

Shielding studies

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9/06/21
LUXE weekly technical meeting

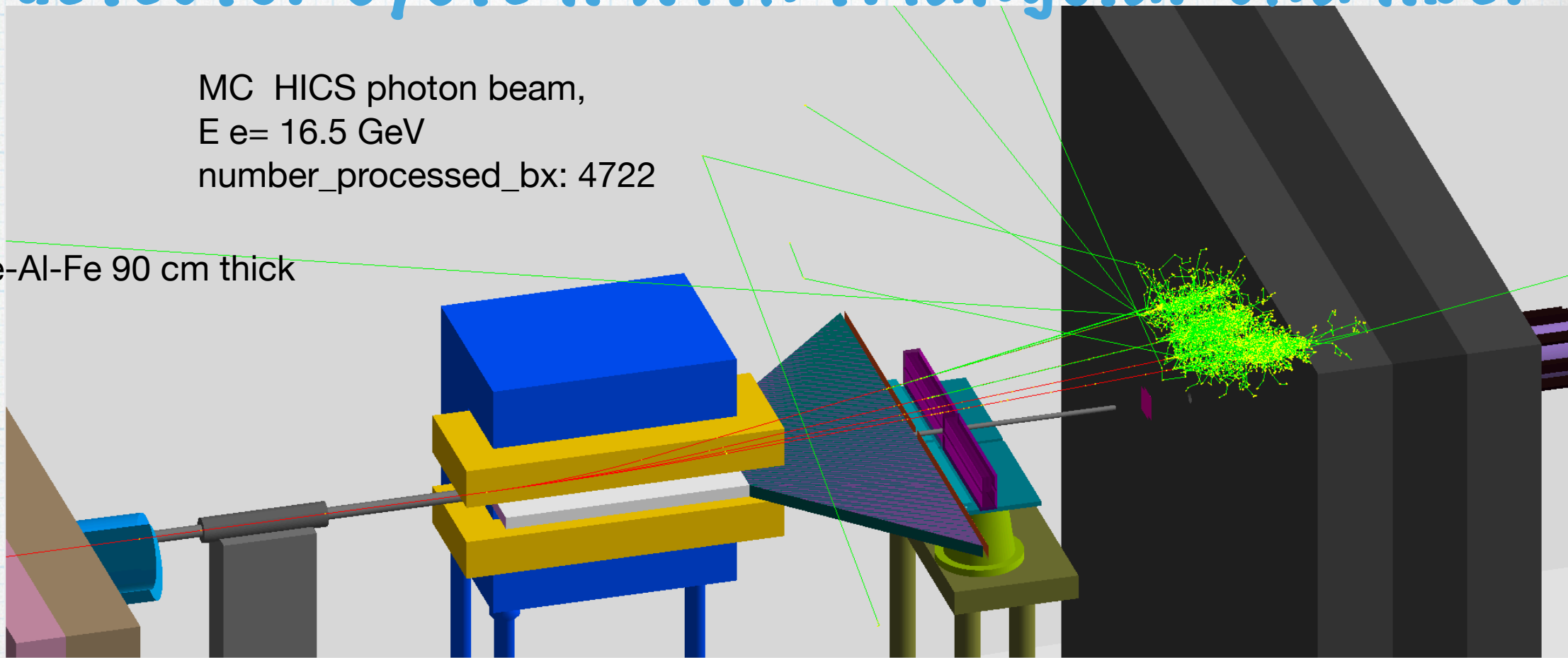
LUXE

Forward detector system with triangular chamber

Beam Pipe 4.2 cm +
Triang chamber
Al window 0.5 mm

MC HICS photon beam,
 $E_e = 16.5$ GeV
number_processed_bx: 4722

Shielding - 3-layer Fe-Al-Fe 90 cm thick



Shielding - Concrete 30 cm vs 80 cm thick

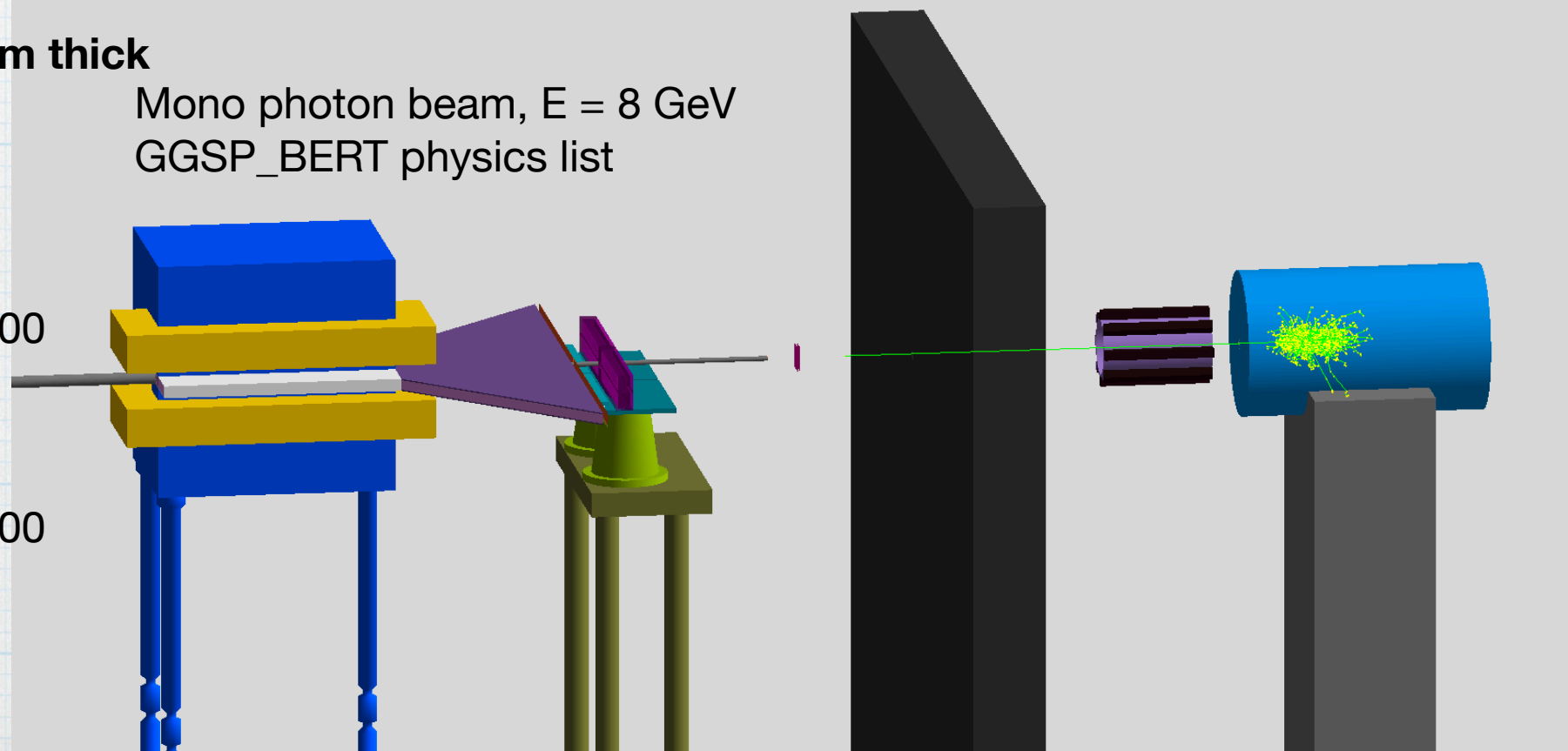
Mono photon beam, $E = 8$ GeV
GGSP_BERT physics list

30 cm shielding

number_processed_events: 68500000
=> 4% of BX

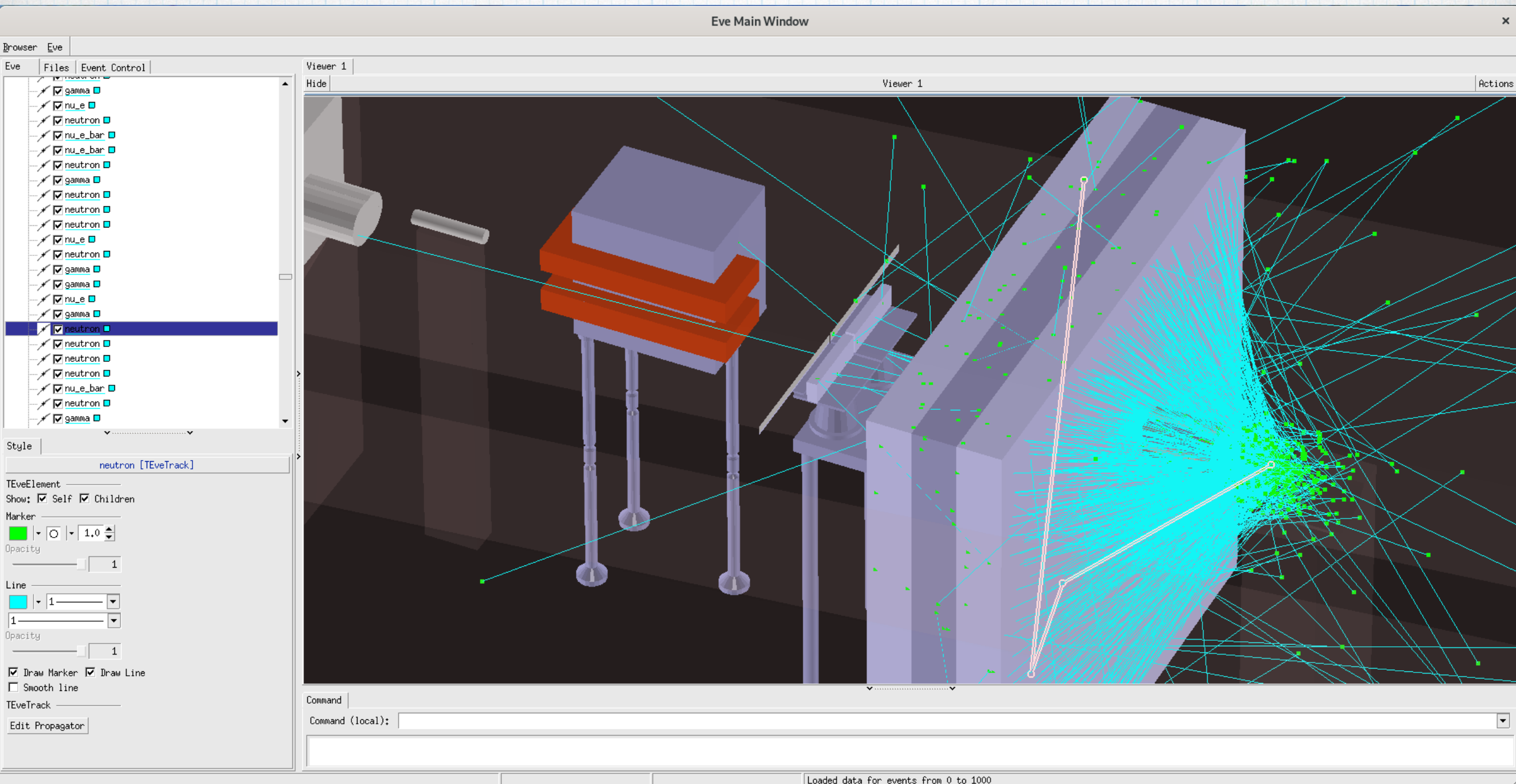
80 cm shielding

number_processed_events: 18290000
=> 1% of BX

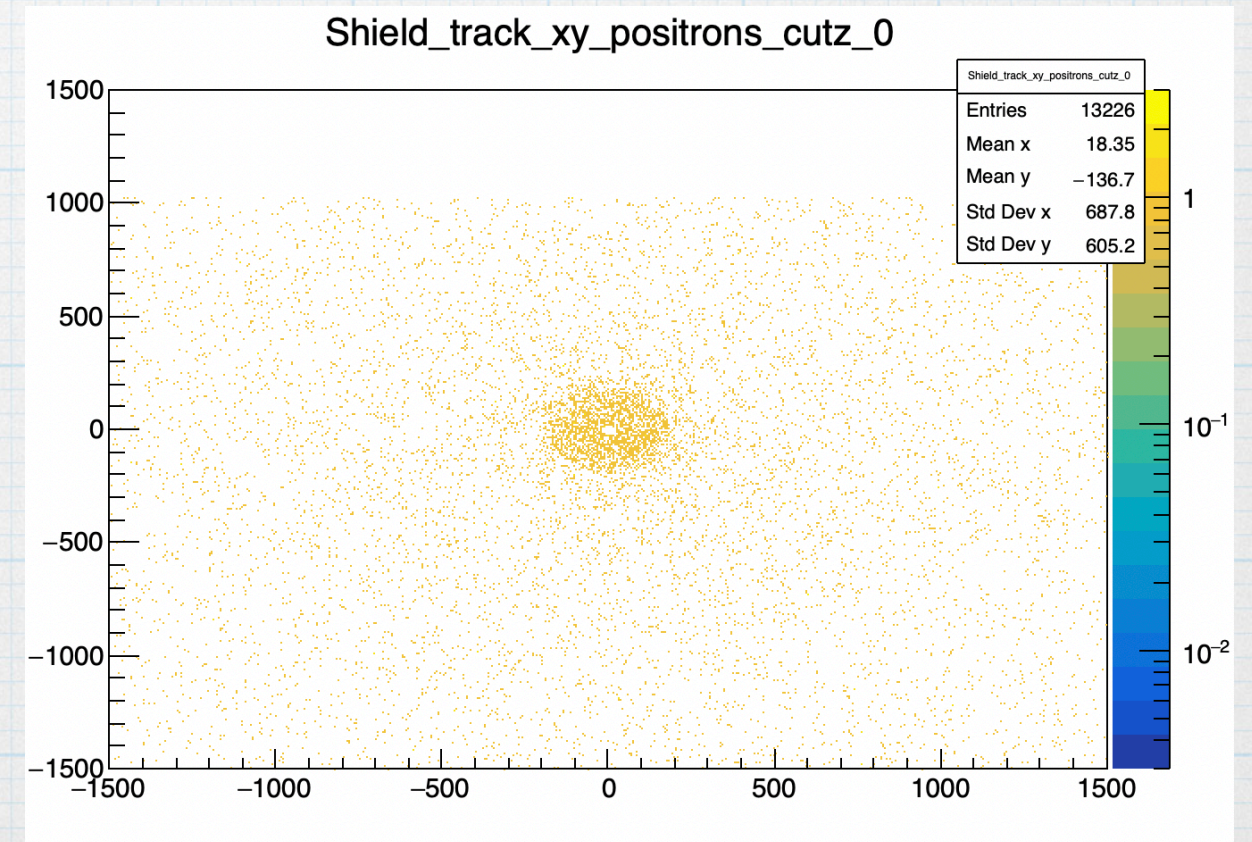
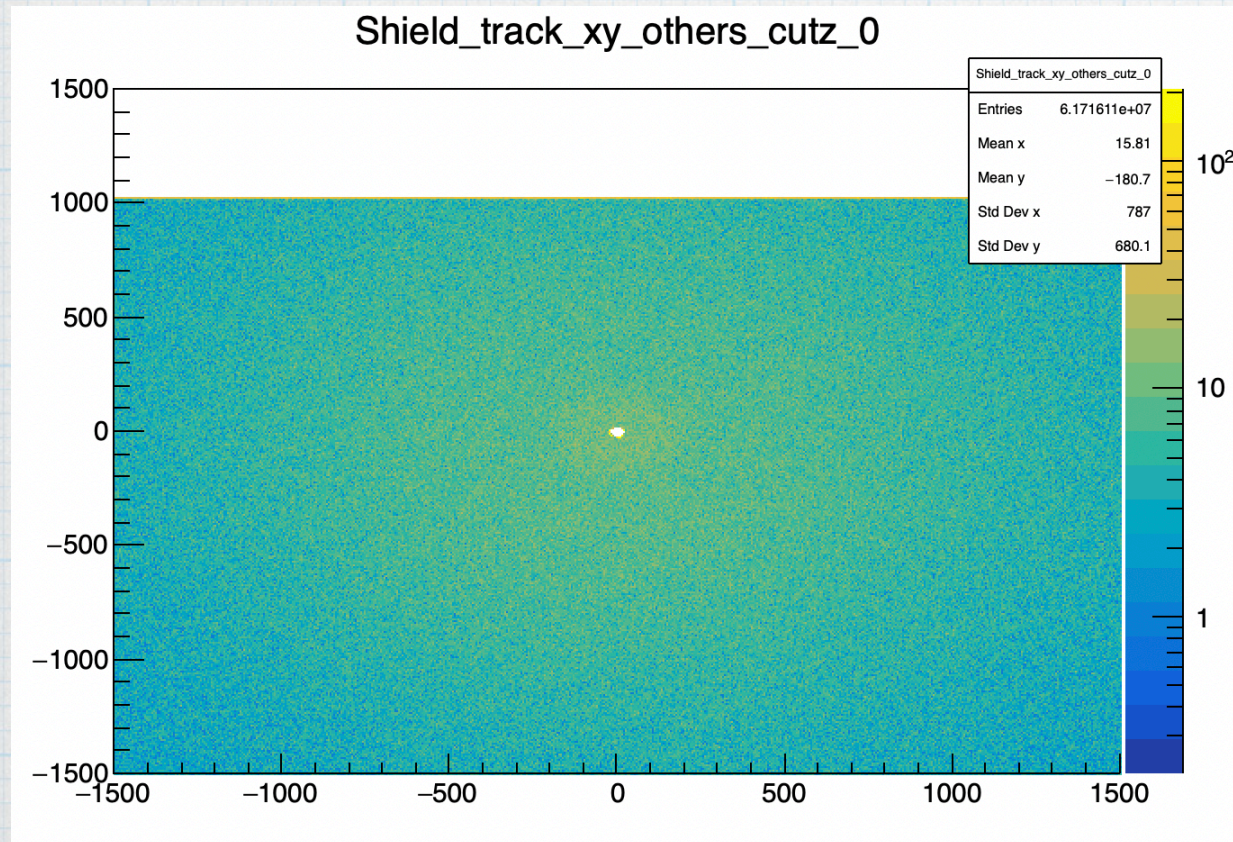
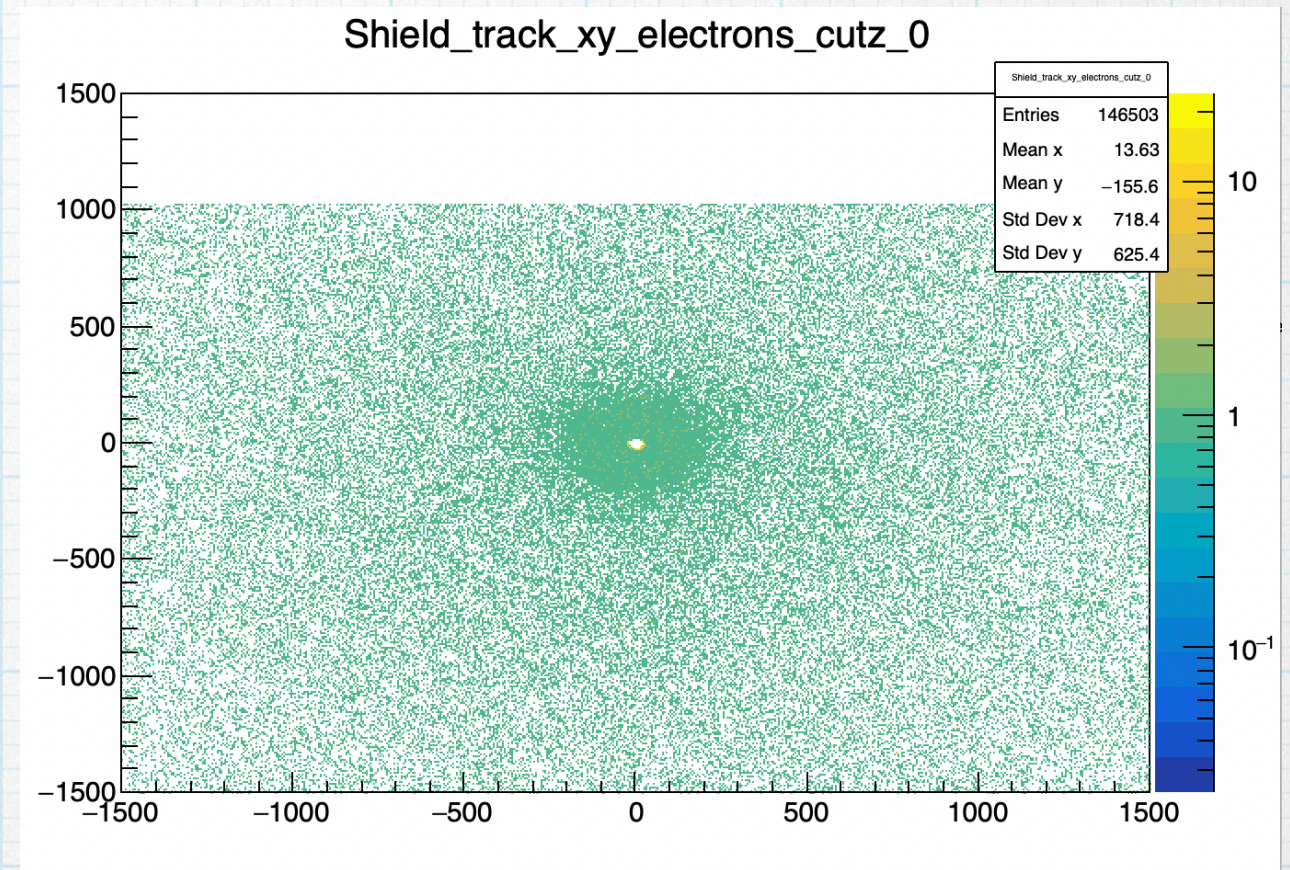
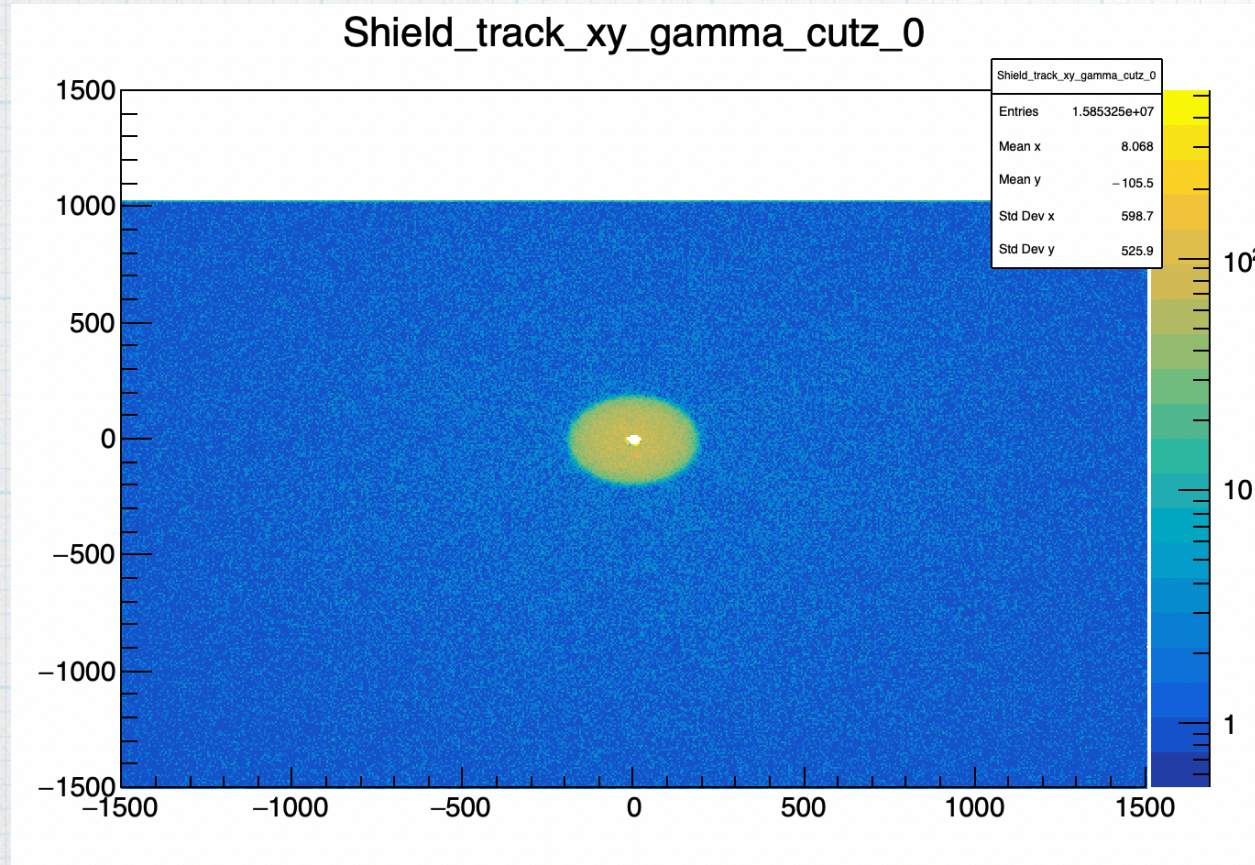


Event display

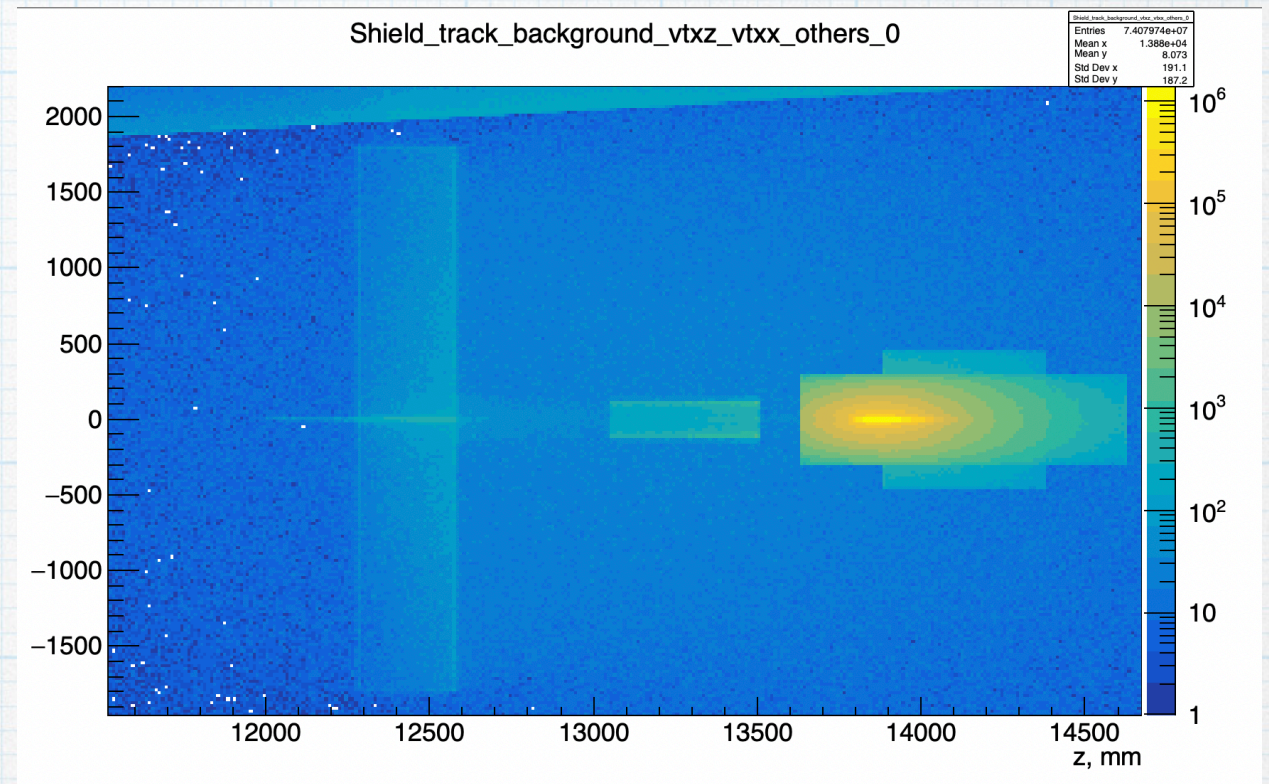
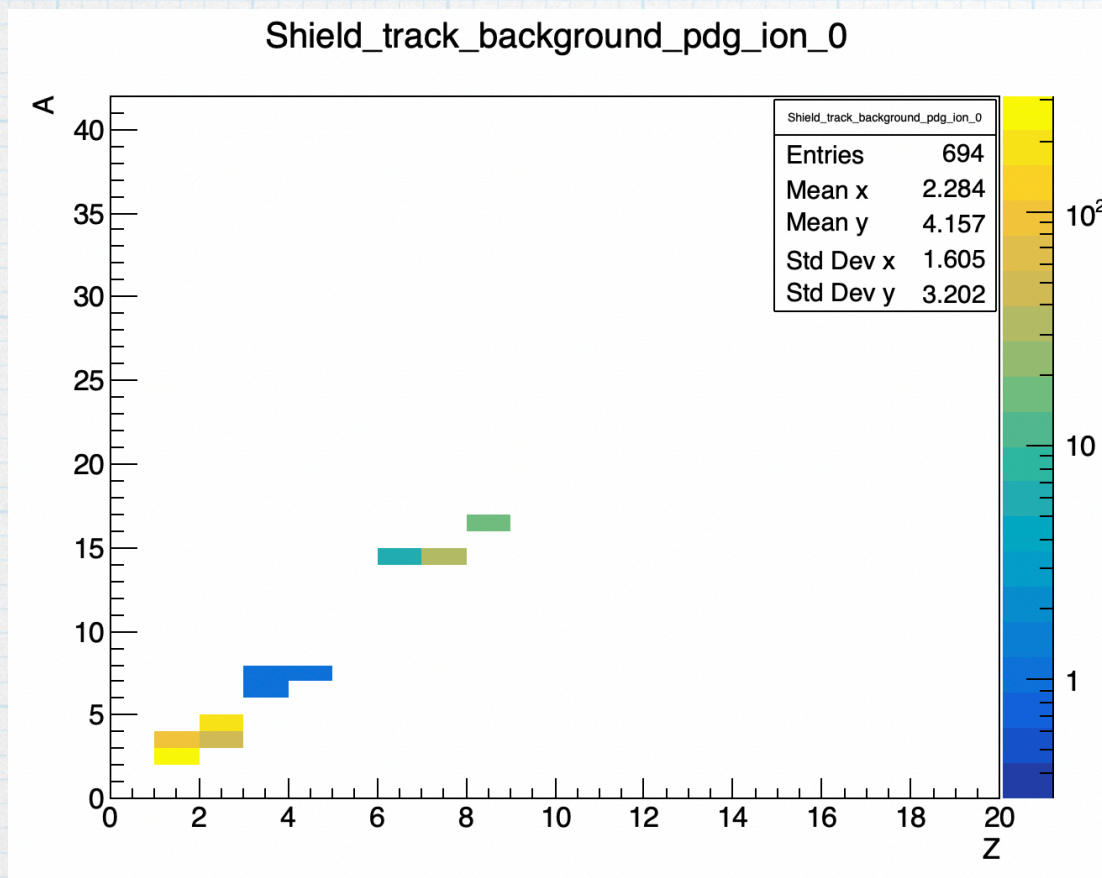
1000 photons of 8 GeV energy



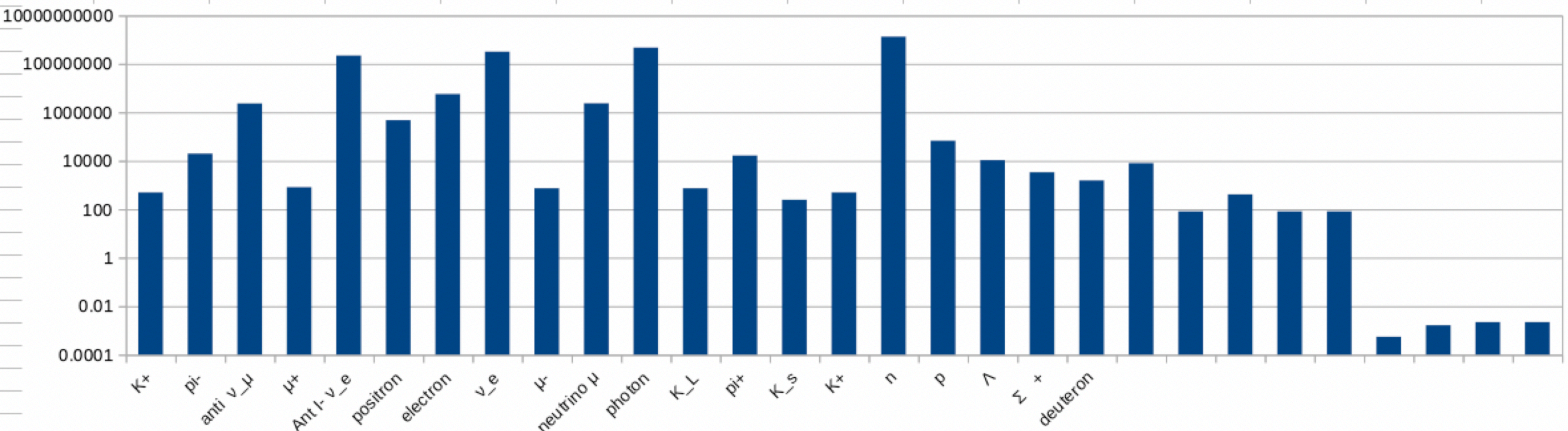
Tracks xy, rear surface



Ions & other particles in Shielding

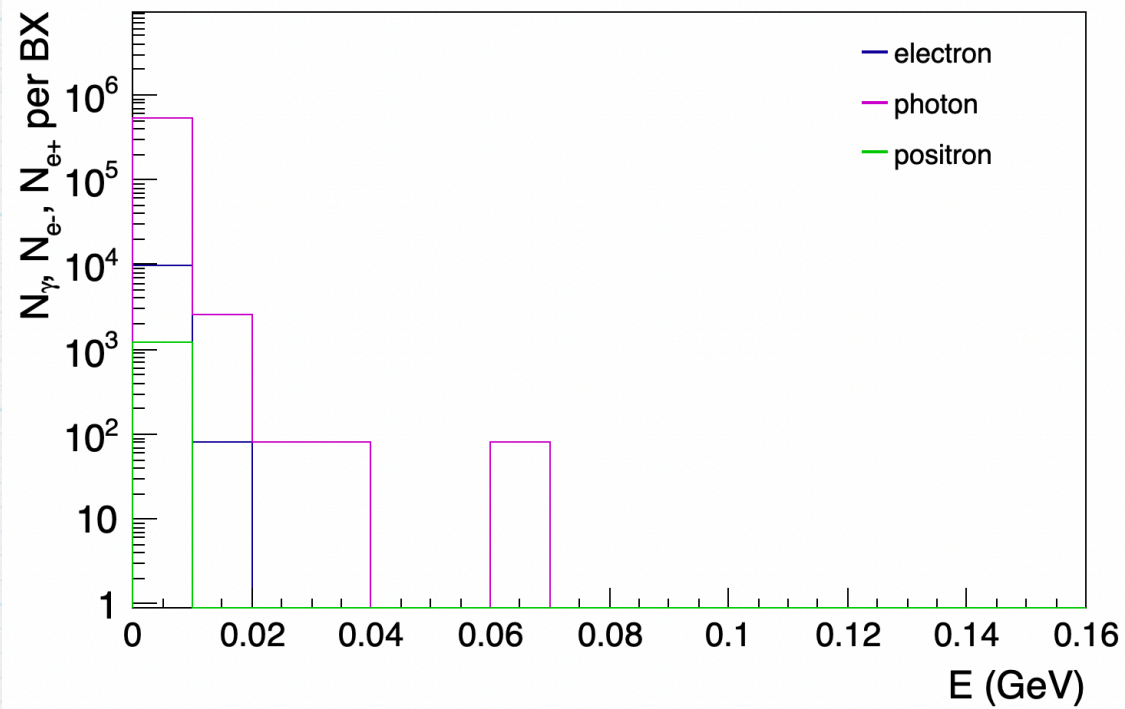


Shielding - Concrete 30 cm thick

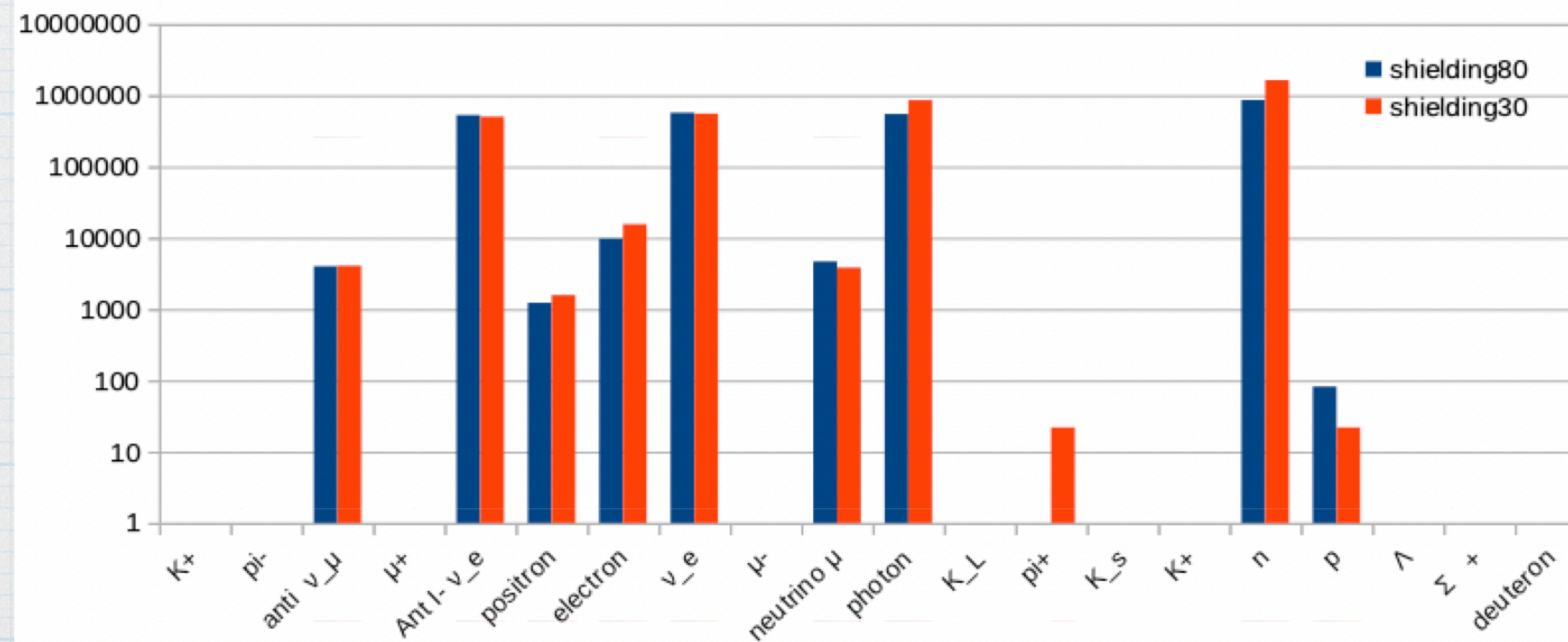
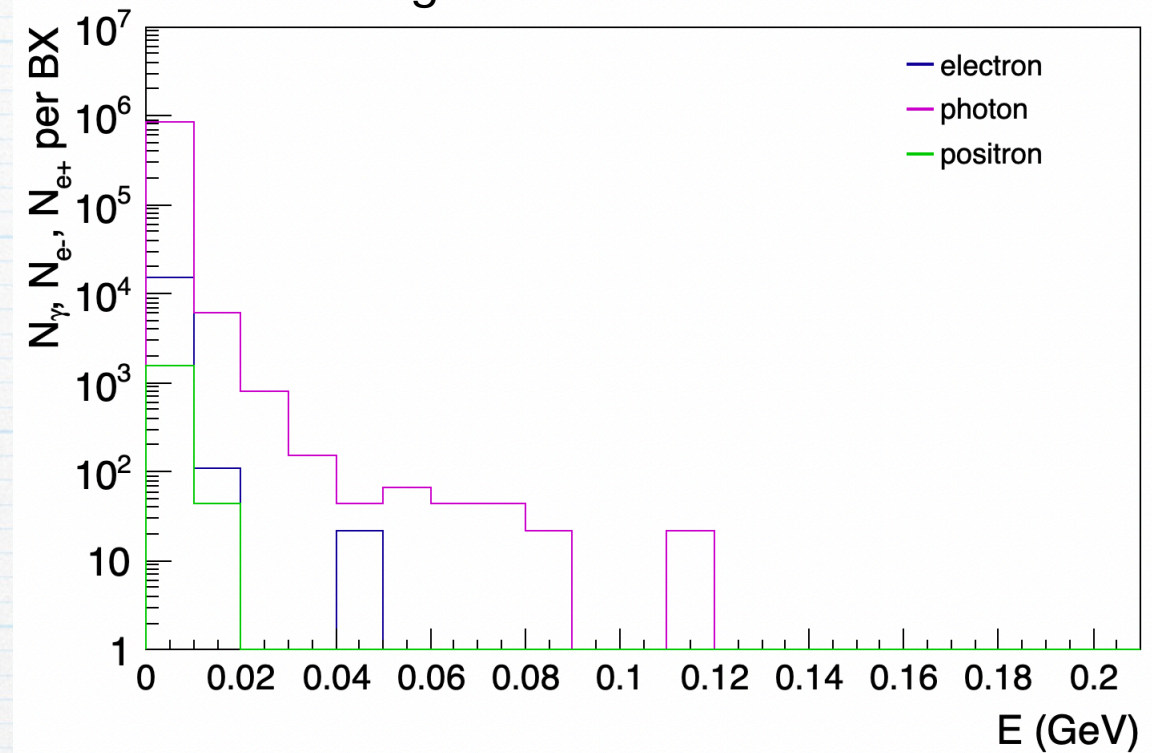


Dump induced background in photon spectrometer

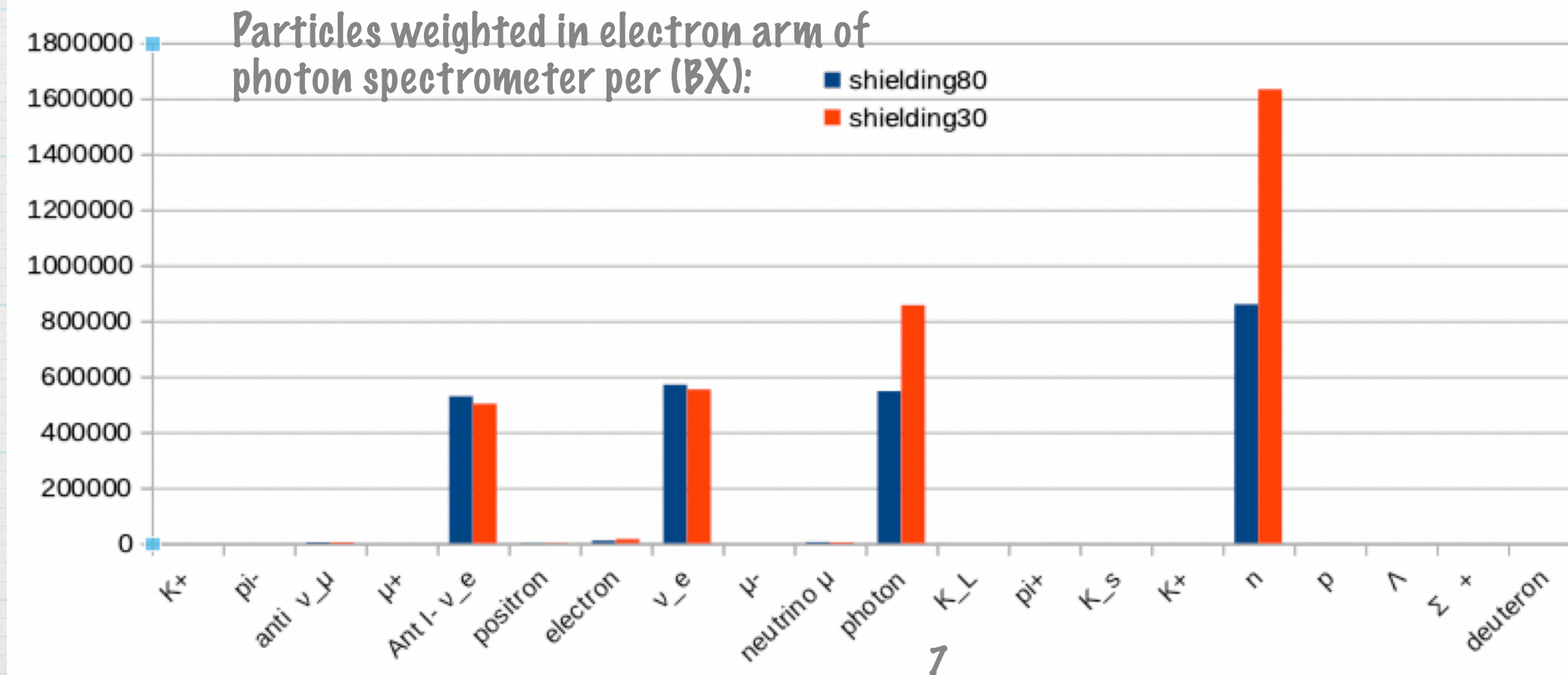
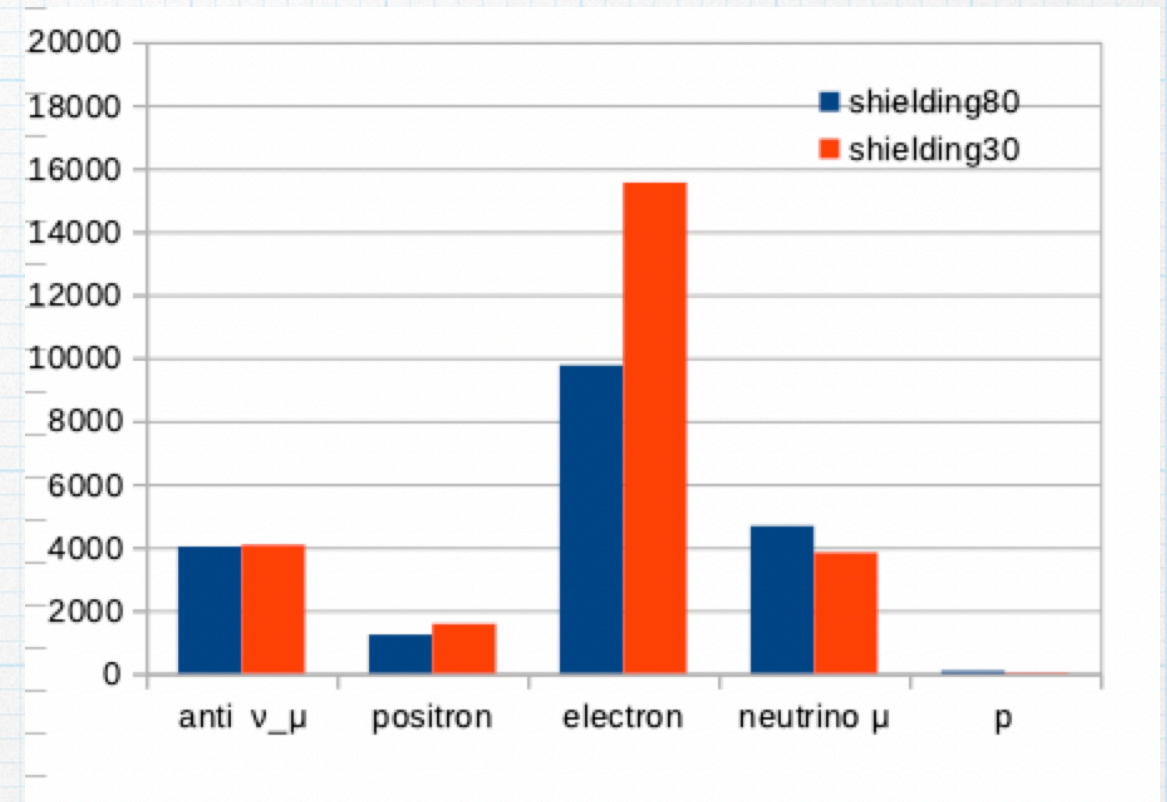
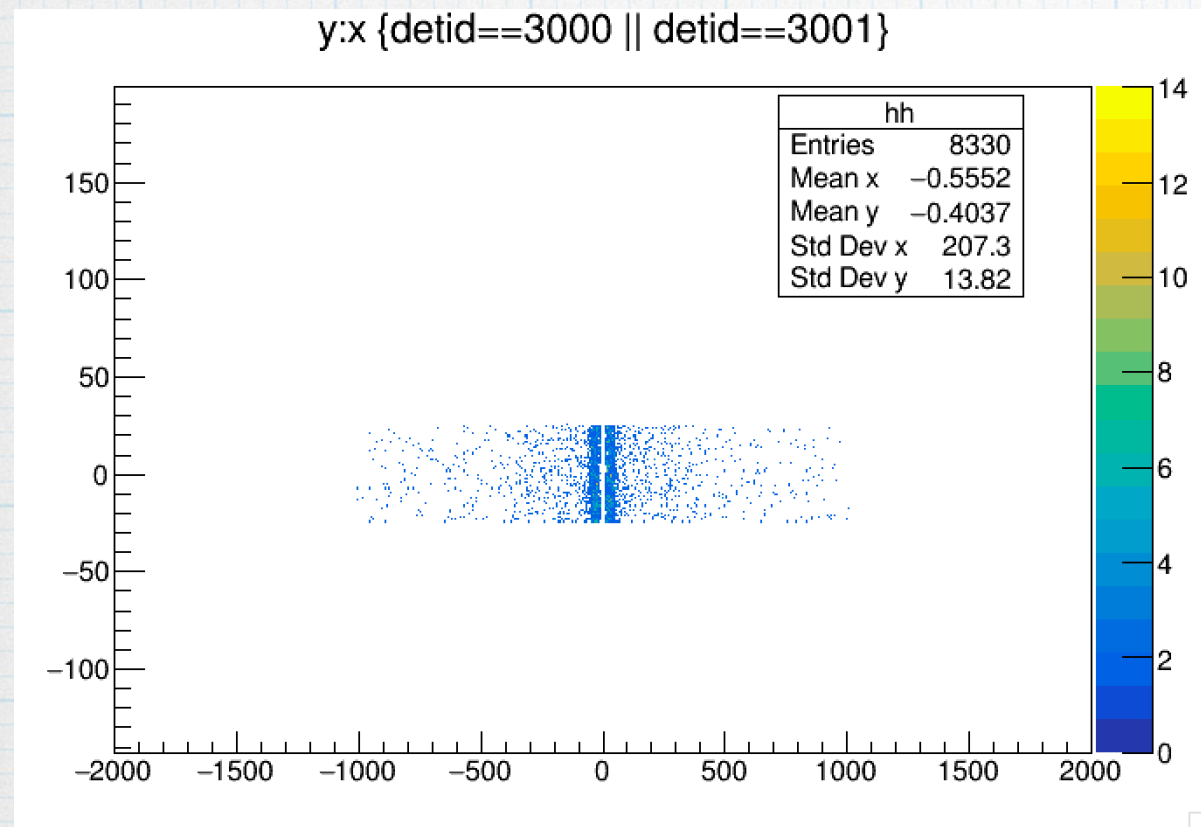
Shielding - Concrete 80 cm thick



Shielding - Concrete 30 cm thick



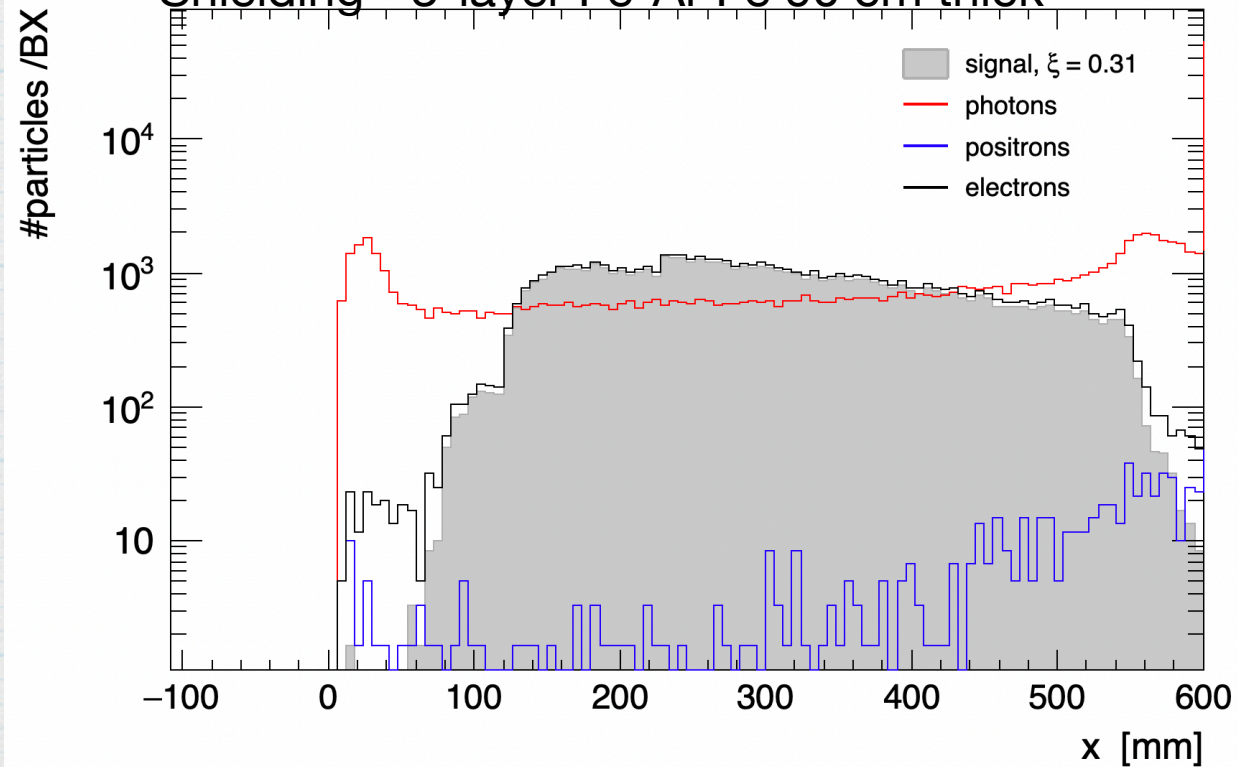
Dump induced background in photon spectrometer



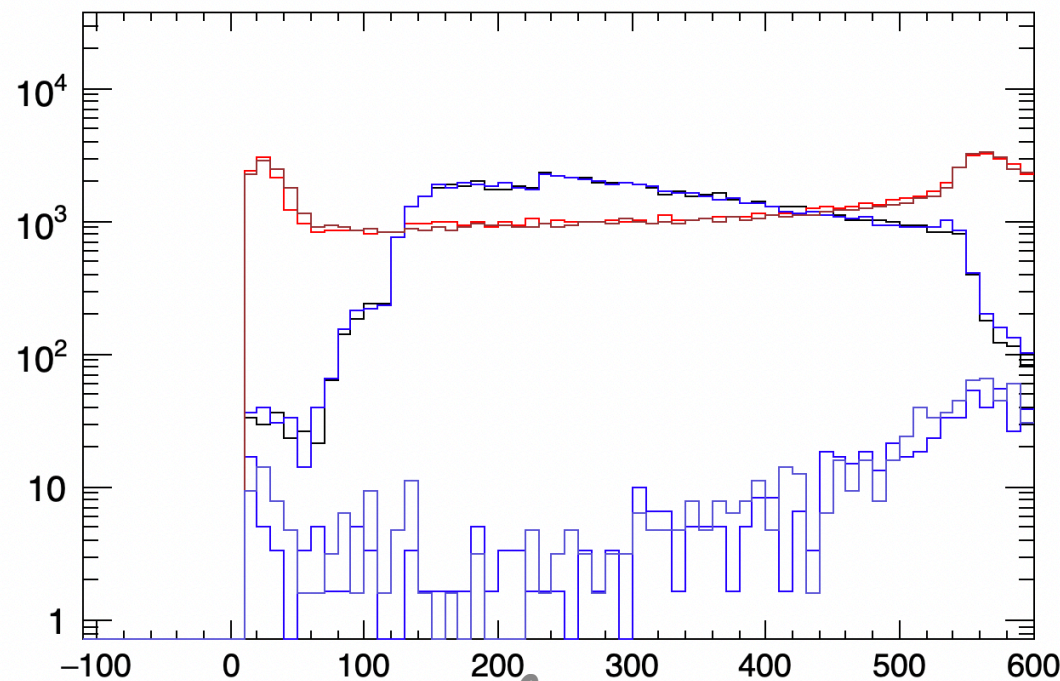
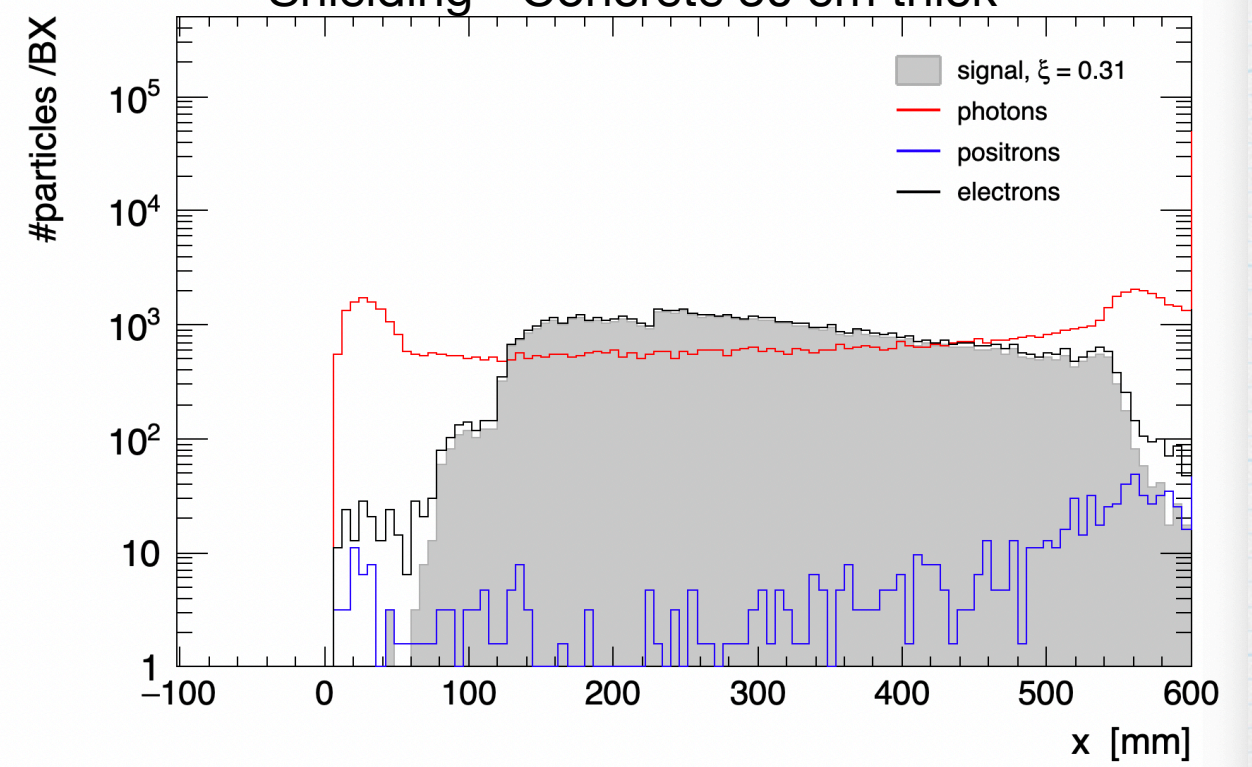
Comparing signal in lanex

MC HICS photon beam, $E_e = 16.5$ GeV
number_processed_bx: 4722

Shielding - 3-layer Fe-Al-Fe 90 cm thick

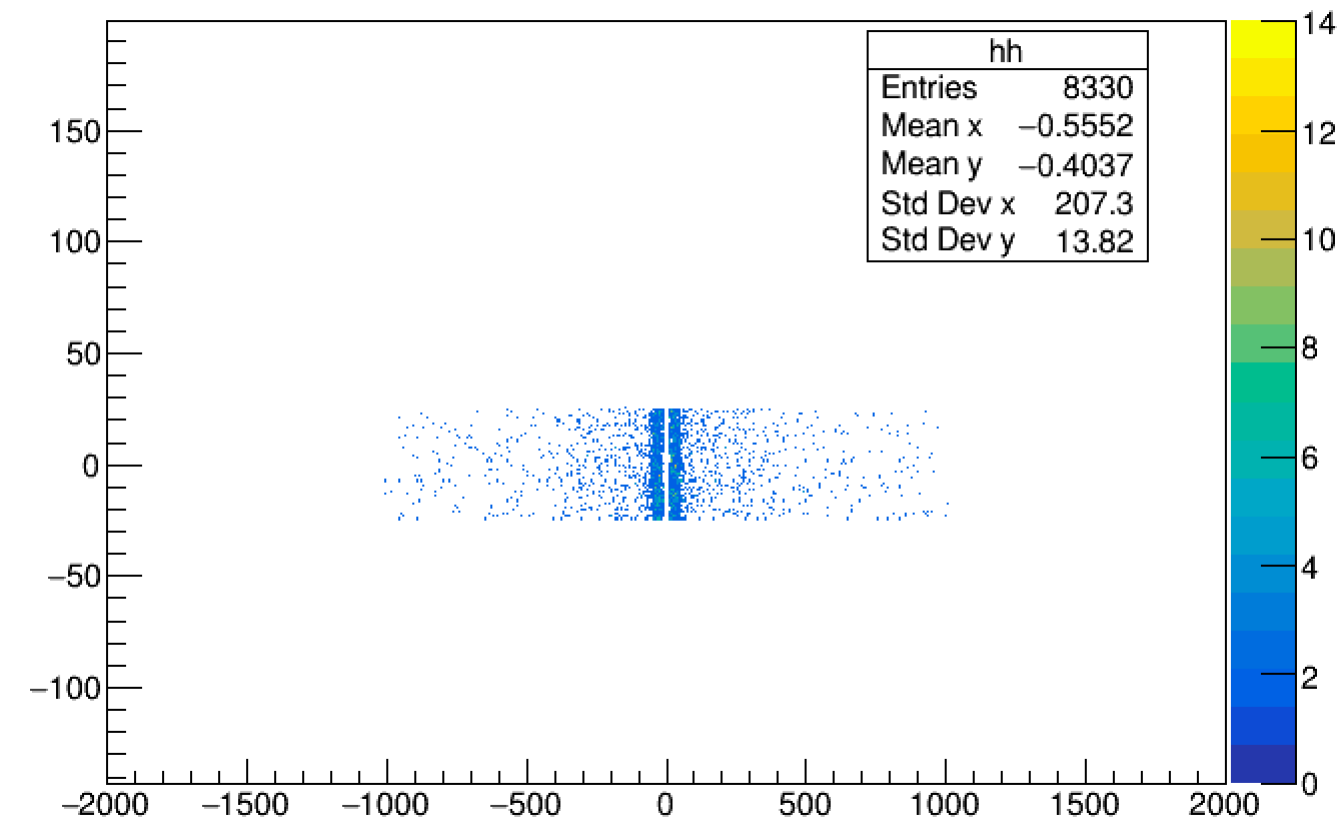


Shielding - Concrete 30 cm thick

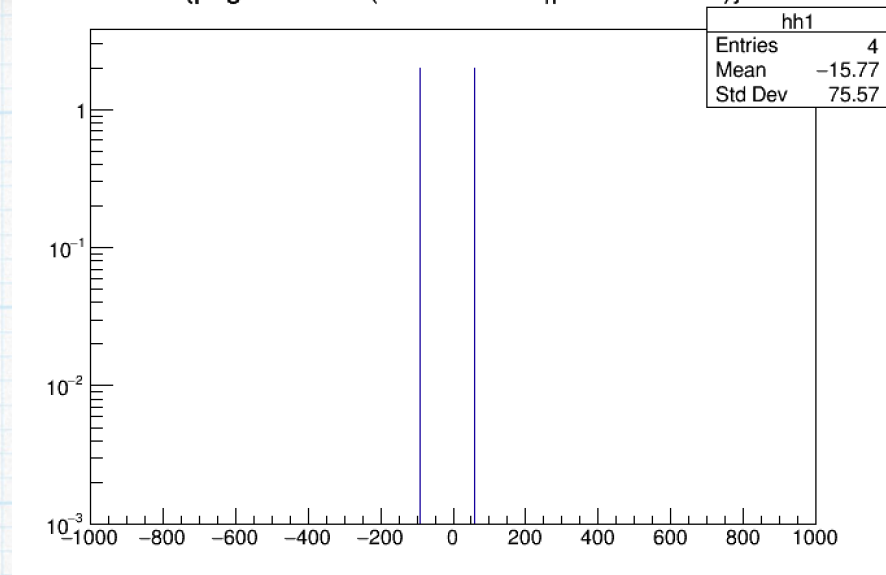


Back up

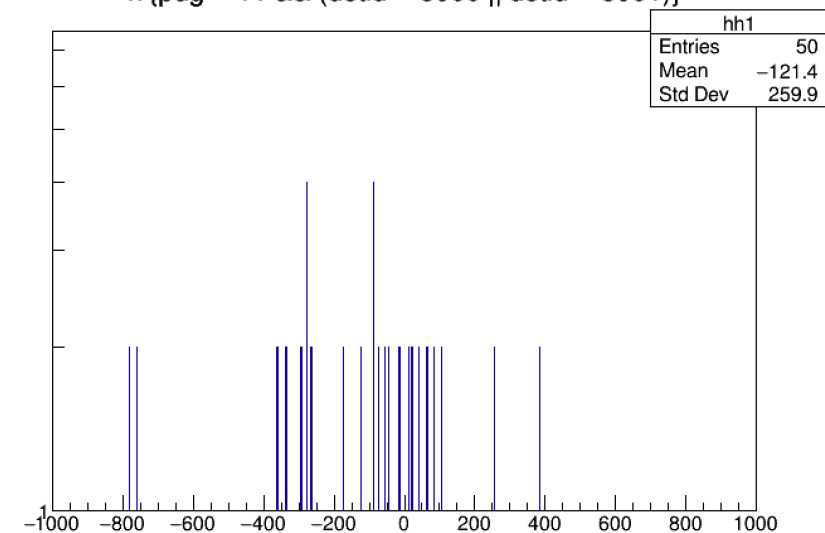
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x {pdg==11 && (detid==3000 || detid==3001)}

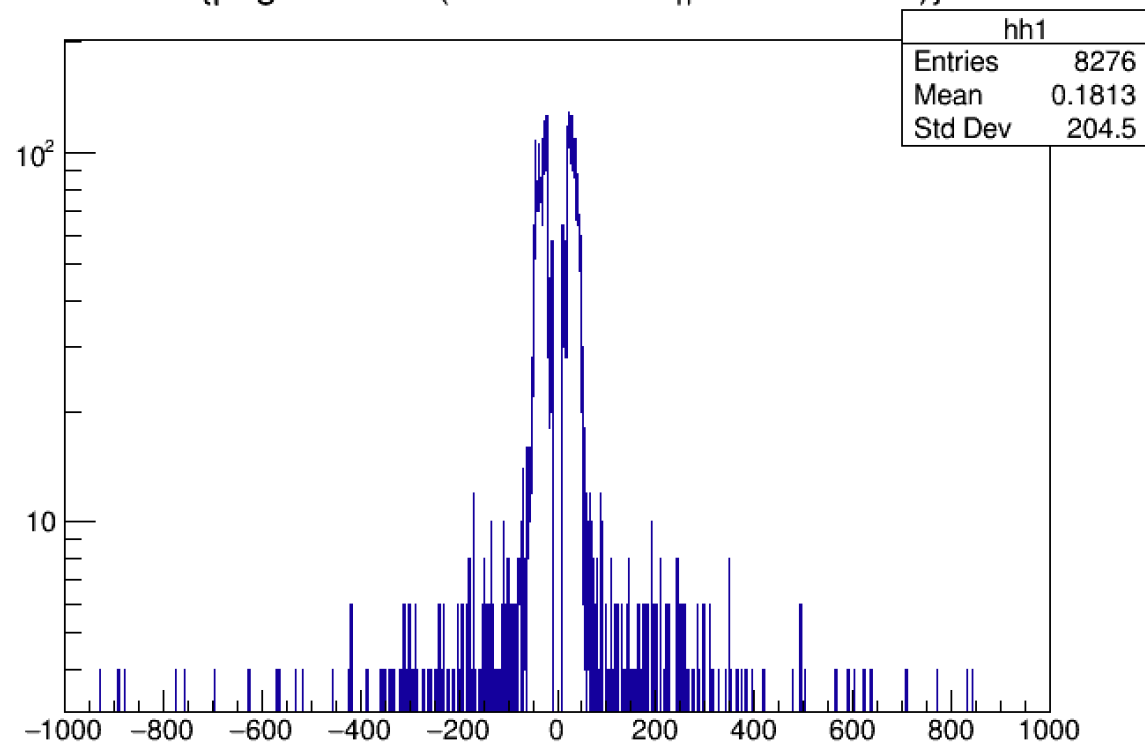


x {pdg==11 && (detid==3000 || detid==3001)}

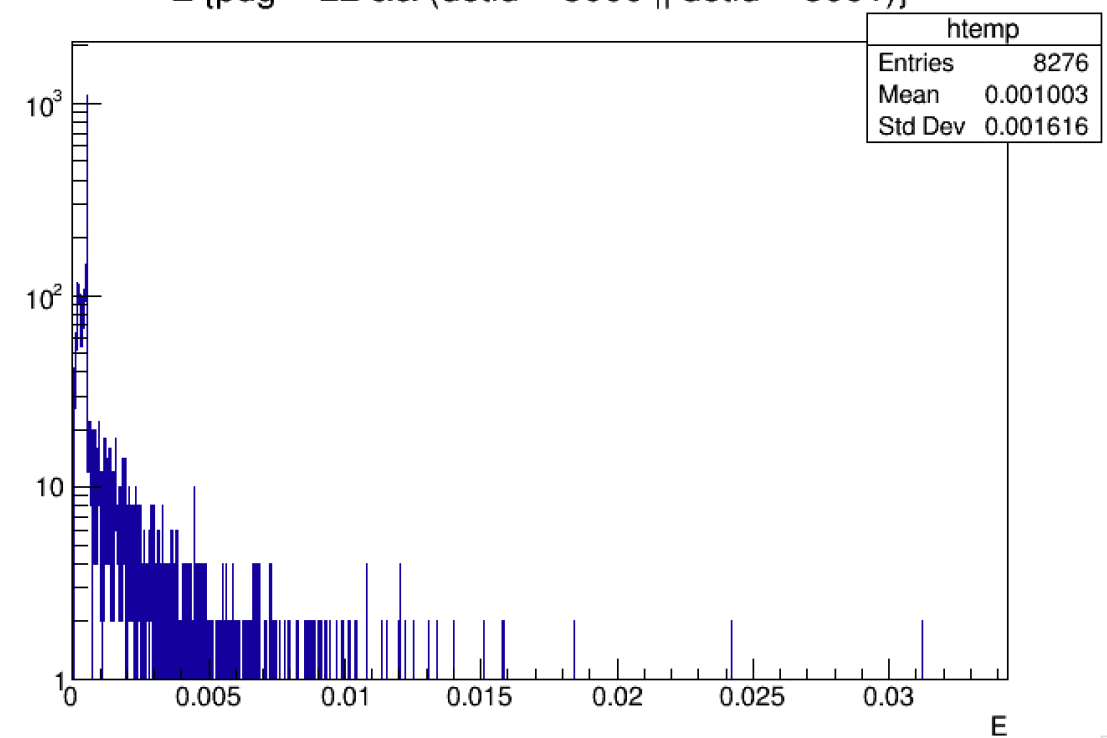


Mono photon beam, E = 8 GeV

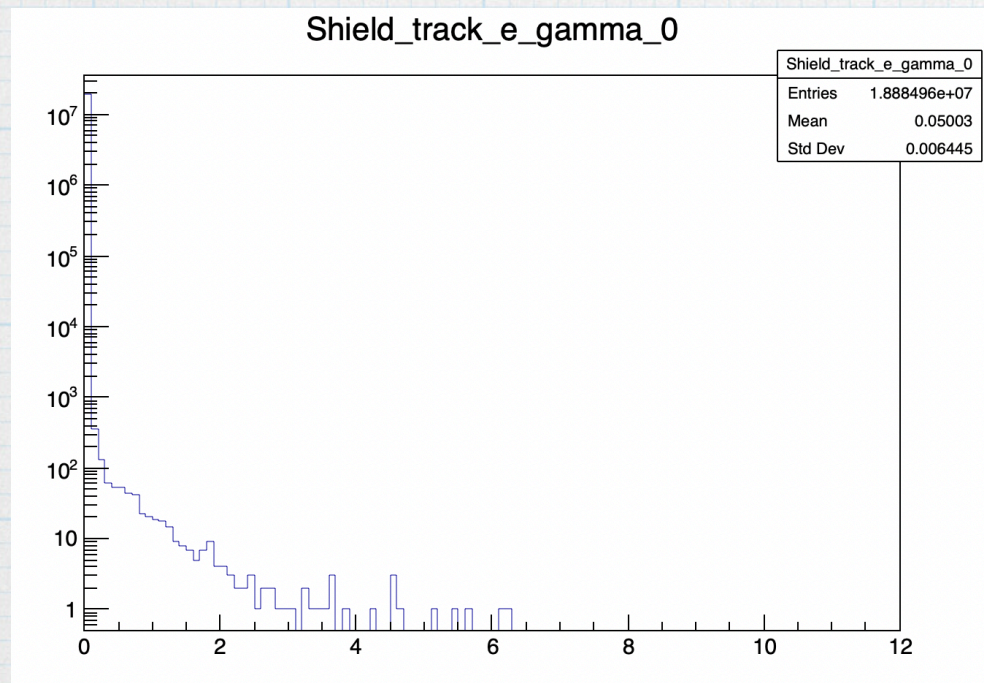
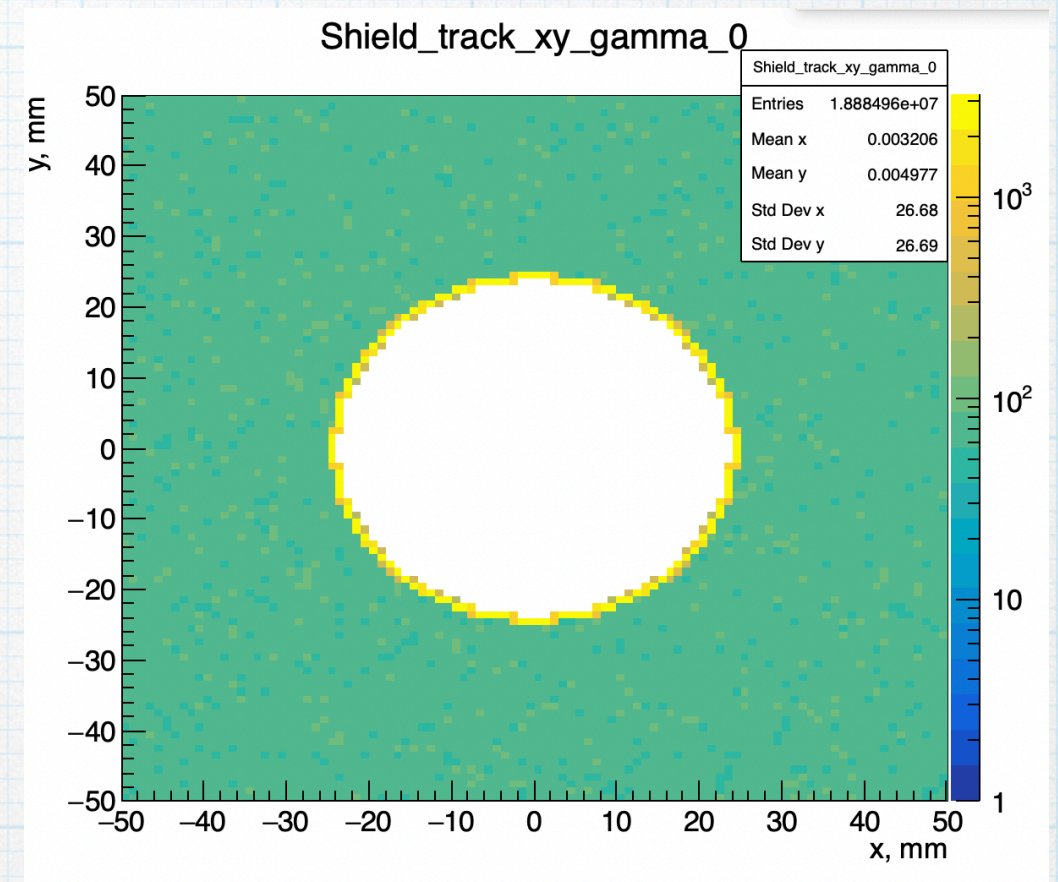
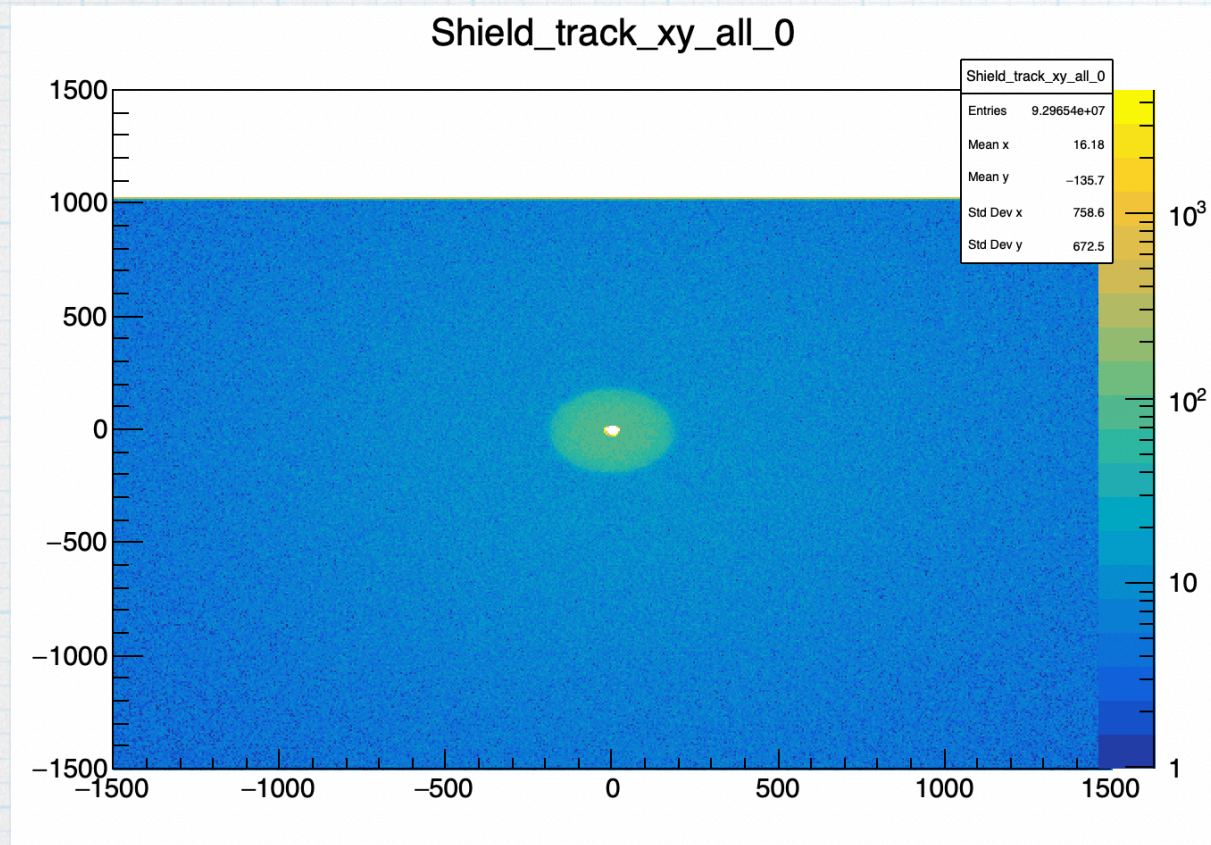
x {pdg==22 && (detid==3000 || detid==3001)}



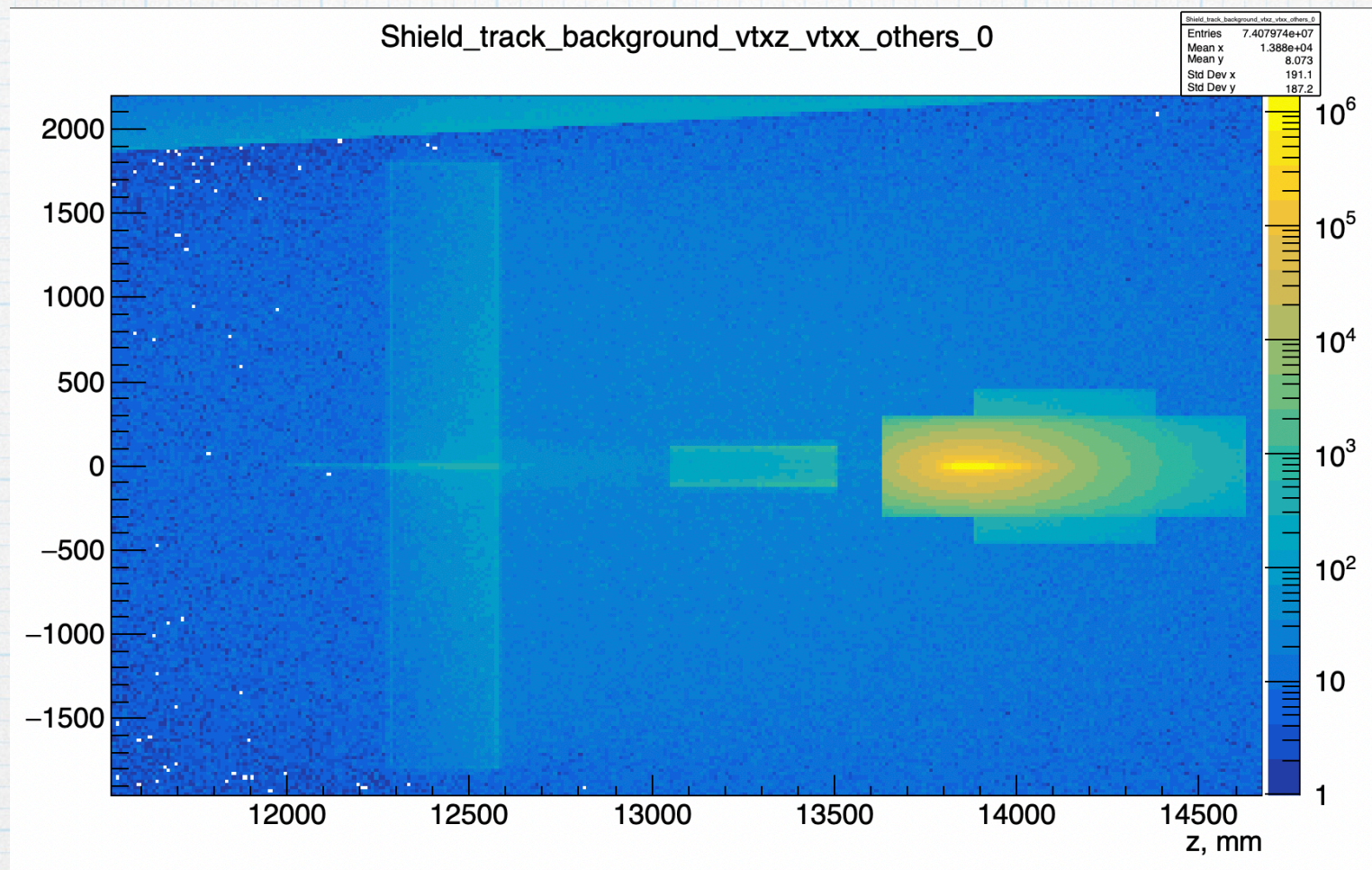
E {pdg==22 && (detid==3000 || detid==3001)}



Tracks at the front plane of Shielding



Vertex



In shielding

Shield_track_background_pdg_ion_0

