

Update on SiD background simulation for GuineaPig proceeding

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Last two weeks

FLUKA update

SiD background analysis

To do list for GuineaPig proceeding

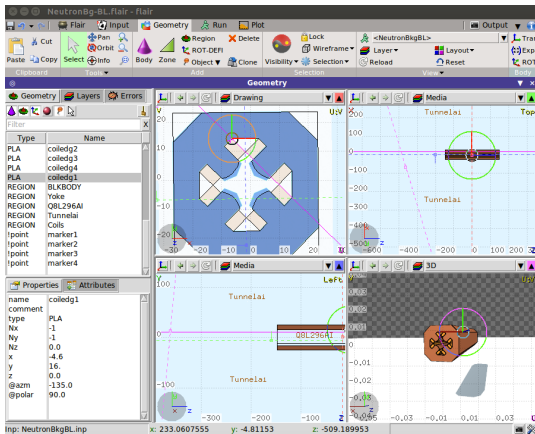
Suggestions for proceeding content

To-do list



Done in the last two weeks

- FLUKA:
- Describing the first quadrupole model of the extraction line



Done in the last two weeks

- Refactoring my code for the SiD cell hit analysis
⇒ Reduced the number of lines of the analysis code by 40 %
- Noticed and fixed several bugs
- Added functionality to work with tracker subdetectors as well
- Storing all information about hits in TTrees
- Added information about contributions to calorimeter hits
- Added information about time of hit:
Global time of hit in respect to the start time = start of the event at the IP
Frank Gaede: In Mokka one has to set the flag
`lcioDetailedShowerMode=True`.
What is it for SLIC?



For geometries:

- sidloi3
- sidloi3-IR_realign
- sidloi3-IR_realign_anti-did
- sidloi3-IR_realign_circle-cutout
- sidloi3-IR_realign_wedge-cutout
- sidloi3-IR_realign_pre-qd0Shift
- sidloi3-IR_realign_pre-qd0Shift_anti-did

Suggestions for the content of the proceeding

- Introduce GuineaPig, and the pair background files we created for the analyses

For EcalBarrel, EcalEndcaps, BeamCal, Trackers?

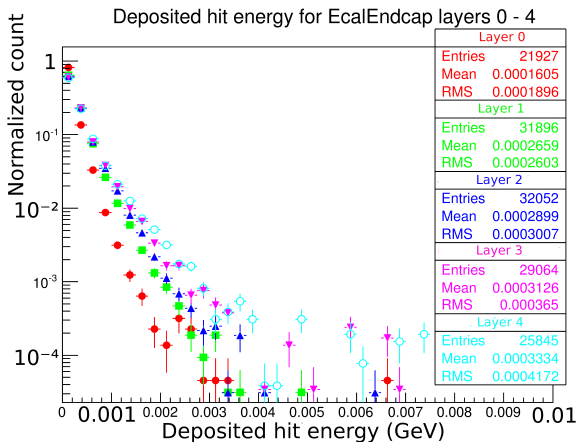
- Hit occupancy and buffer depth
- 2D, 3D hit maps
- Maps of particle origins
- Time of hits → multiple backscattering?
- Effects of L* changes, plug, anti-did
- Comparison between different SiD geometries

To-do list for GuineaPig proceeding

Updates of plots shown in Whistler:

- Convert energy scale from GeV into MIP energy

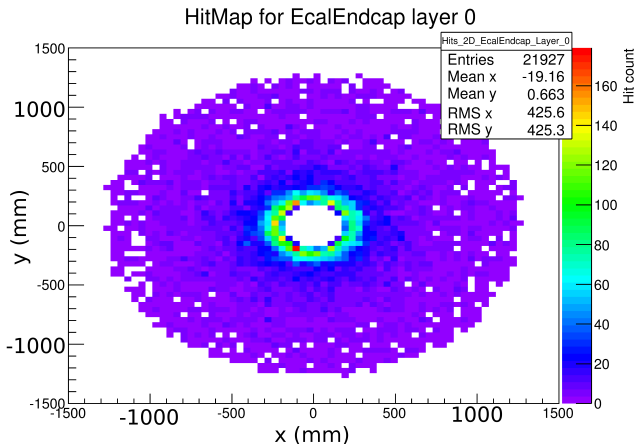
Deposited hit energy distribution in the EcalEndcap layers 0 - 4:



To-do list for GuineaPig proceeding

Updates of plots shown in Whistler:

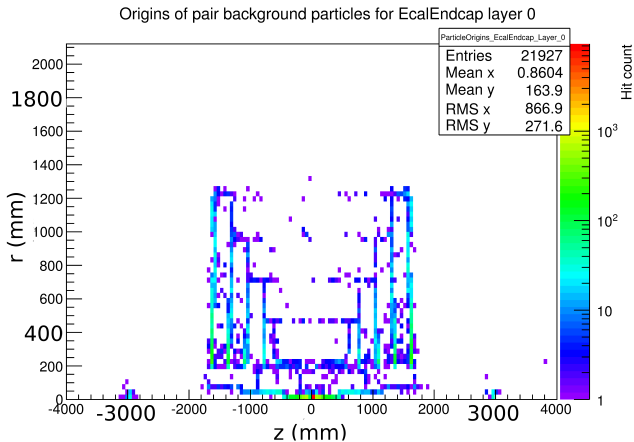
- 2D hit maps additionally only with hits from particles directly from the IP



To-do list for GuineaPig proceeding

Updates of plots shown in Whistler:

- 3D plots of the particle origins



To-do list for GuineaPig proceeding

New stuff:

- Buffer depth:
How many particles contribute to a hit in the calorimeter cell → different cell sizes
- Distributions of hit time:
When do the pair background particles hit which subdetector → do some particles backscatter multiple times?
- Direct comparisons between the different geometries:
In respect to the hit time, buffer depth,...?

