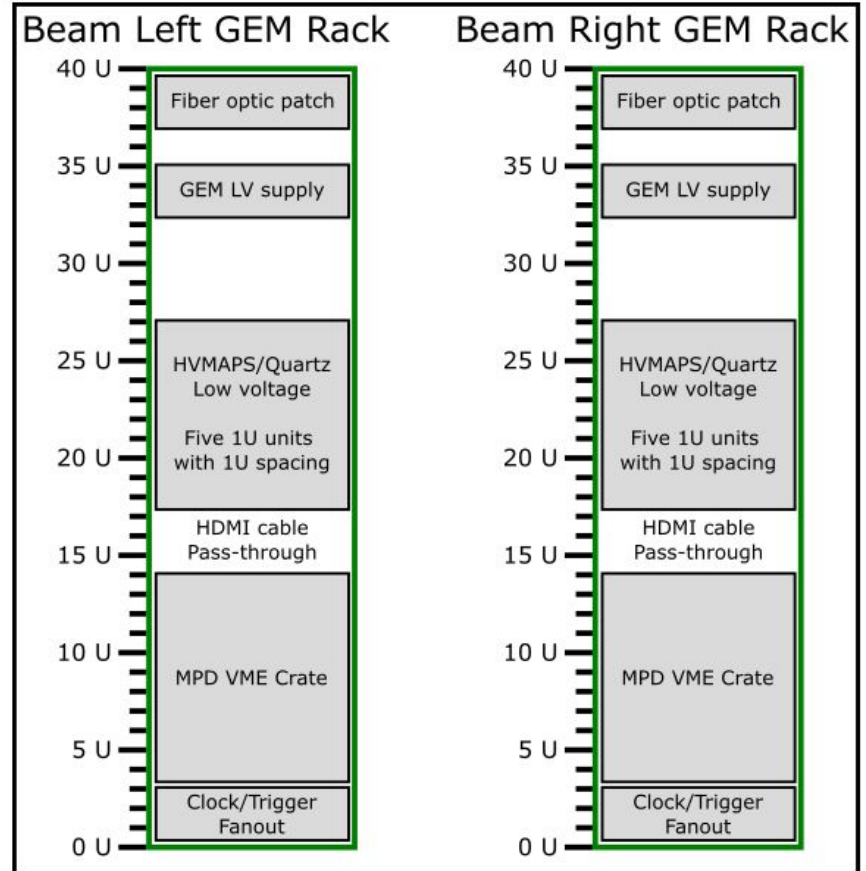


LVPS [GEM DAQ]

- Low-voltage power supply just modeled as an 8"x8"x8" cube of iron.
- Placed centered in center of rack at a position of 34 U on each side as proposed
- Only modeled the GEM LVPS.
 - Z-position is ~17400mm
- Racks simulated separately

Eric King
07/16/2013



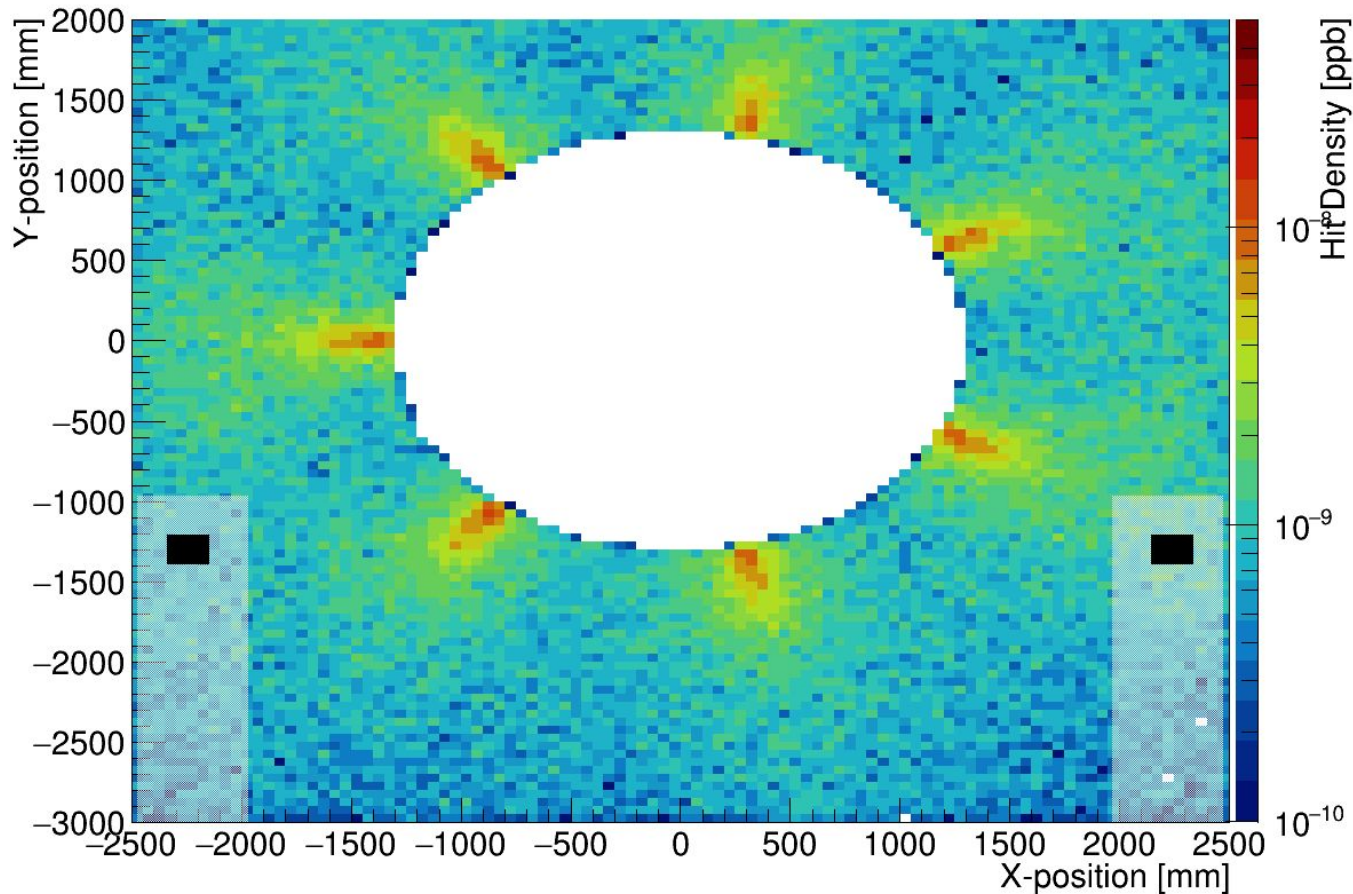
Hit density is ppb per electron on target

Flux plane located at center of GEM DAQ racks where LVPS toy model was placed.

Space inside drift chamber excluded.

Racks are 22" wide (shown in white). LVPS were modeled as 8'x8"x8" cubes (shown in black).

- Locations of racks and LVPS are approximate good to a few mm .



9199 – LVPS [GEM DAQ]

Material	X_r	Spin Polarization (P_f)	Frac e- on Target	Frac of events Per Moller
Mild Steel	2000	1E-02	1E-11	1E-07
Stainless Steel (Worst)	1	1E-05	1E-08	1E-04
Stainless Steel (Ideal)	0.01	1E-07	1E-06	1E-02
Aluminum	0.0001	1E-09	1E-04	1E+00
Inconel 625	0.001	1E-08	1E-05	1E-01
Brass/Bronze (Worst)	0.001	1E-08	1E-05	1E-01

Sens Volume:	LVPS GEM DAQ Rack
Sim Date:	5/30/2023
Detector #:	9000

Note: Sensitive detector number improperly listed in 9000 in this screenshot of sheet.

LVPS GEM DAQ Rack -- Unweighted By BField

Total Prim's: 10,000,000,000

Total Sec's: 500,000 (per sens det)

Primary Counts		
Primaries	0	0&1
9000		37

Primary Fractional		
Primaries	0	0&1
9000		3.70E-09

Doesn't appear to be a problem.
 $10^{-13} < 10^{-11}$

(9928 MainDet) Secondary Counts - 0&1		
Secondaries	Electrons	Gammas
9000	32	79

(9928 MainDet) Secondary Fractional - 0&1		
Secondaries	Electrons	Gammas
9000	6.40E-05	1.58E-04

(9928 MainDet) Total Fractional - 0&1		
Secondaries	Electrons	Gammas
9000	2.37E-13	5.85E-13

(9911 PMT Region) Secondary Counts - 0&1		
Secondaries	Electrons	Gammas
9000	363	318

(9911 PMT Region) Secondary Fractional - 0&1		
Secondaries	Electrons	Gammas
9000	7.26E-04	6.36E-04

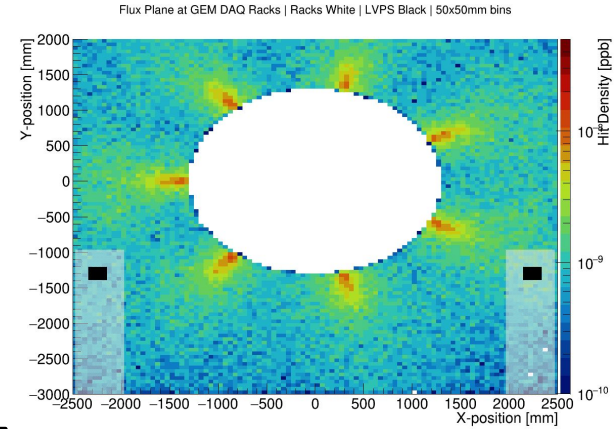
(9911 PMT Region) Total Fractional - 0&1		
Secondaries	Electrons	Gammas
9000	2.69E-12	2.35E-12

9199 – LVPS [GEM DAQ]

⇒ Fraction of e.o.t. is less than 10^{-11} by almost 2 orders of magnitude.

⇒ GEM DAQ LVPS are placed outside any concerning levels of moller/beam e^- flux [particularly true on -x side, which is beam right when looking downstream]

⇒ Likely not an issue, can always revisit later after final placement.



Material	X \bar{t}	Spin Polarization (P. I)	Frac e- on Target	Frac of events Per Moller
Mild Steel	2000	1E-02	1E-11	1E-07
Stainless Steel (Worst)	1	1E-05	1E-08	1E-04
Stainless Steel (Ideal)	0.01	1E-07	1E-06	1E-02
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Inconel 625	0.001	1E-08	1E-05	1E-01
Brass/Bronze (Worst)	0.001	1E-08	1E-05	1E-01

Sens Volume:	LVPS GEM DAQ Rack
Sim Date:	5/30/2023
Detector #:	9000

LVPS GEM DAQ Rack -- Unweighted By BField

Total Prim's:	10,000,000,000	Total Sec's:	500,000 (per sens det)
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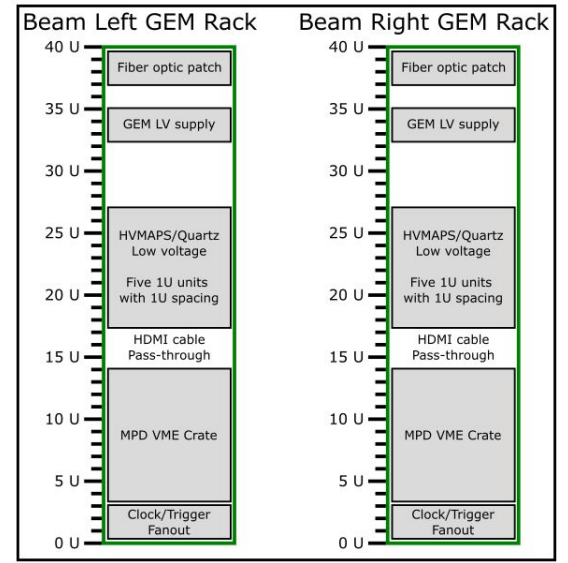
(9928 MainDet) Secondary Fractional - 0&1			
Secondaries	Electrons	Gammas	
9000	6.40E-05	1.58E-04	

(9928 MainDet) Total Fractional - 0&1		
Secondaries	Electrons	Gammas
9000	2.37E-13	5.85E-13

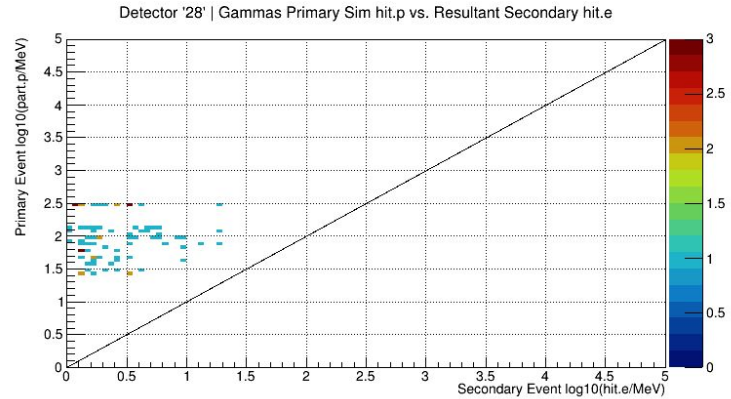
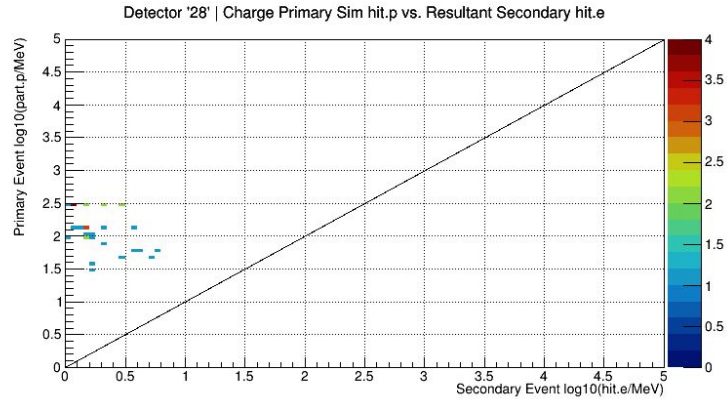
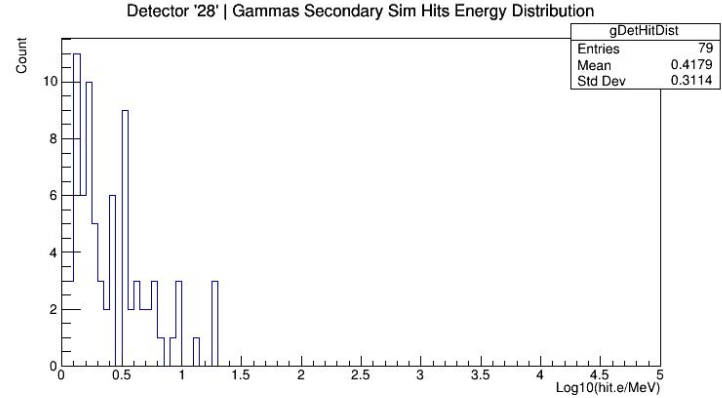
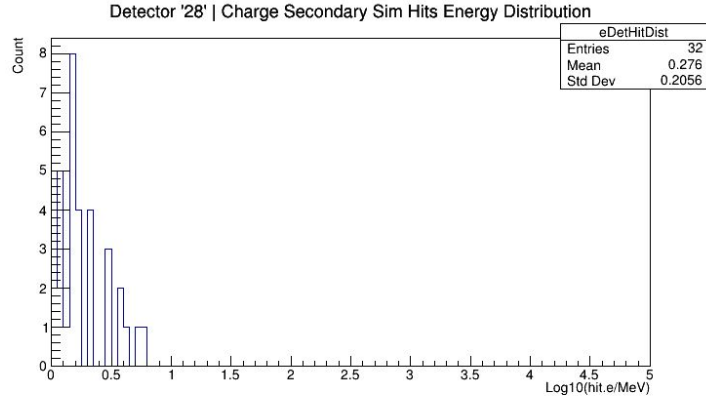
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9199 – LVPS [GEM DAQ]



9199 – LVPS [GEM DAQ]

