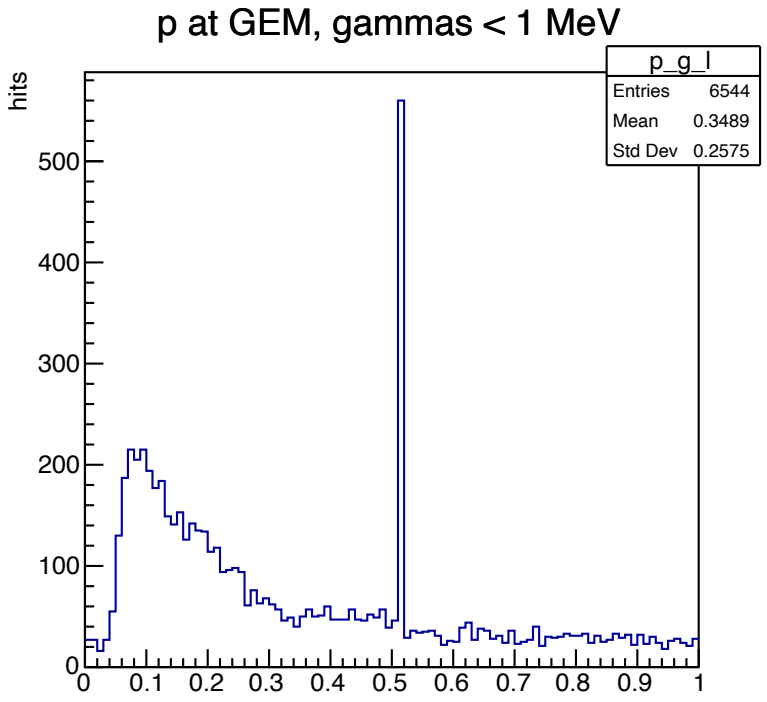
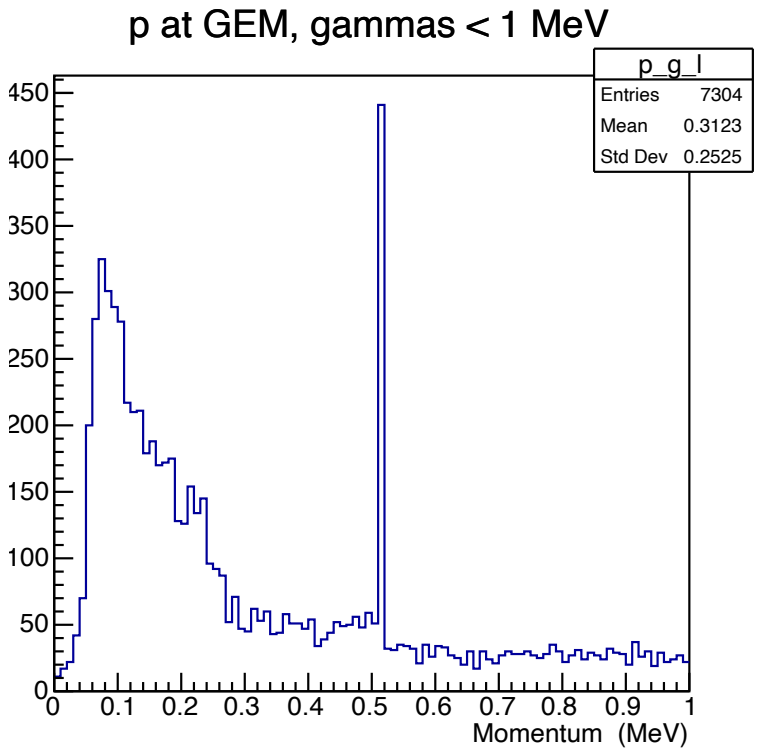
- Modest statistics (2 M thrown events) beam-generator simulation from Kate, with help from Bill.
- Uses low-energy “Livermore” EM physics list
- Look at low-energy photon fluxes (x-rays) at GEM1 plane.



Above: results with low-energy physics list



Above: previous higher statistics beam generator run from Zuhal, using default physics lists

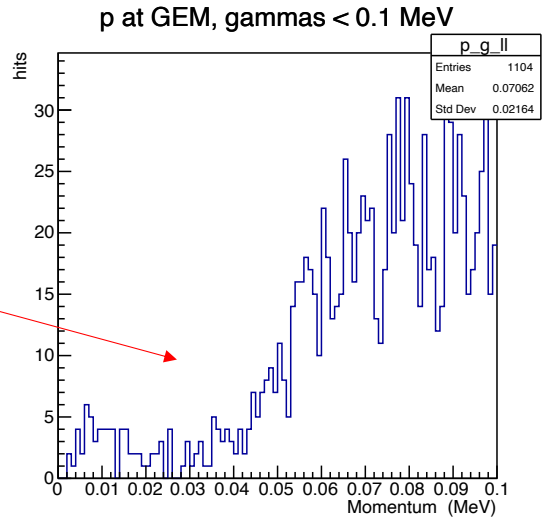
Newer physics list now includes x-rays below 50 keV (danger zone for photoelectric effect in GEM), but rate is small.

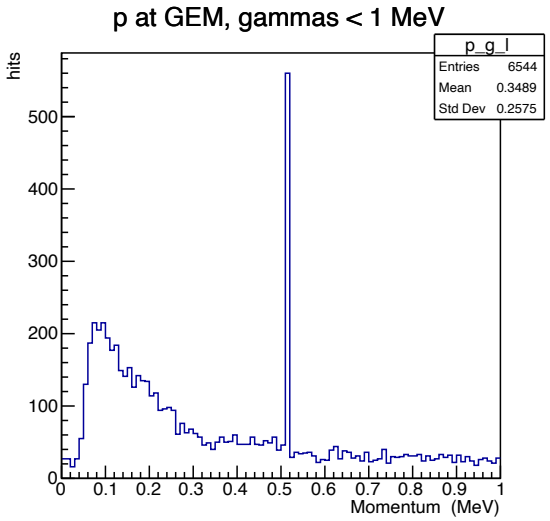
Previous simulation(default physics lists) had no events below 50 keV.

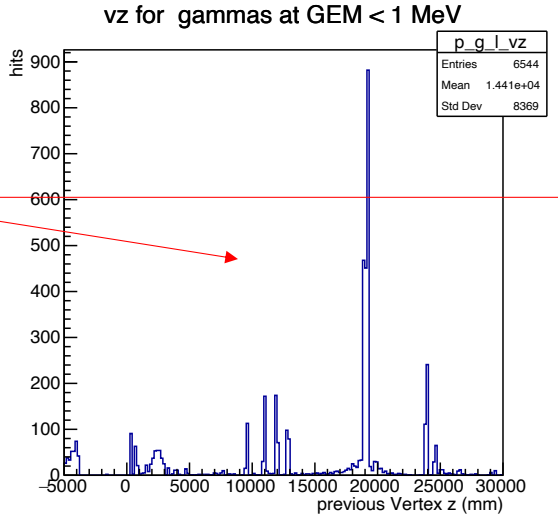
Assume 100% detection efficiency for <0.1 MeV gammas: would predict that x-ray background rate ≈ same as Moller electron signal. This would be perfectly benign, even after very high trigger rates.

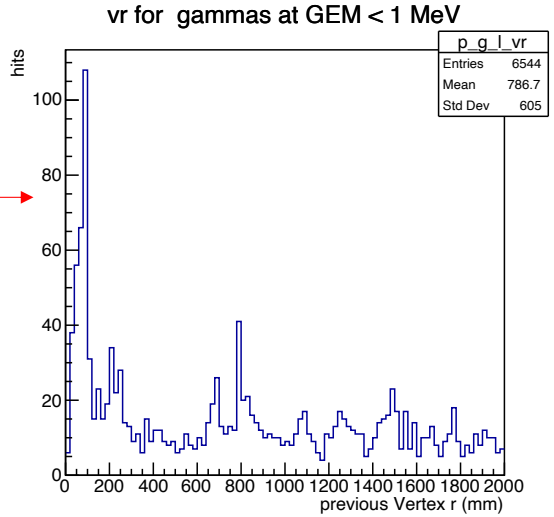
Can study vertices if we want:

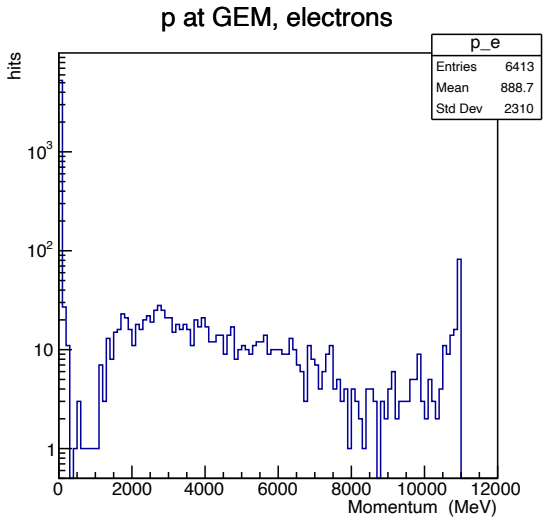
Need to verify with higher stats: simulations underway.

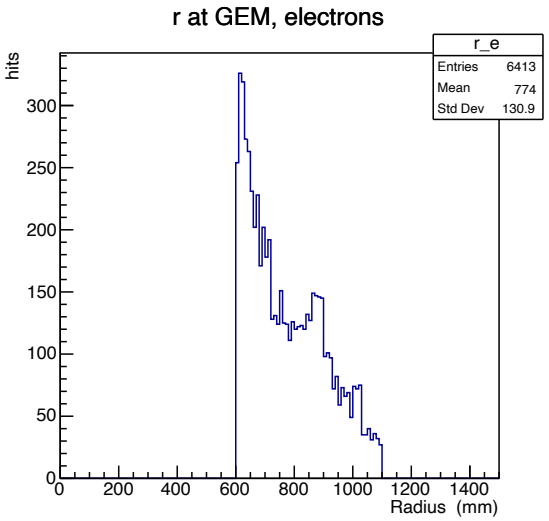


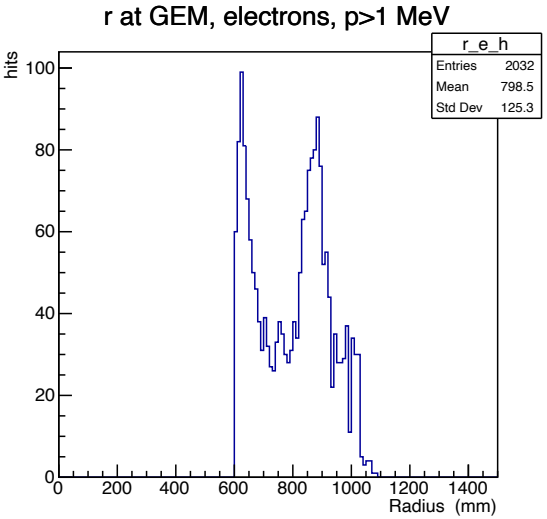


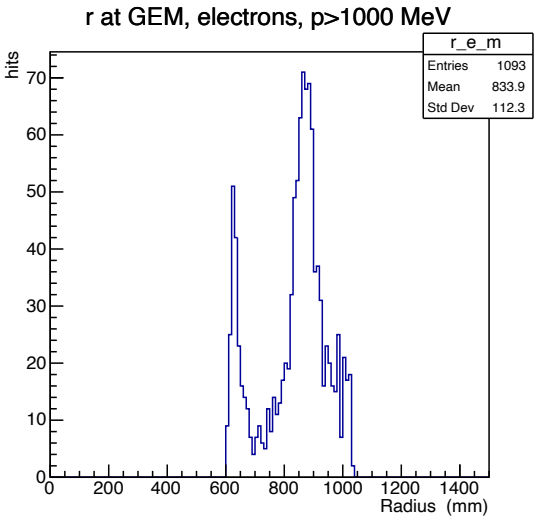


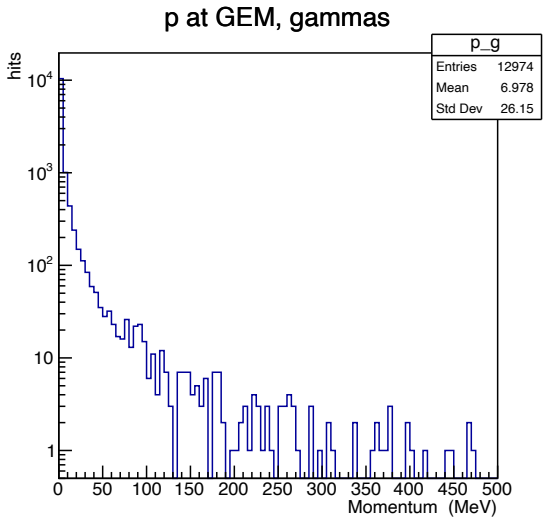


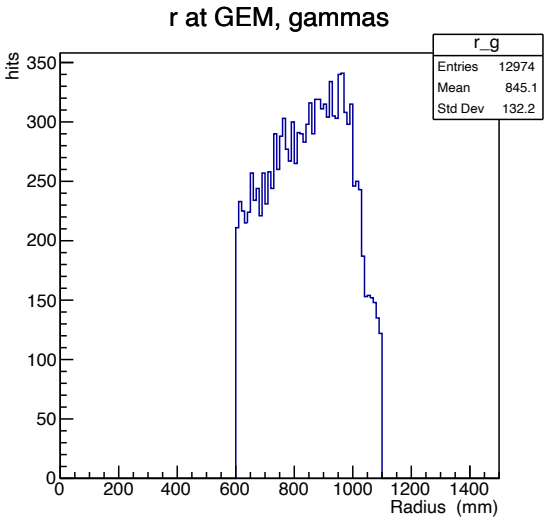

p at GEM, electrons
p_e
Entries 6413
Mean 888.7
Std Dev 2310
hits
Momentum (MeV)

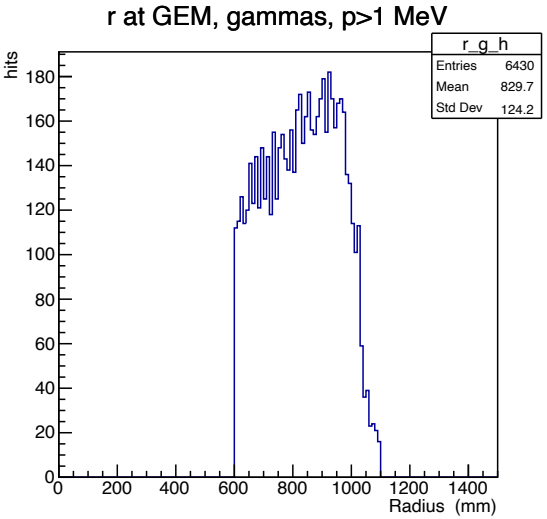

r at GEM, electrons
r_e
Entries 6413
Mean 774
Std Dev 130.9
hits
Radius (mm)

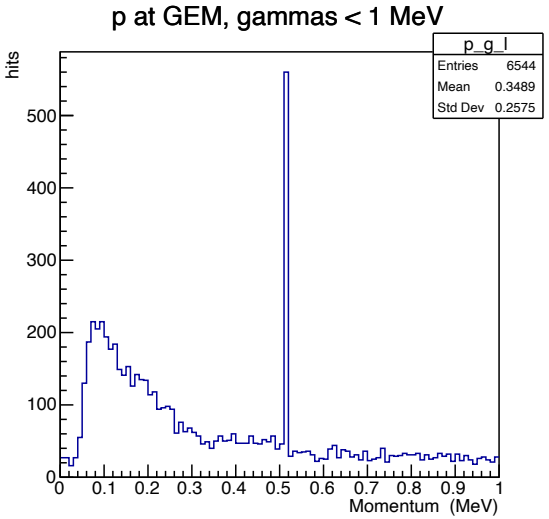

r at GEM, electrons, p>1 MeV
r_e_h
Entries 2032
Mean 798.5
Std Dev 125.3
hits
Radius (mm)


r at GEM, electrons, p>1000 MeV
r_e_m
Entries 1093
Mean 833.9
Std Dev 112.3
hits
Radius (mm)


p at GEM, gammas
p_g
Entries 12974
Mean 6.978
Std Dev 26.15
hits
Momentum (MeV)


r at GEM, gammas
r_g
Entries 12974
Mean 845.1
Std Dev 132.2
hits
Radius (mm)


r at GEM, gammas, p>1 MeV
r_g_h
Entries 6430
Mean 829.7
Std Dev 124.2
hits
Radius (mm)


p at GEM, gammas < 1 MeV
p_g_l
Entries 6544
Mean 0.3489
Std Dev 0.2575
hits
Momentum (MeV)