

Charge sharing result reviewed

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Simulation parameters

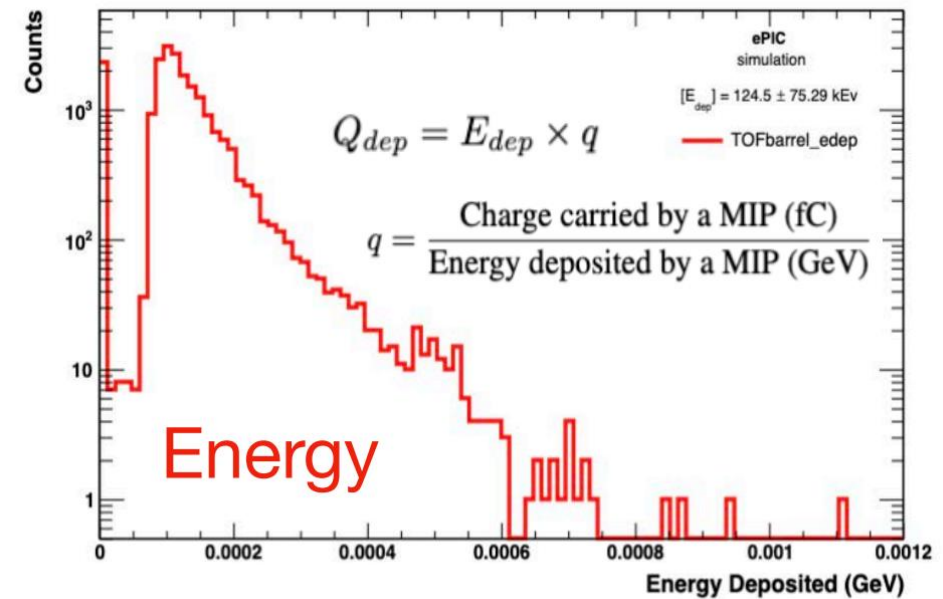
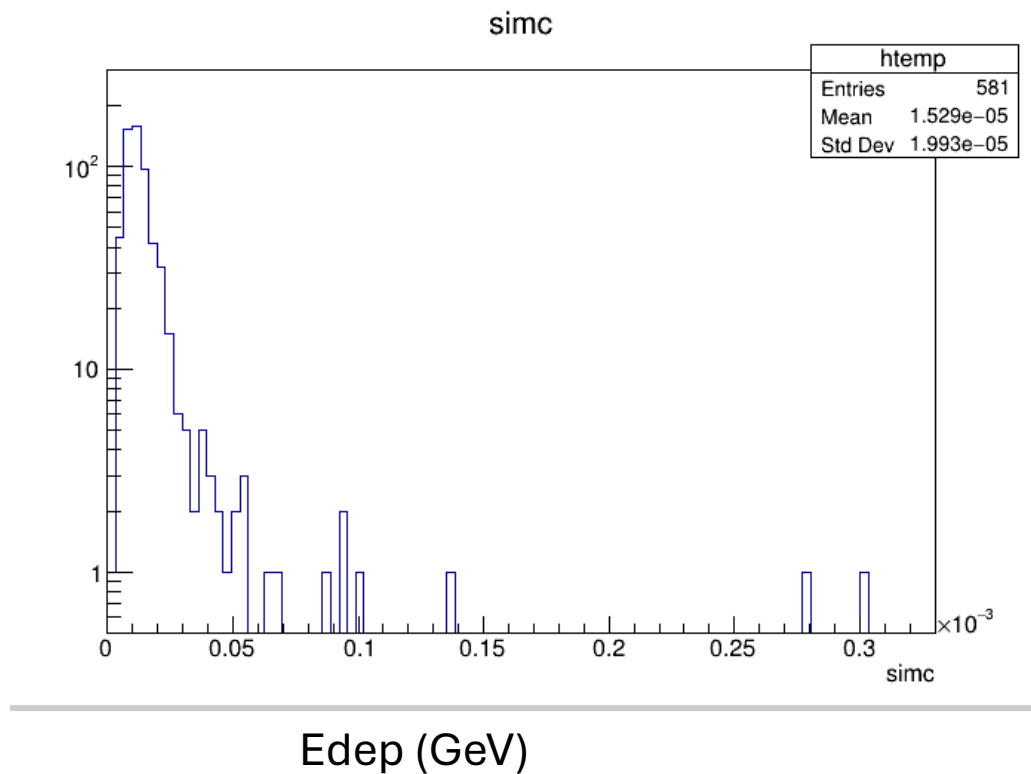
- 1 Mu- per event.
- $0.2 < |p| < 30$ GeV.
- Uniform theta, phi.
- Only count events with just 1 geant hit
 - Don't want to deal with hit matching for simplicity.
- Sensor thickness: 0.03 mm
- Nevents = 1000.

Sanity check: Geant4 Edep on sensors

EIC collaboration
meeting

Event Generation & Transport:

- 250k μ^- particles
- $0 \text{ GeV} \leq p \leq 30 \text{ GeV}$
- $0^\circ \leq \Theta \leq 180^\circ$

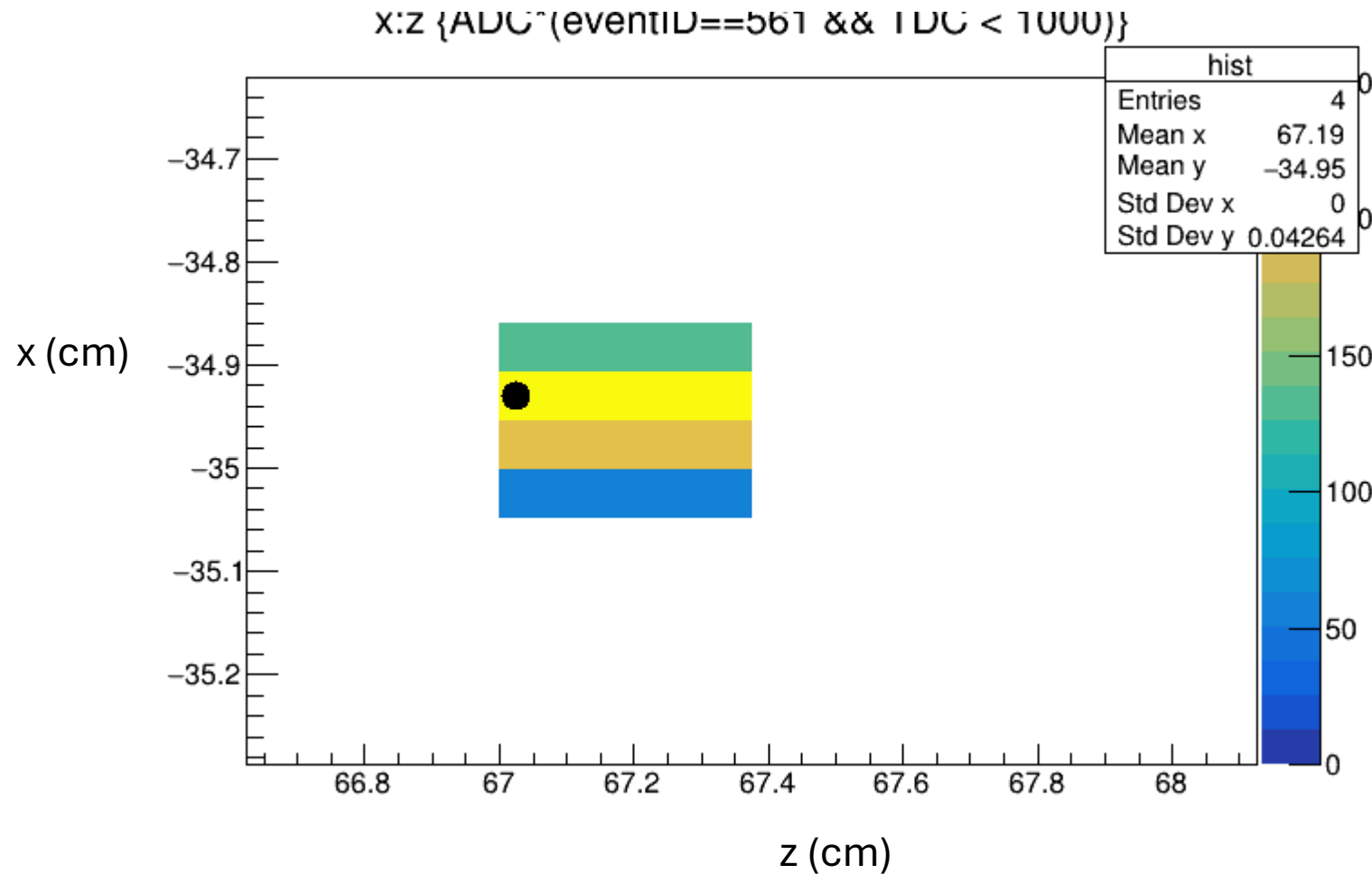


Simulation parameters

- 1 Mu- per event.
- Only count events with just 1 geant hit
 - Don't want to deal with hit matching for simplicity.
- Gain = 80.
- Nsigmax = 0.1 cm. (x direction has 64 rows in a sensor)
- Nsigmay = 1.0 cm. (y direction has 4 columns in a sensor)
- rise time = 0.45 ns.
- Edep when ADC value is 256 = $1 \text{e-}4$ GeV.
- Threshold (for TDC) = $1 \text{e-}5$ GeV.
- Sensor thickness = 0.03 mm

ADC distribution within a sensor in 1 event

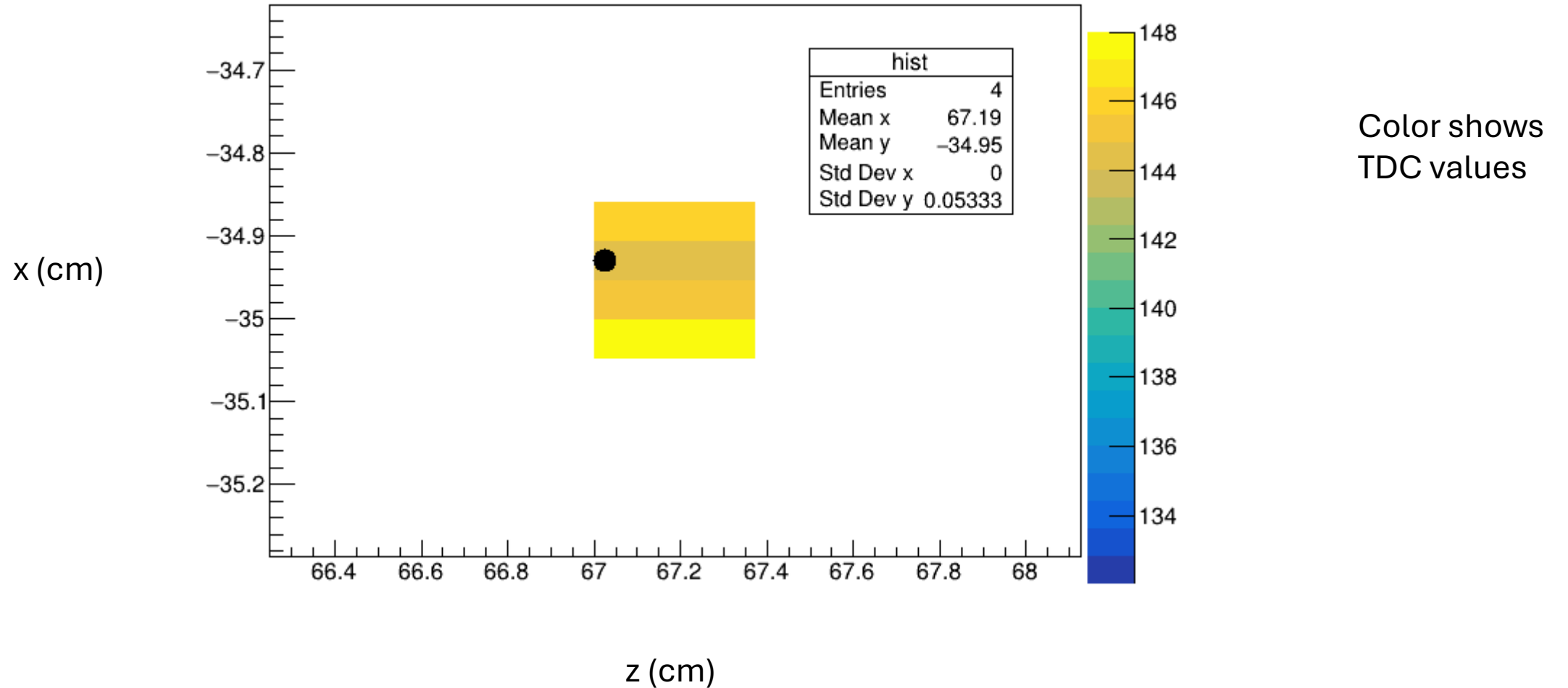
Black marker is geant hit location



Color shows
ADC values

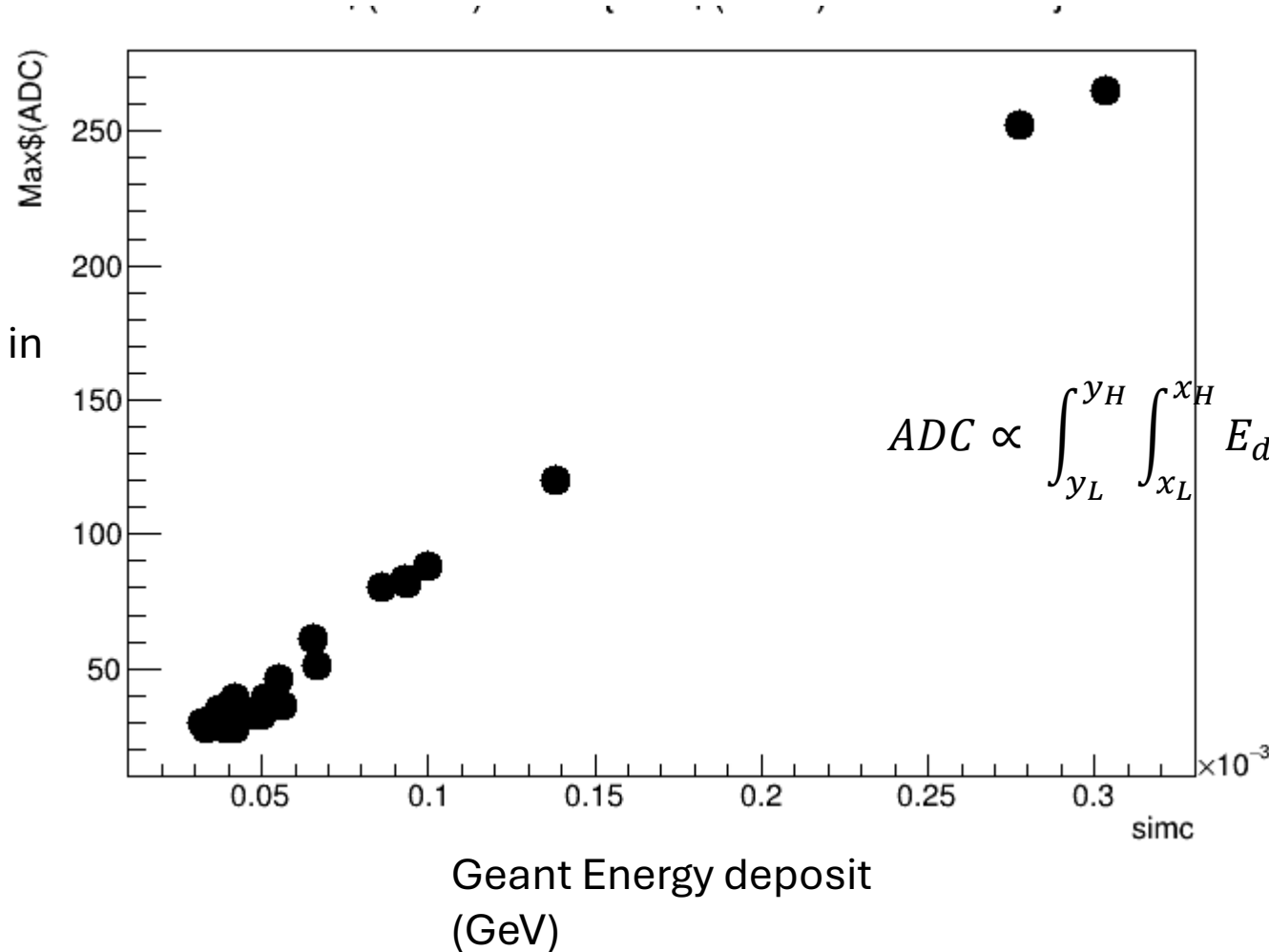
TDC distribution within a sensor in 1 event

Black marker is geant hit location



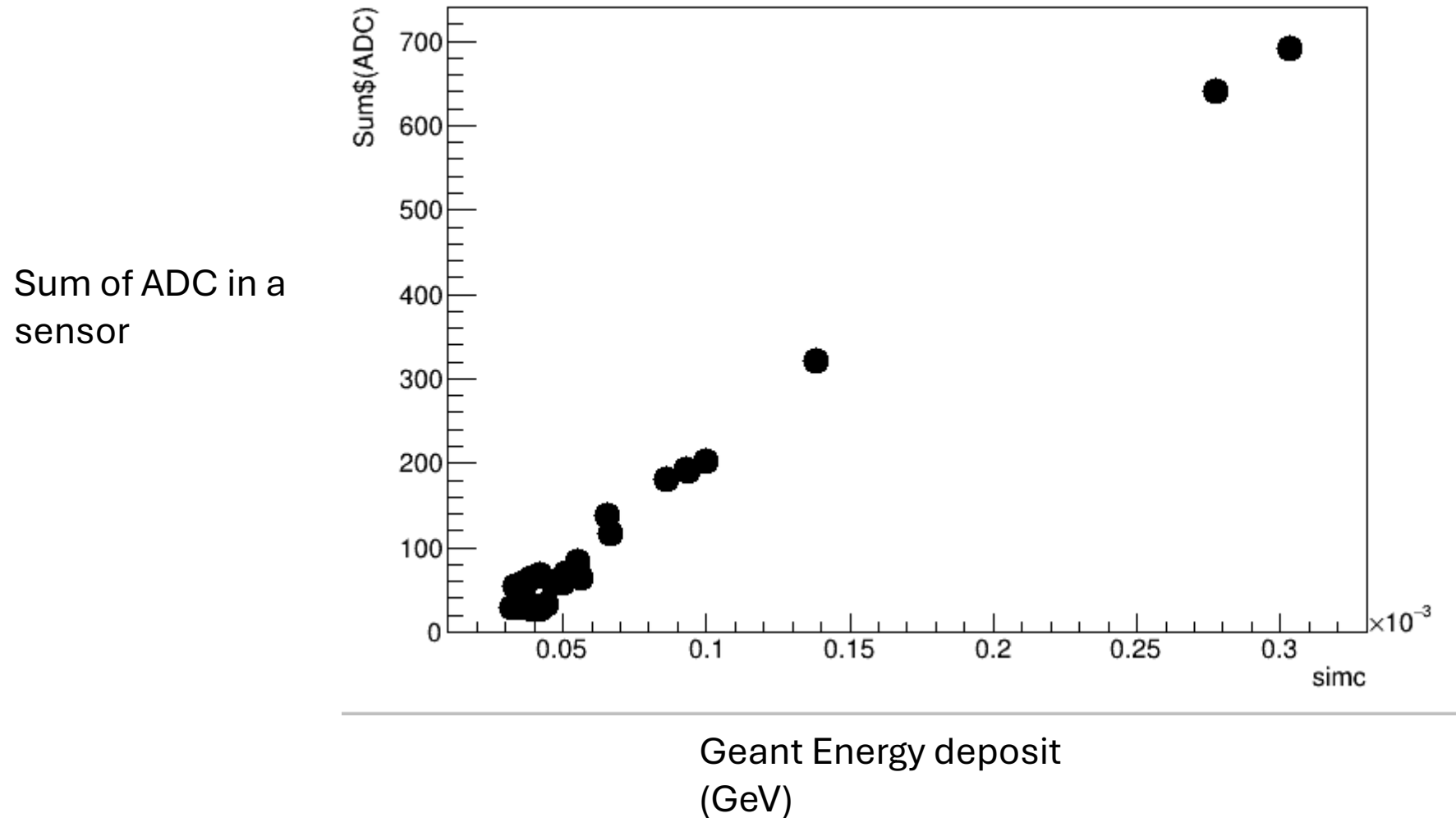
Max. ADC height in a sensor vs Geant energy deposition

Max ADC value in a sensor



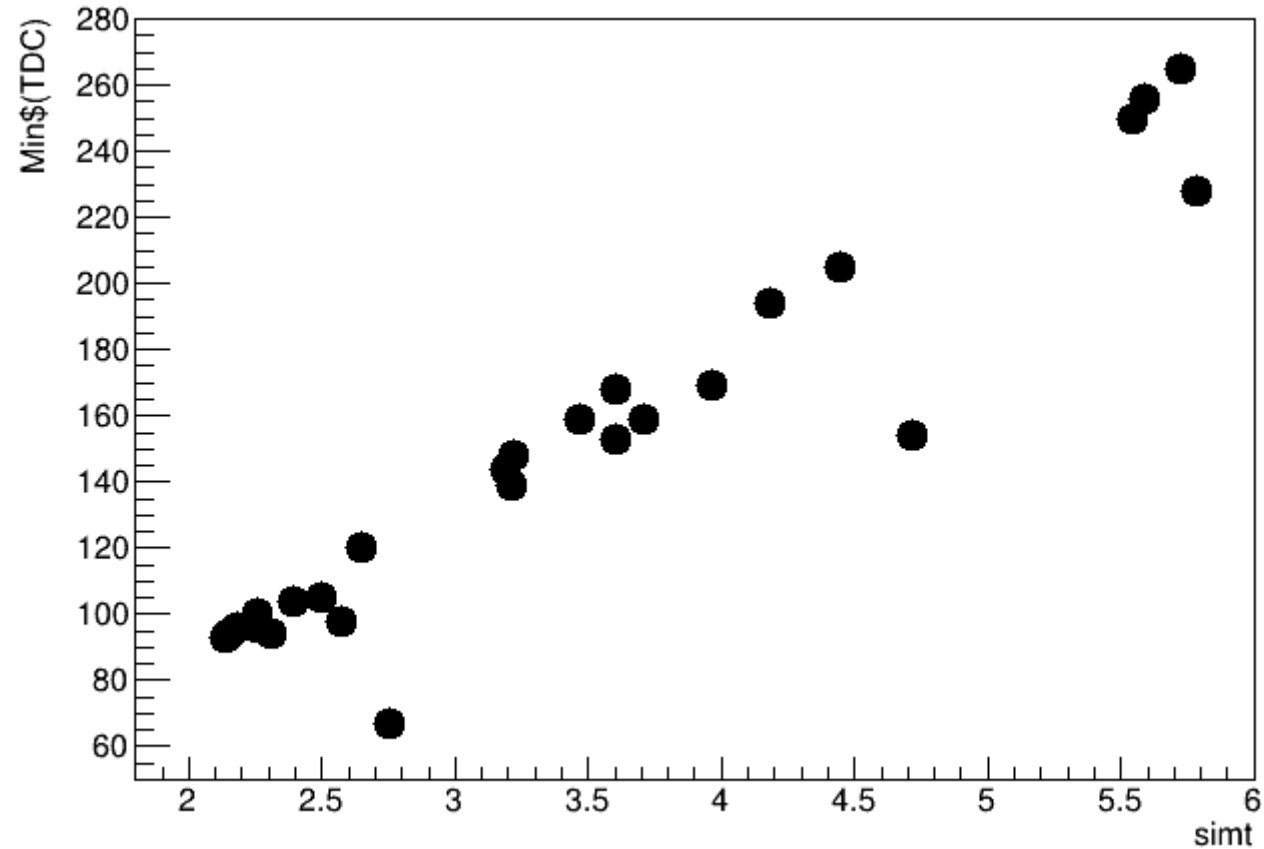
$$ADC \propto \int_{y_L}^{y_H} \int_{x_L}^{x_H} E_{dep} \exp\left(-\frac{(x - x_{hit})^2}{2\sigma_x} - \frac{(y - y_{hit})^2}{2\sigma_y}\right) dx dy$$

Sum of all ADC values in a sensor vs Geant energy deposition



Min. TDC in a sensor vs Geant hit time

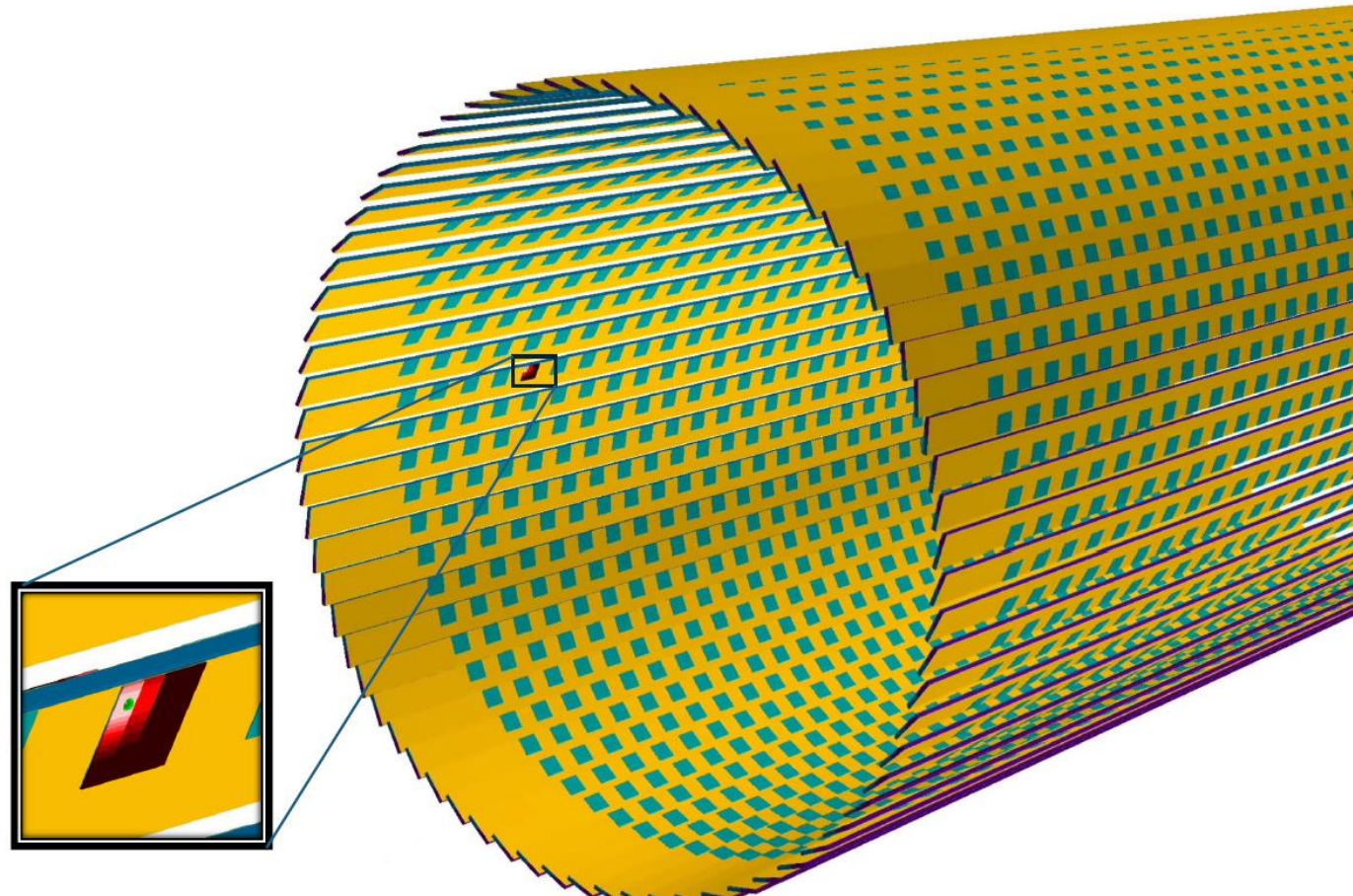
Min TDC value in
a sensor



Geant hit time (ns)

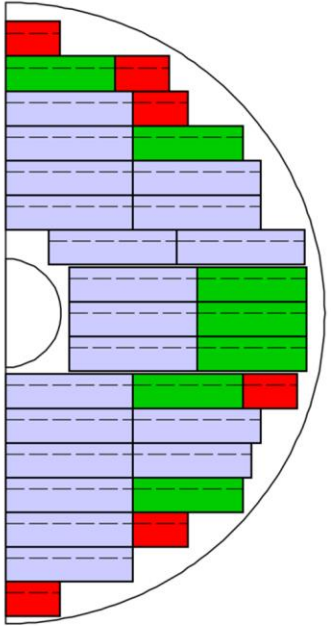
Updated TOF geometry

BTOF with double sided sensors (Only half of the staves are drawn)

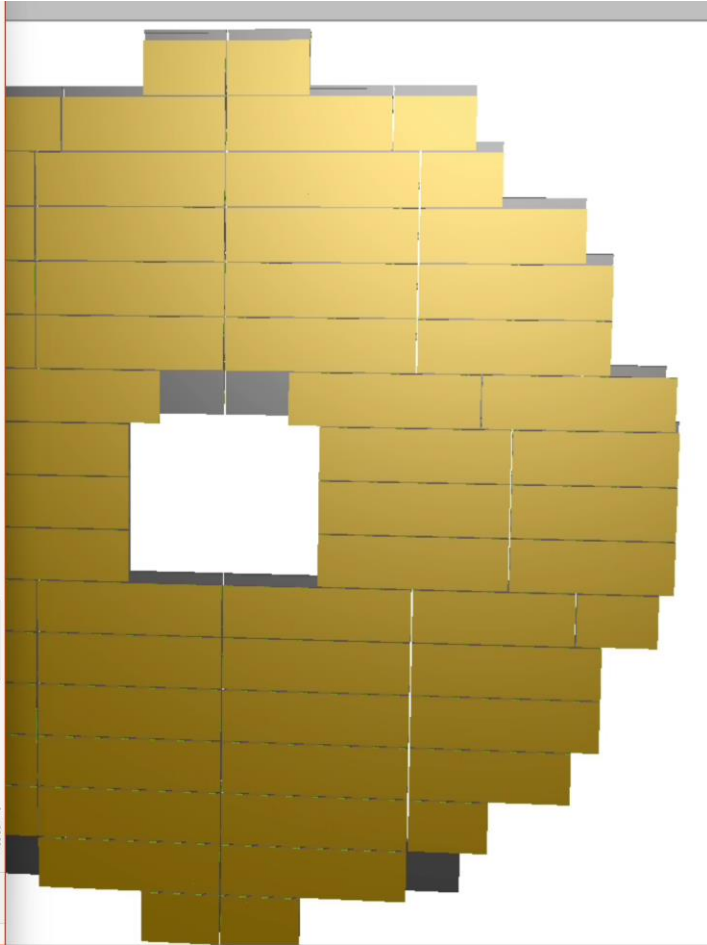


ETOF

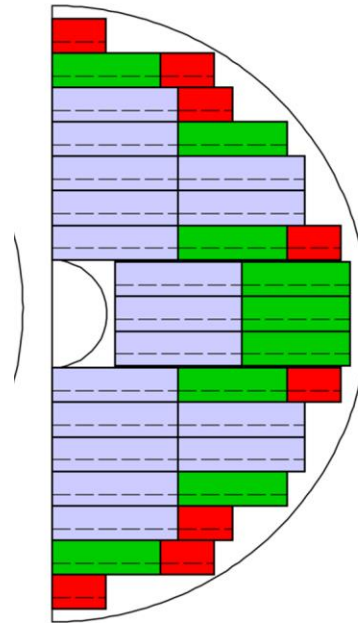
FTOF Layout (x-y v



Total number of modules:
Total number of service h

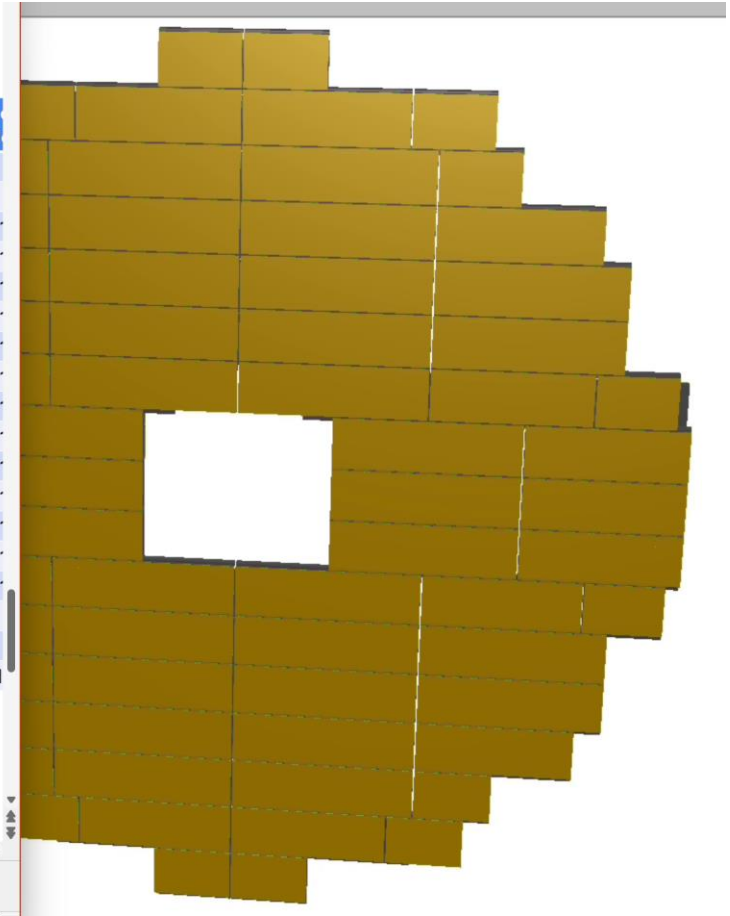


view): **v09272024**

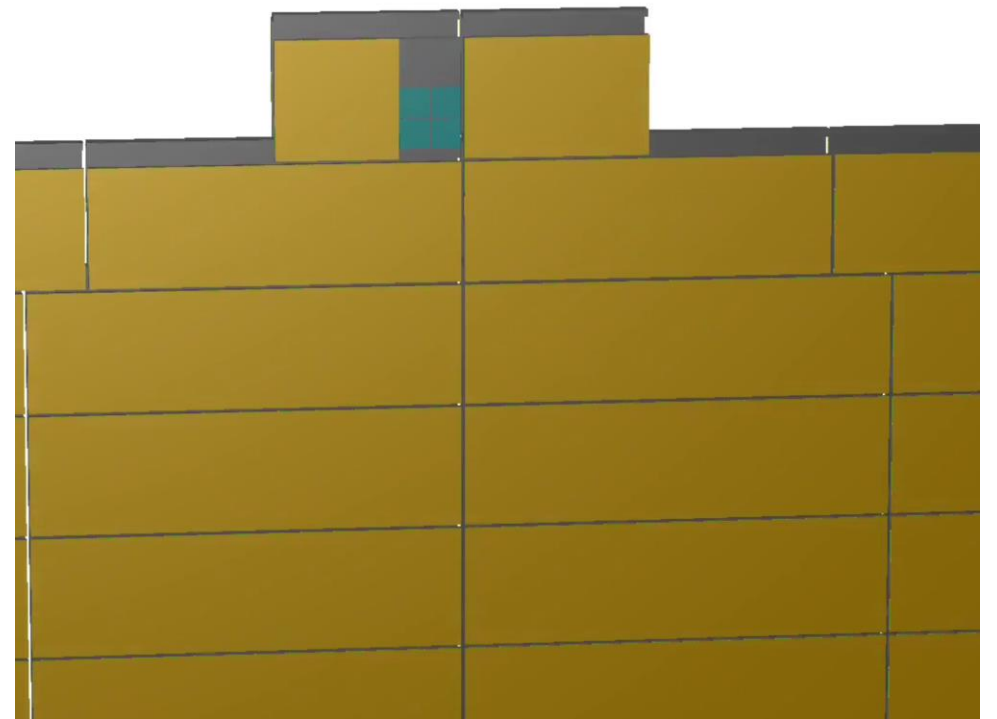
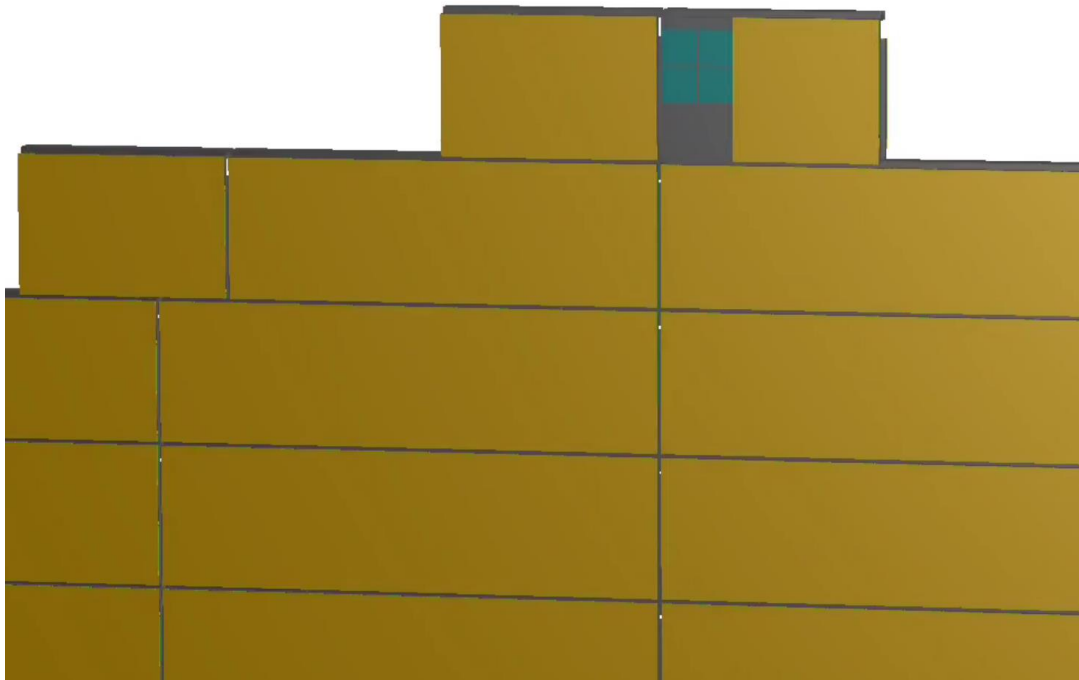


s: $(193+197)*2 = 780$
hybrids: $(32+34)*2 = 132$

Row	m
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
Sum	1



PCB removed



BTOF + ETOF

