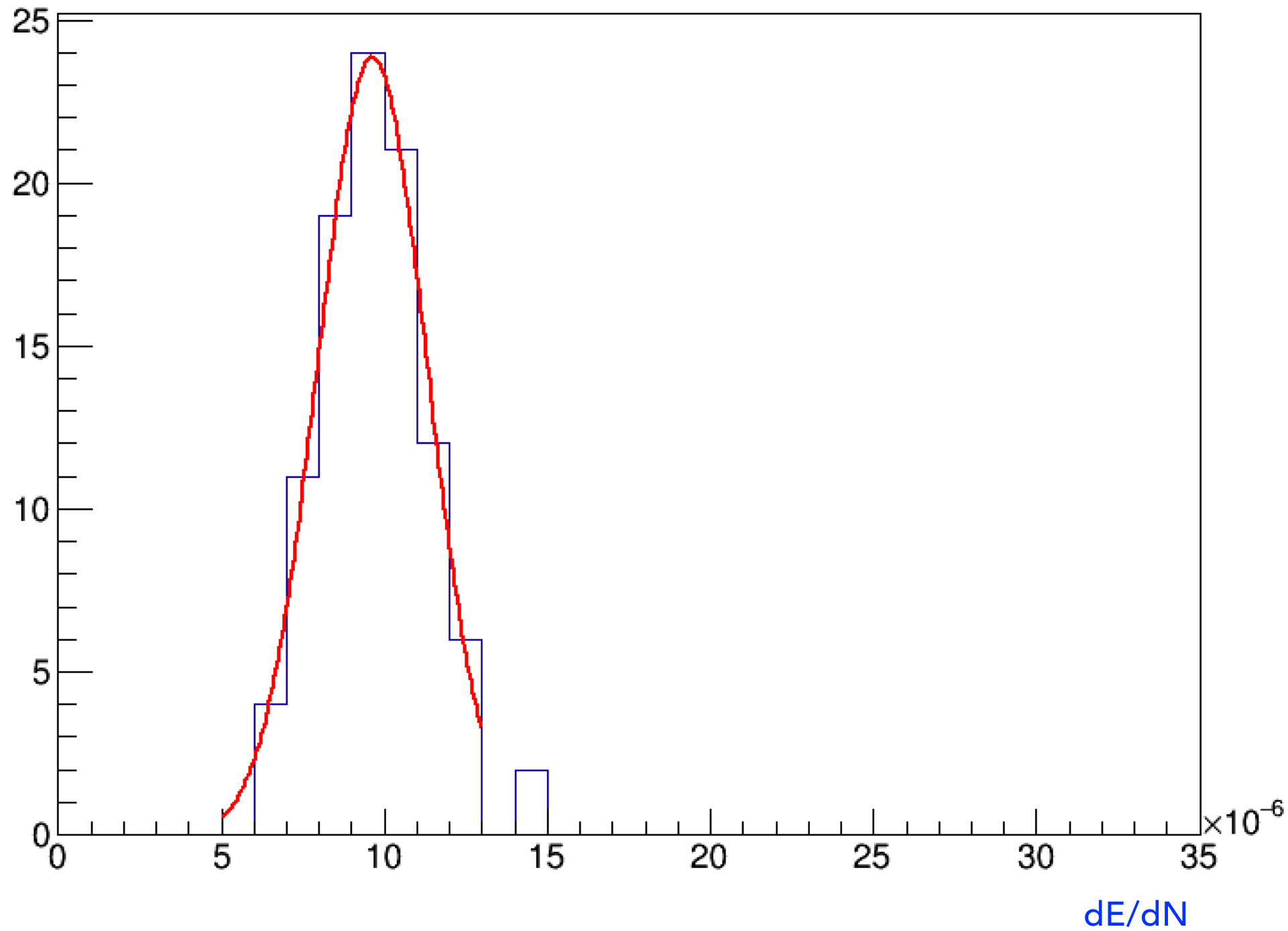
Spectrum of deposited energy



Energy dependence on number of incoming photons

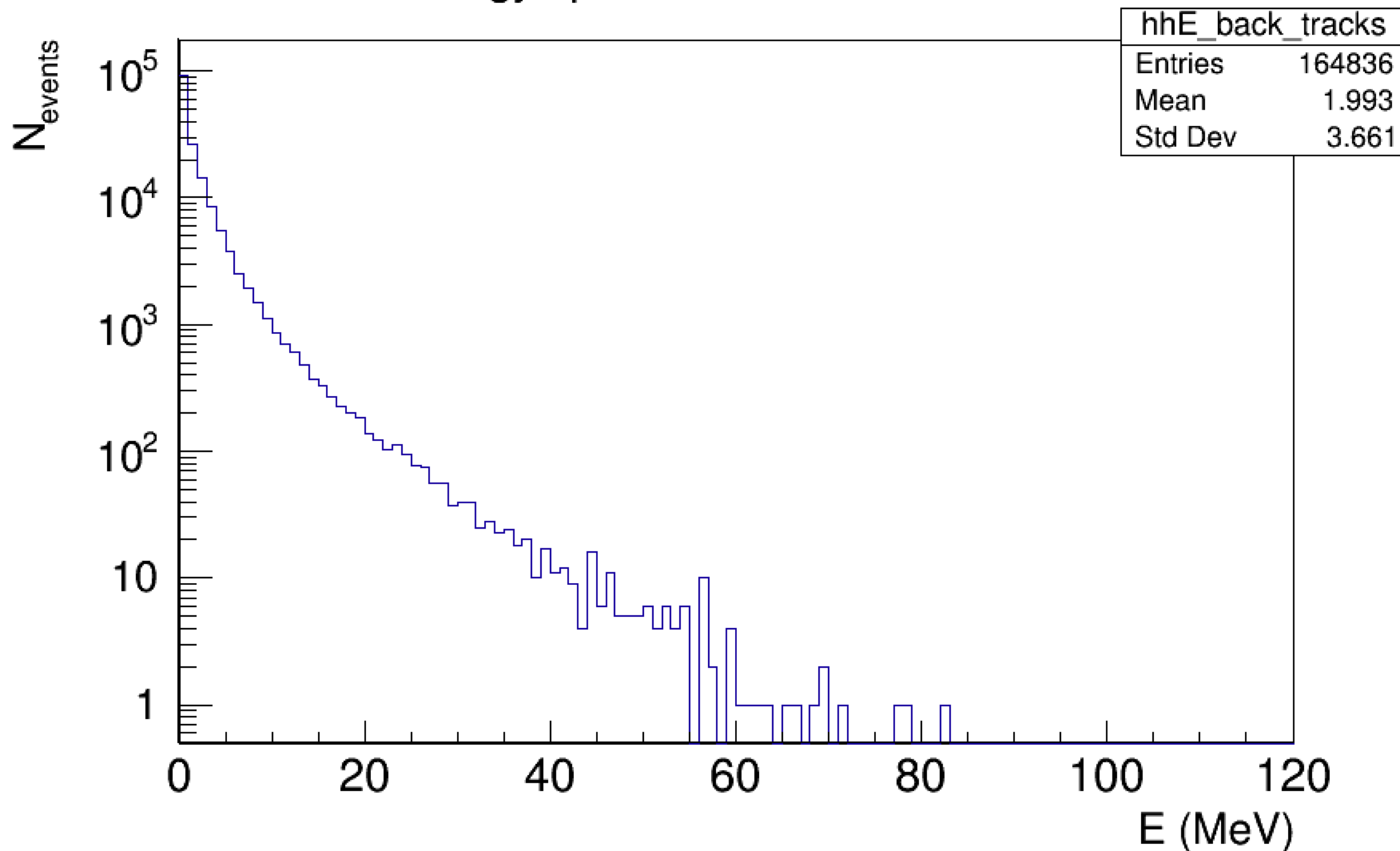


Ratio of deposited energy to the number of photons



Energy of tracks hitting the W calorimeter

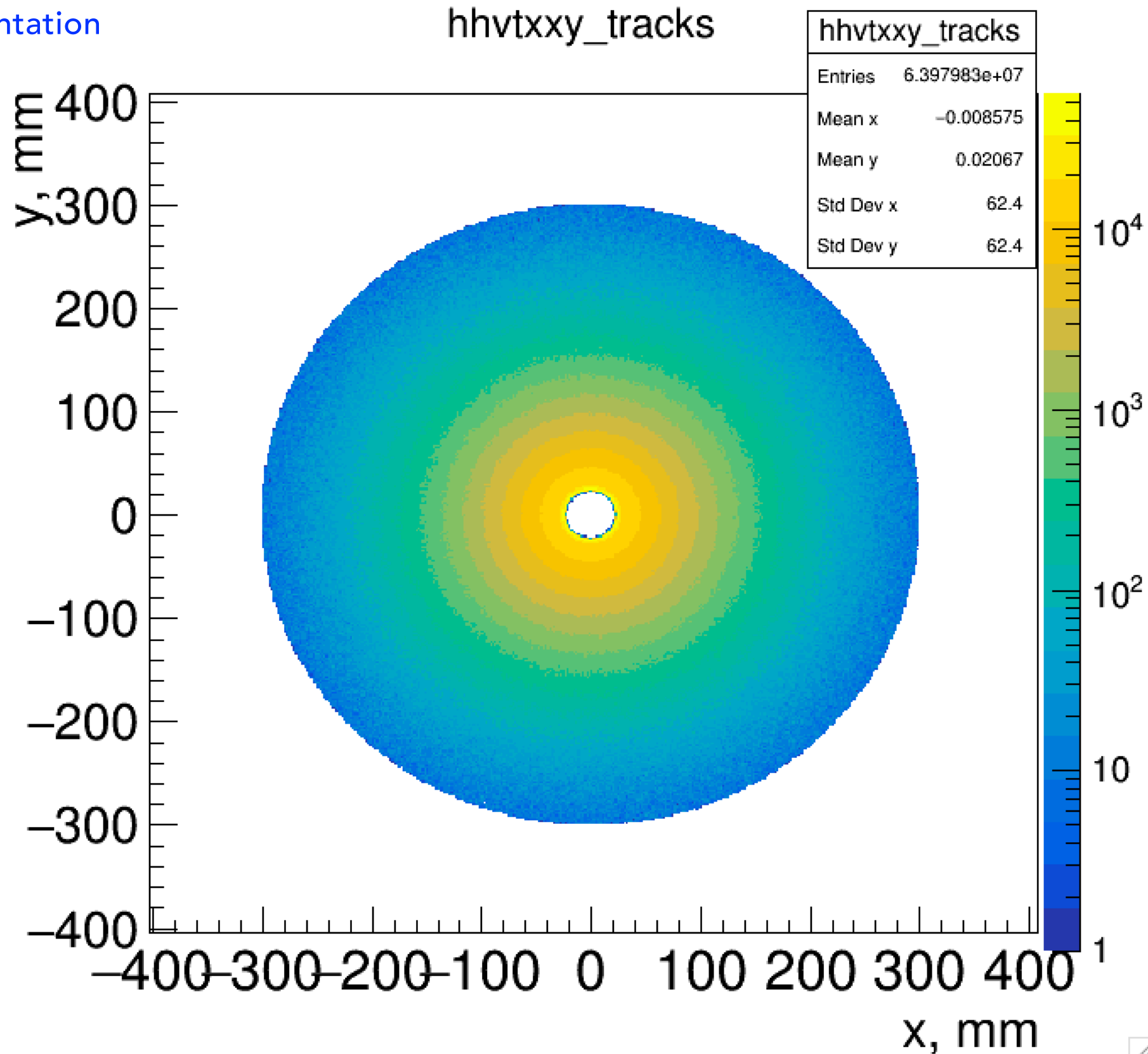
Energy spectrum of backscatters



Tracks w/ $p_z < 0$ and $\text{vertex}_z > Z_{\text{cal}}$

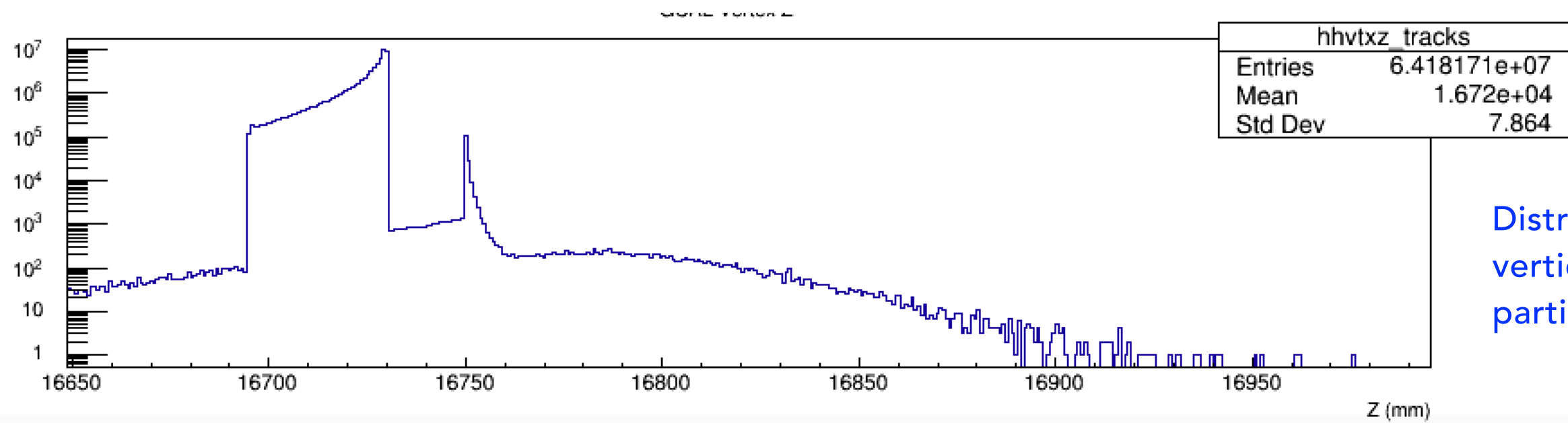
Distribution of second vertices in XY plane of W calorimeter for backscatters

No segmentation



Outlook

- **GCAL studies:**
 - **GCAL should serve as gamma flux counter and as a dump of the particles in the end of beam line**
 - **GCAL is implemented in GEANT as W+Iron Calorimeter**
 - **The energy spectrum of backscatters is up to 100 MeV**
 - **The linear dependence of deposited energy on number of incoming photons allows the usage of backscatters for counting the photon flux**



Distribution of z
vertices for all
particles