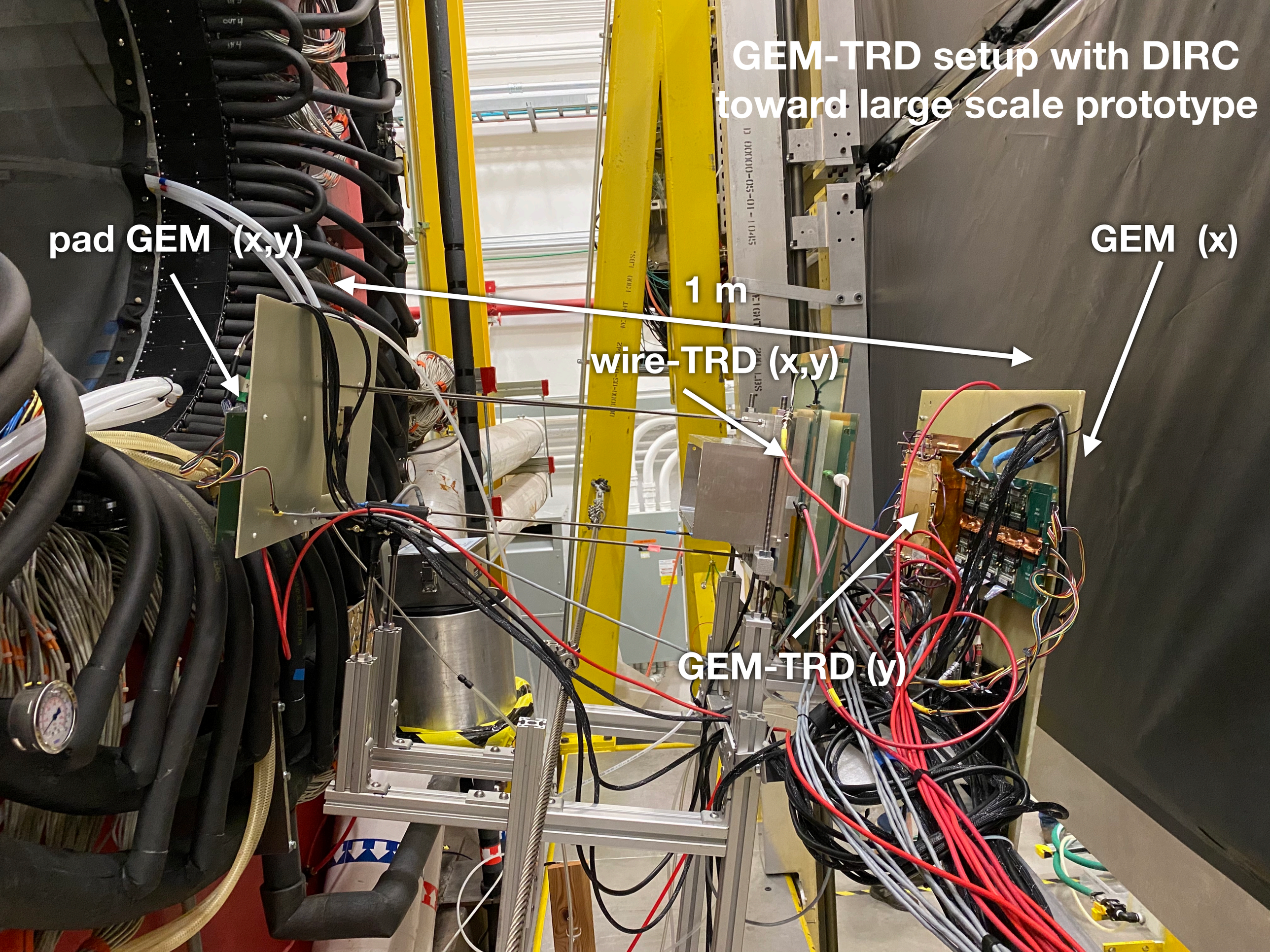
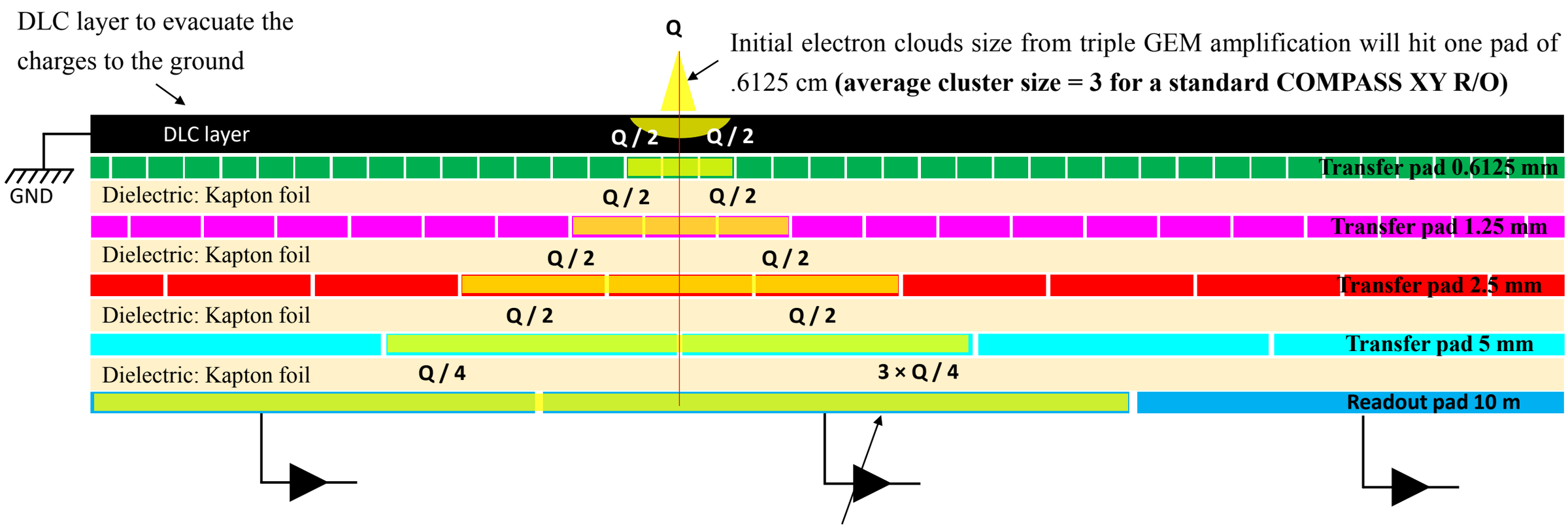

GEM-TRD setup with DIRC
toward large scale prototype
pad GEM (x,y)
GEM (x)
1 m
wire-TRD (x,y)
GEM-TRD (y)

Pad GEM (from Kondo)

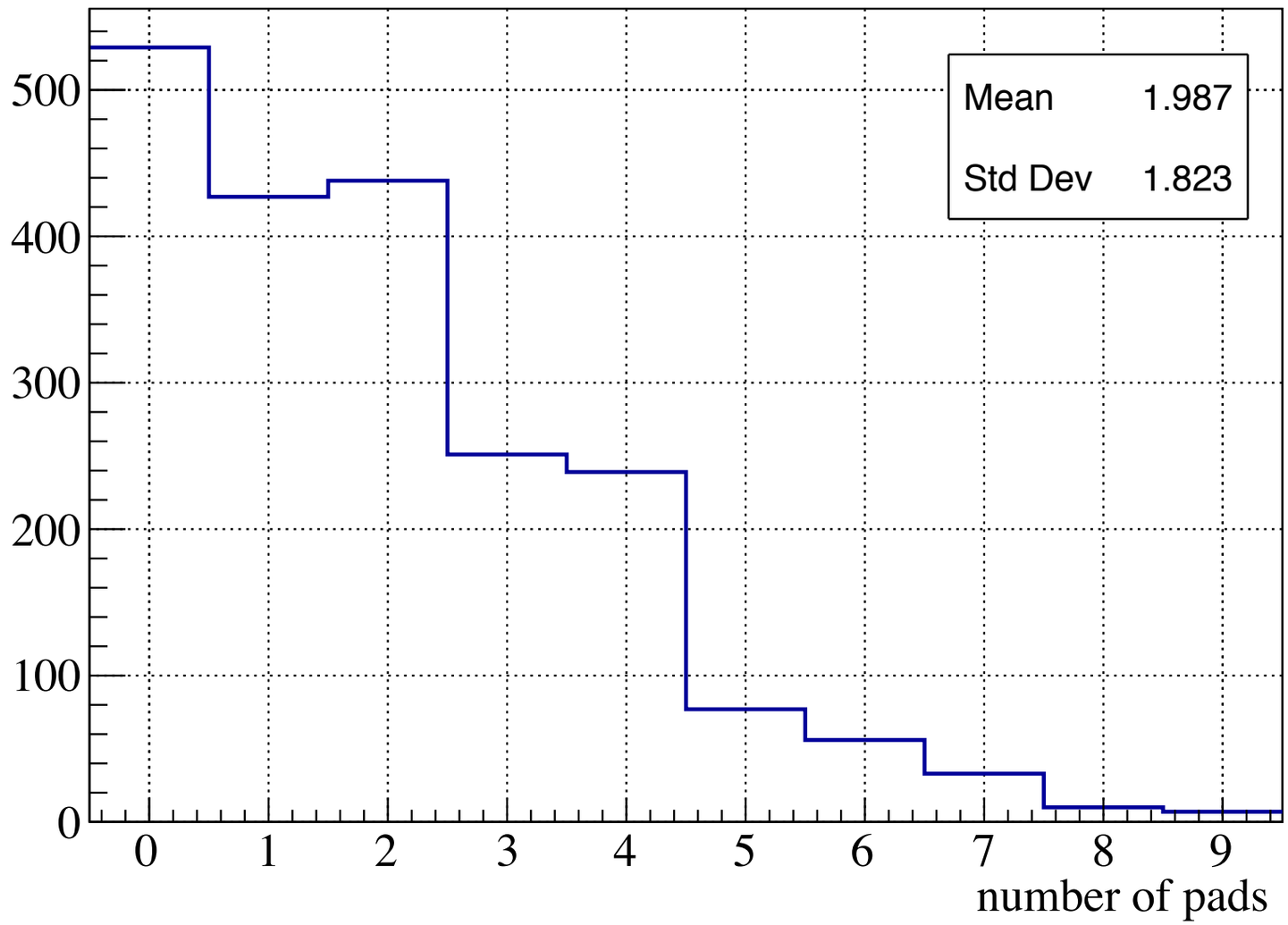
Principe of **High-Resolution & Large-Pad** Anode Readout for MPGDs

5-Pad-Layers Configuration

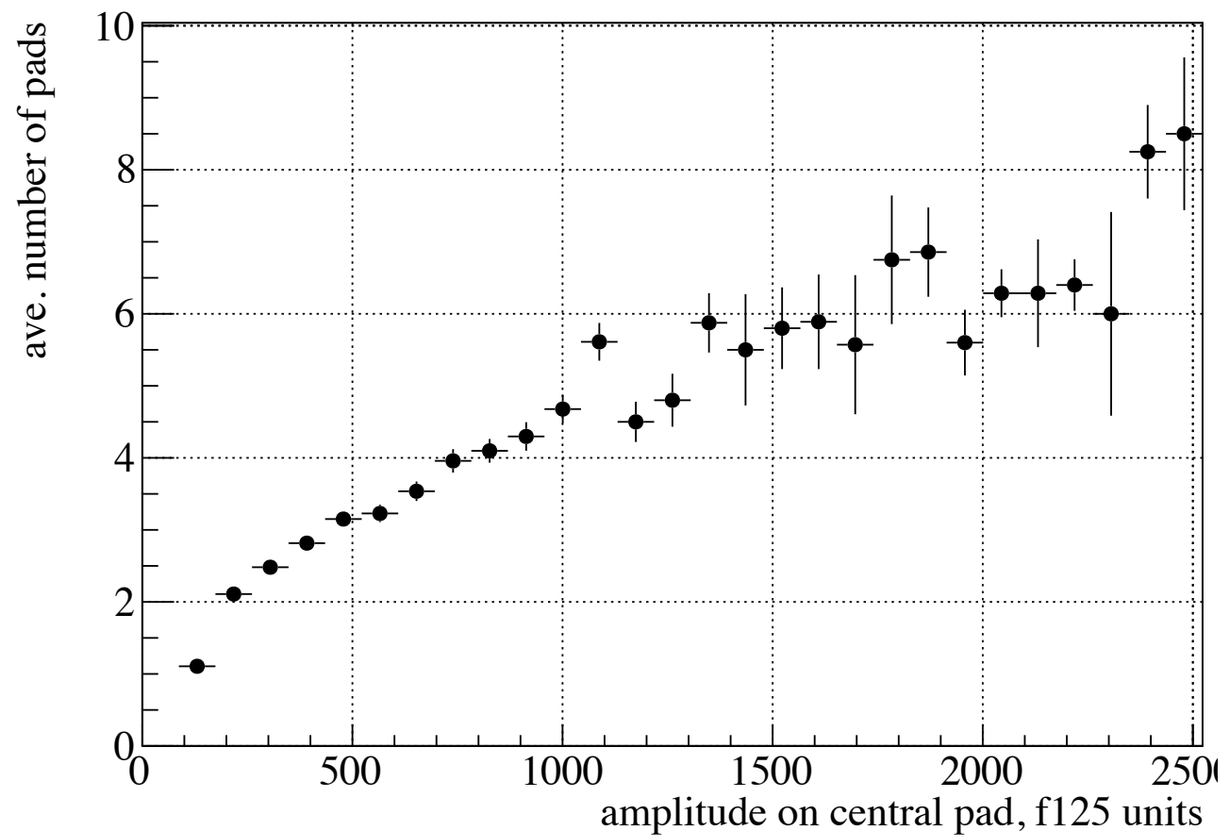


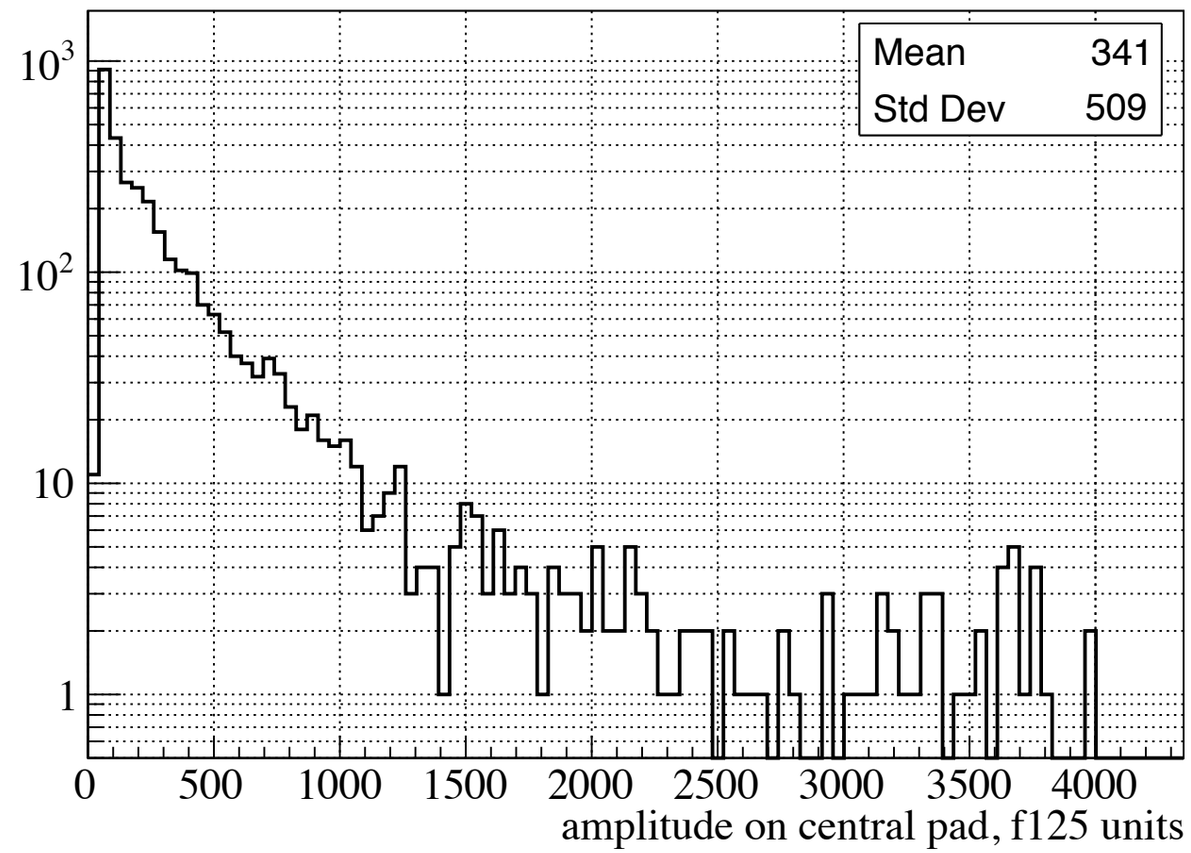
2 large pads (1 cm^2) share the initial charges: position is the weighted average of the pads ⇨ expected similar performances in spatial resolution as a COMPASS X/Y strip readout but with only 100 pads to read out instead of 512 for a COMPASS XY readout

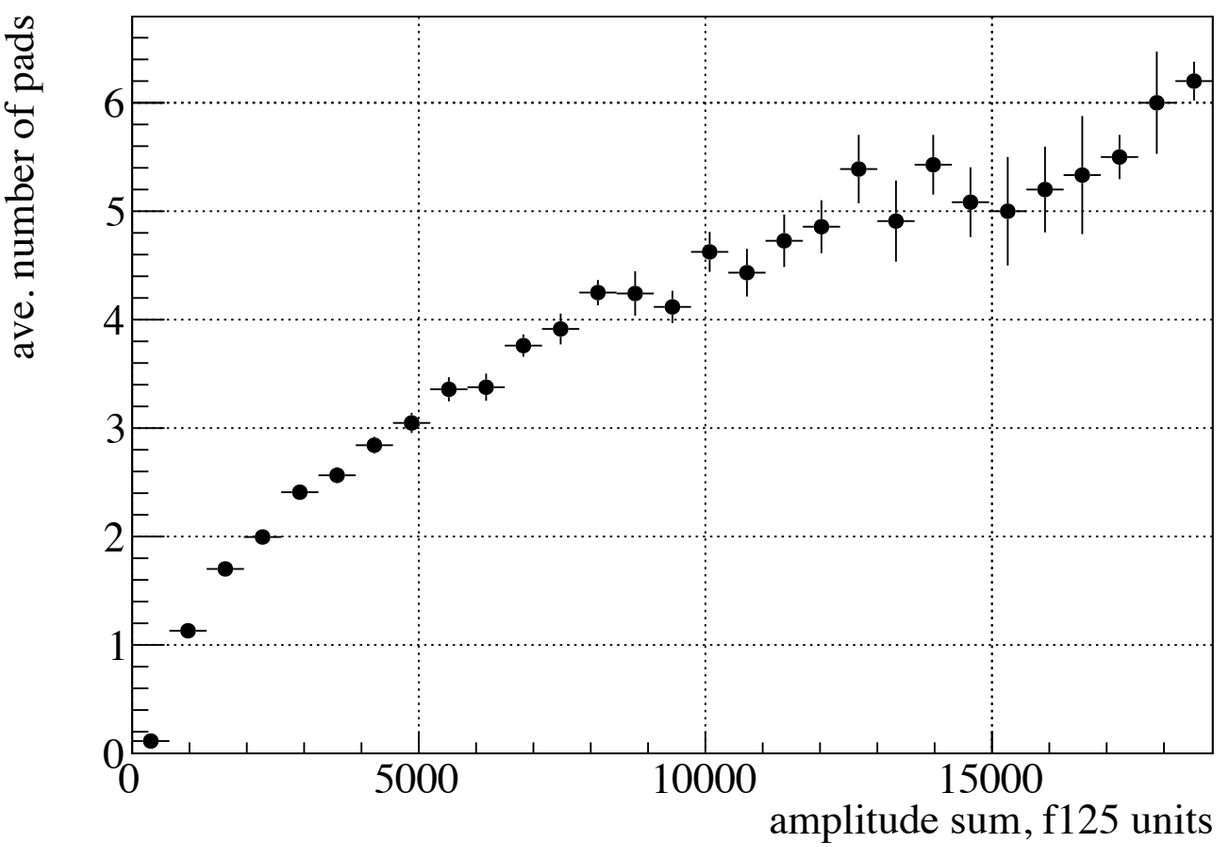
Pad GEM - charge sharing

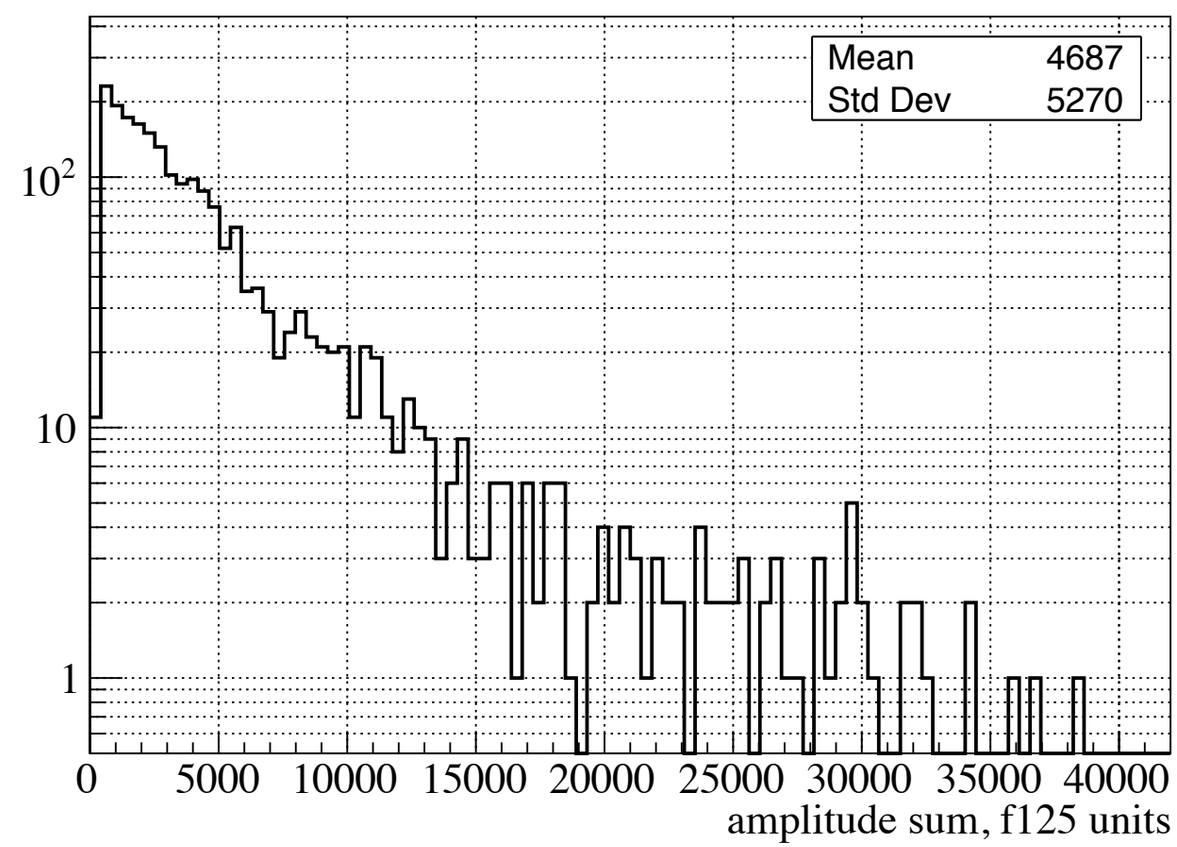


Pad GEM - charge sharing

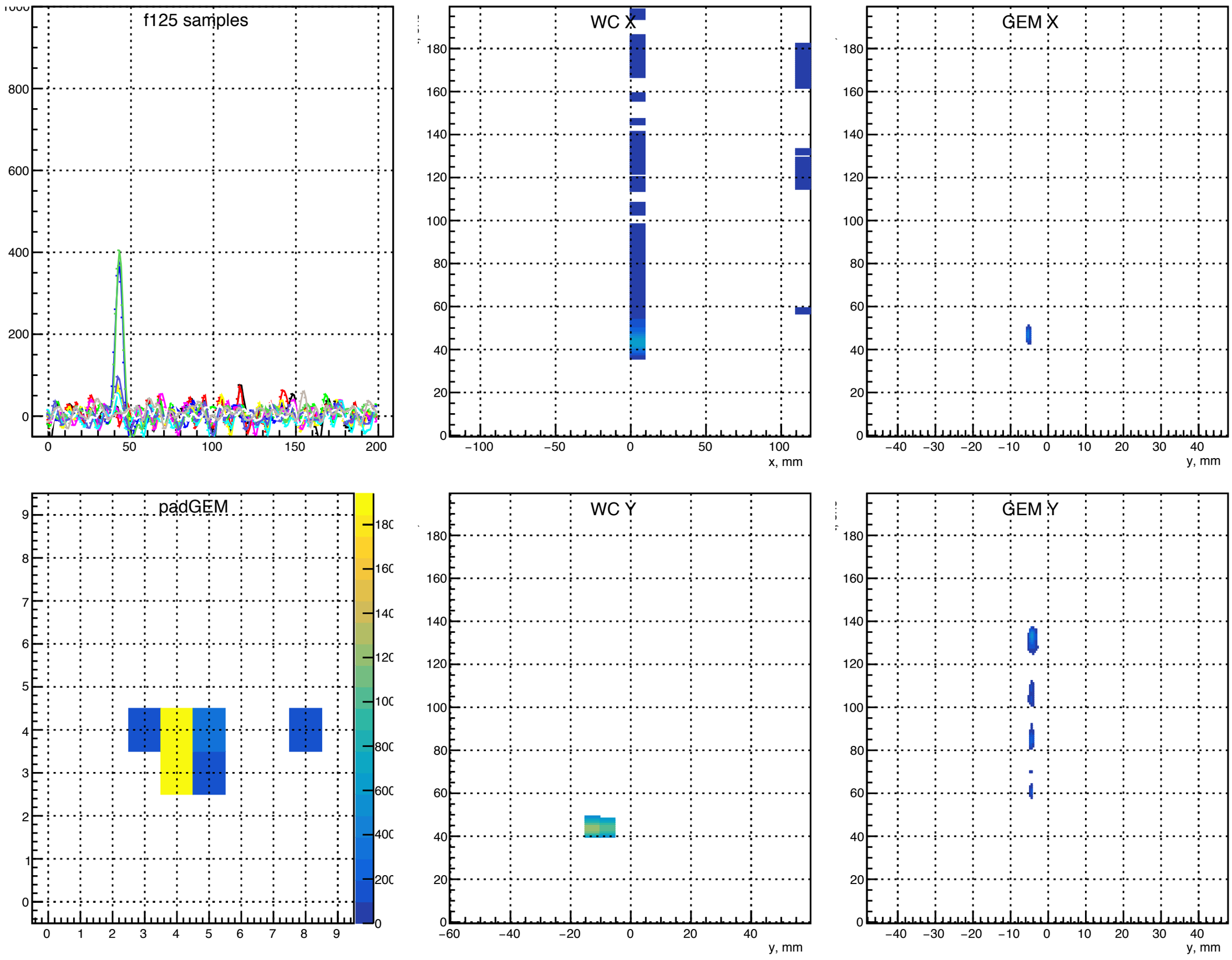




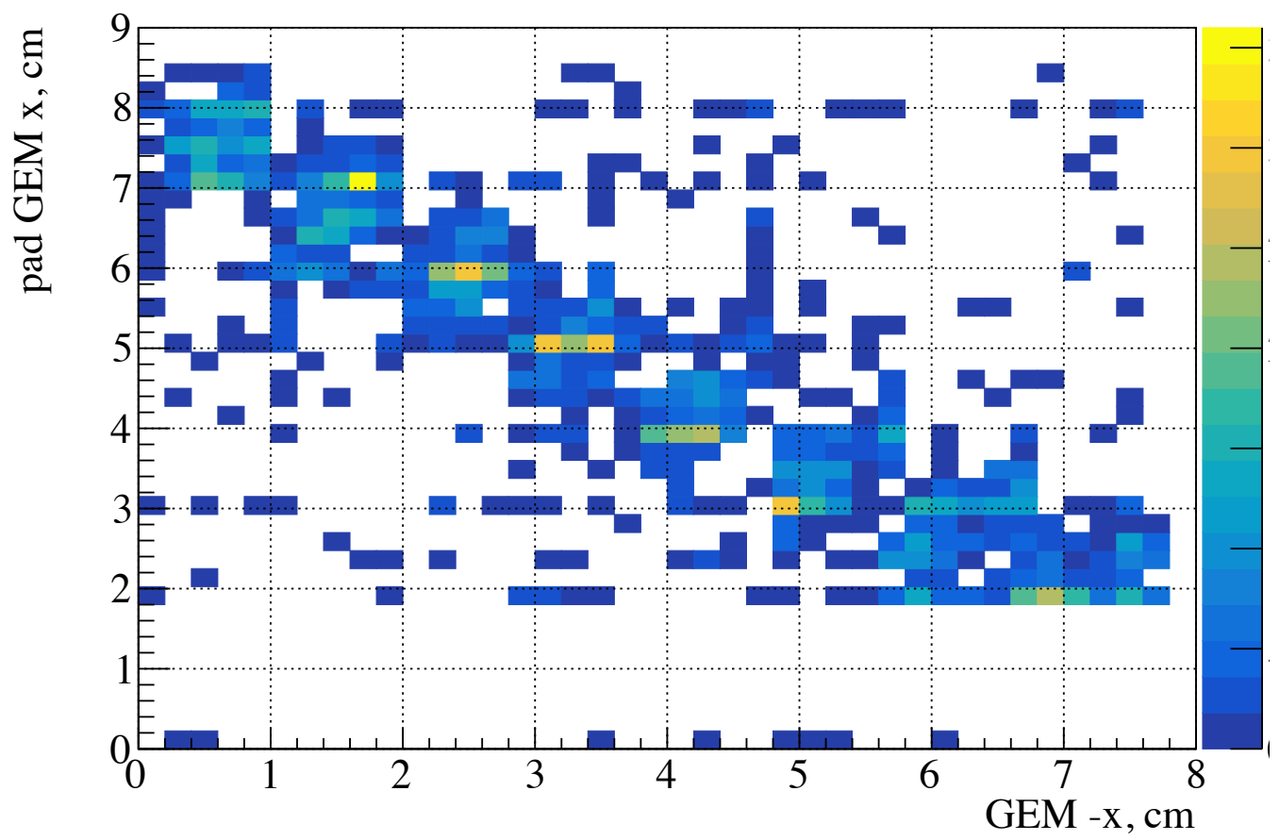


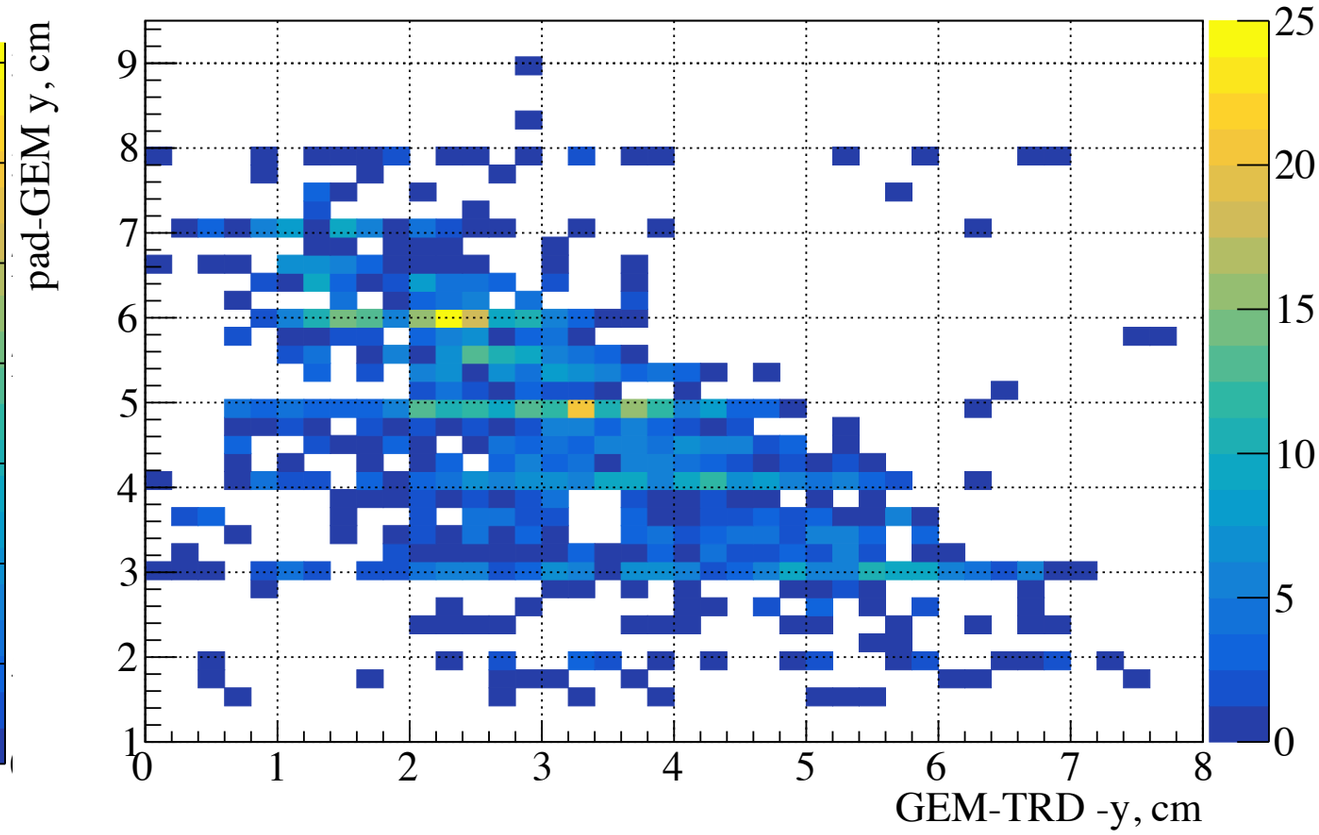


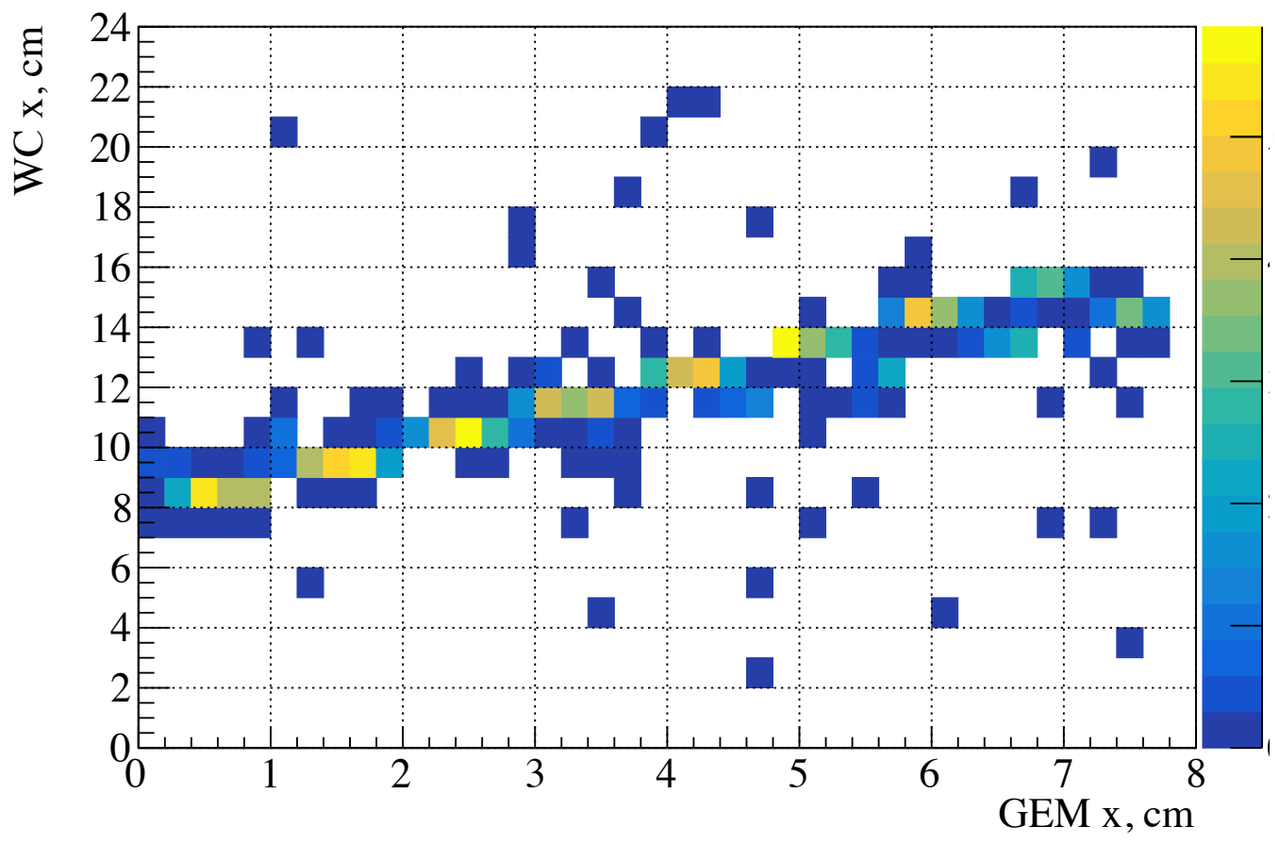
One track

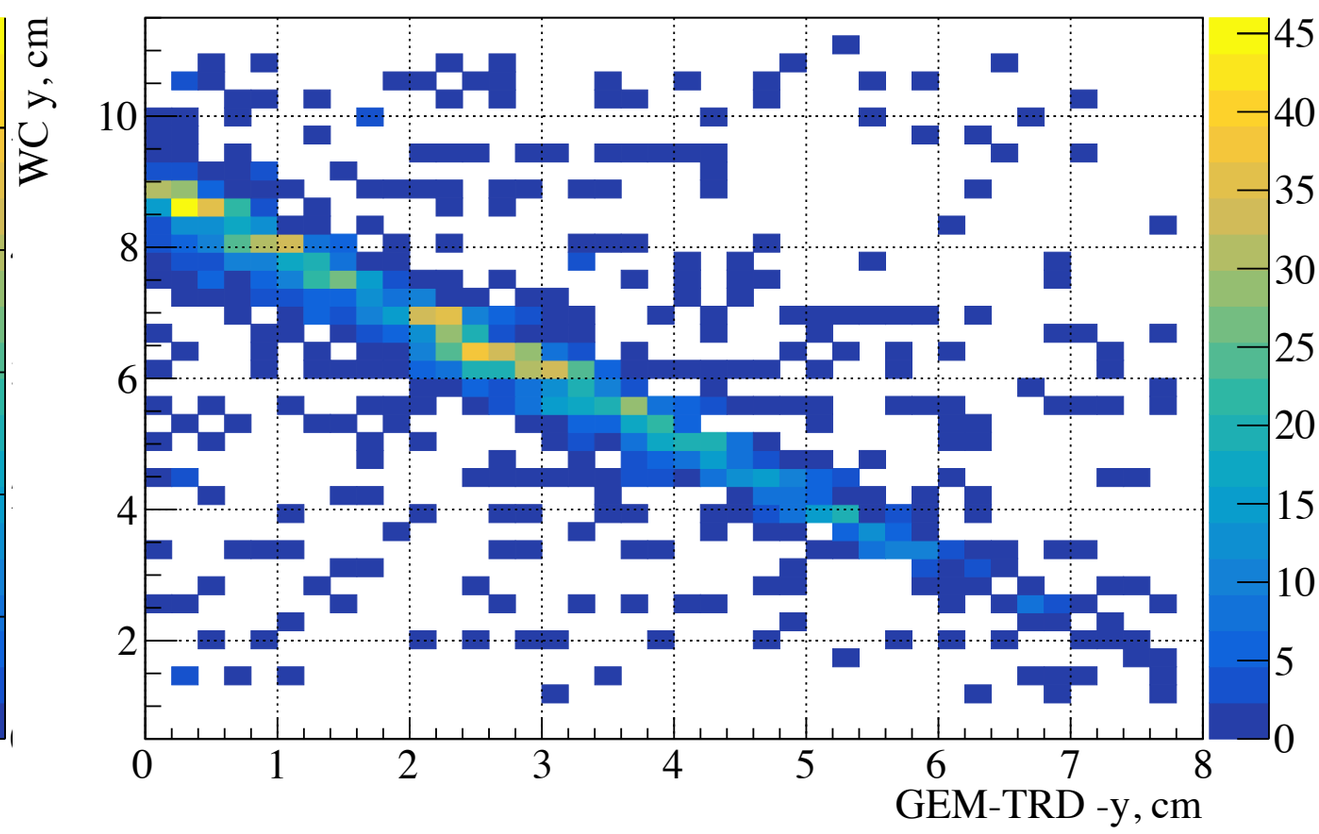


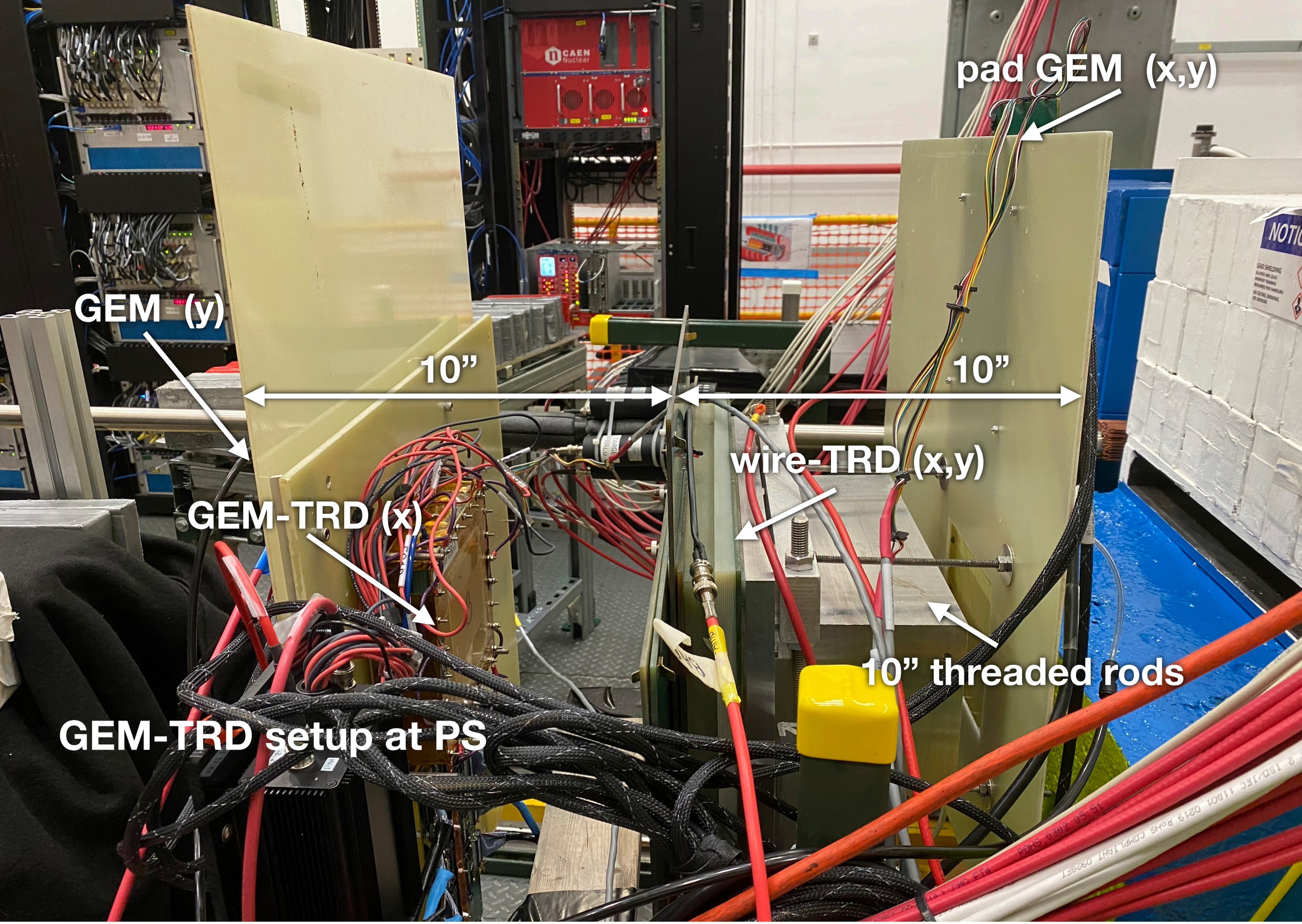
Hit correlations



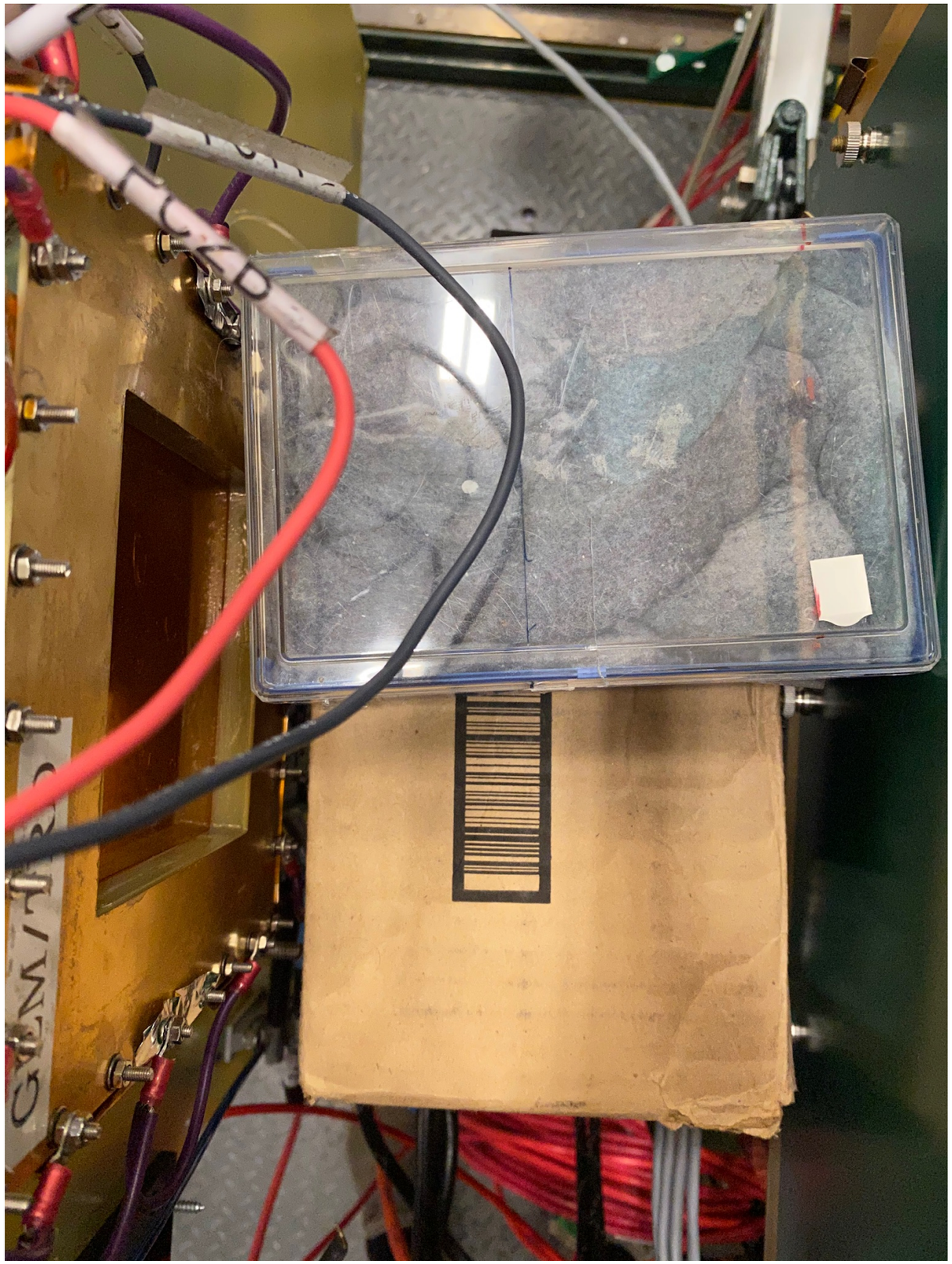




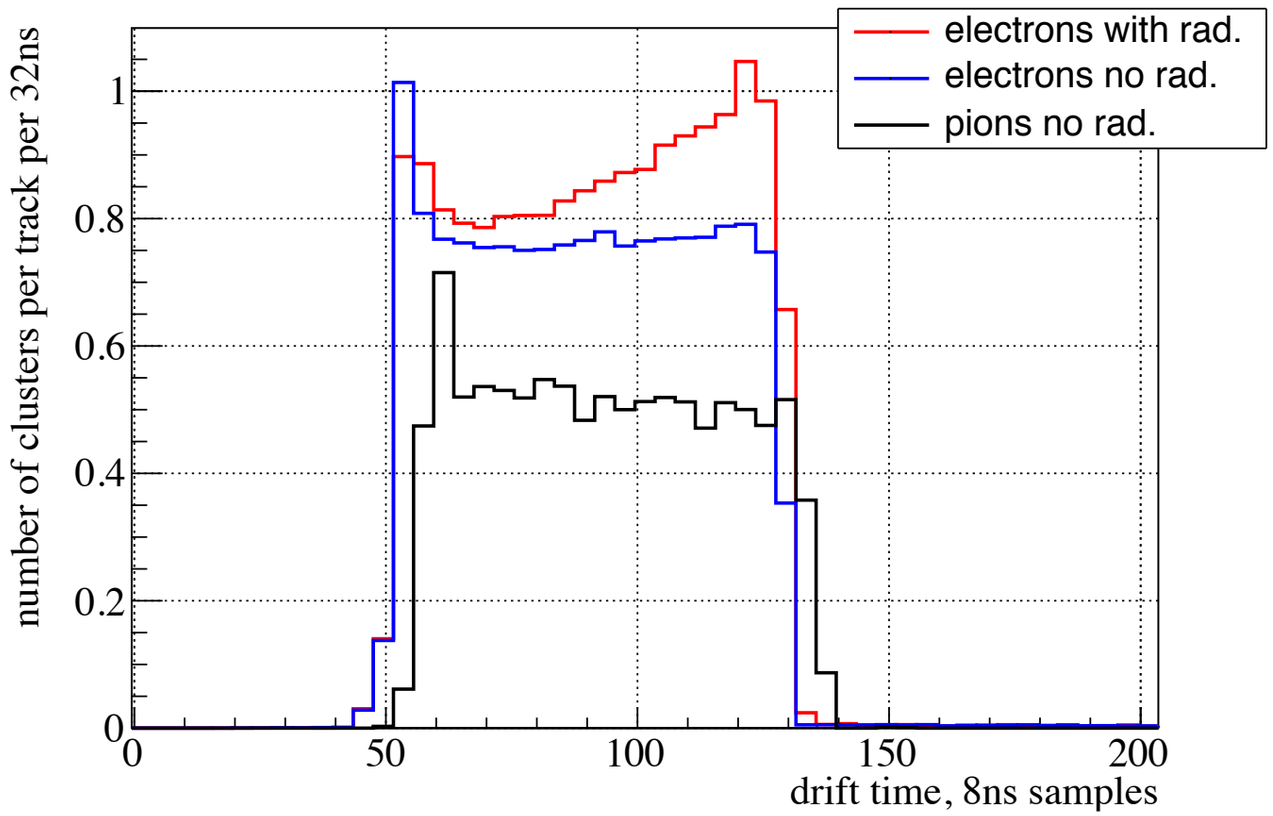


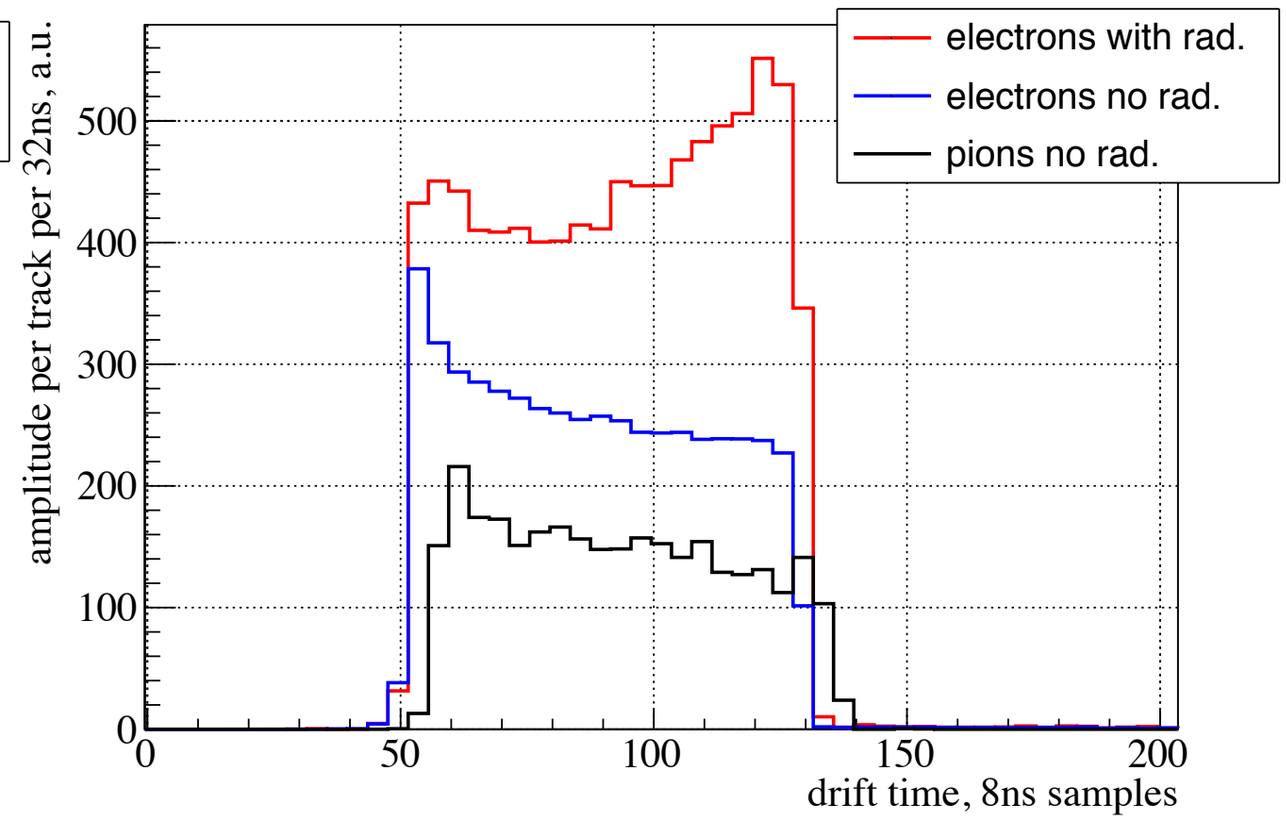

pad GEM (x,y)
GEM (y)
10”
10”
wire-TRD (x,y)
GEM-TRD (x)
10” threaded rods
GEM-TRD setup at PS

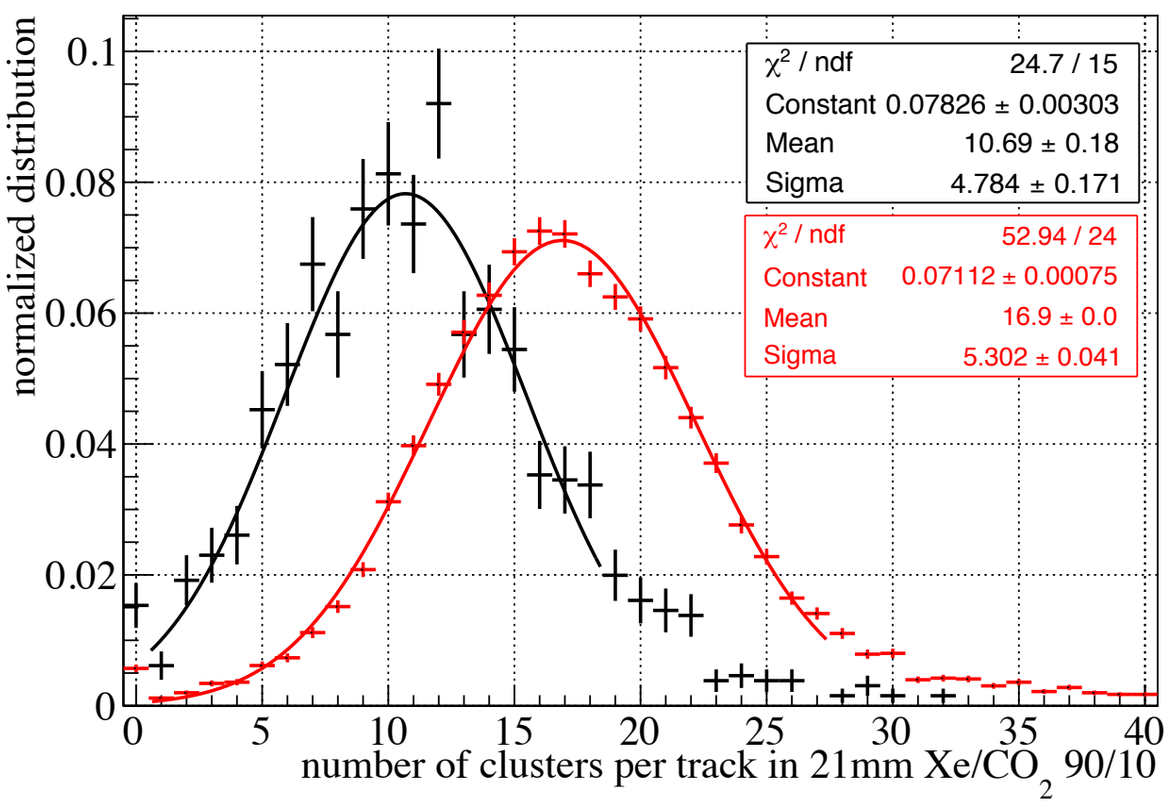
TR studies: Beni's radiator

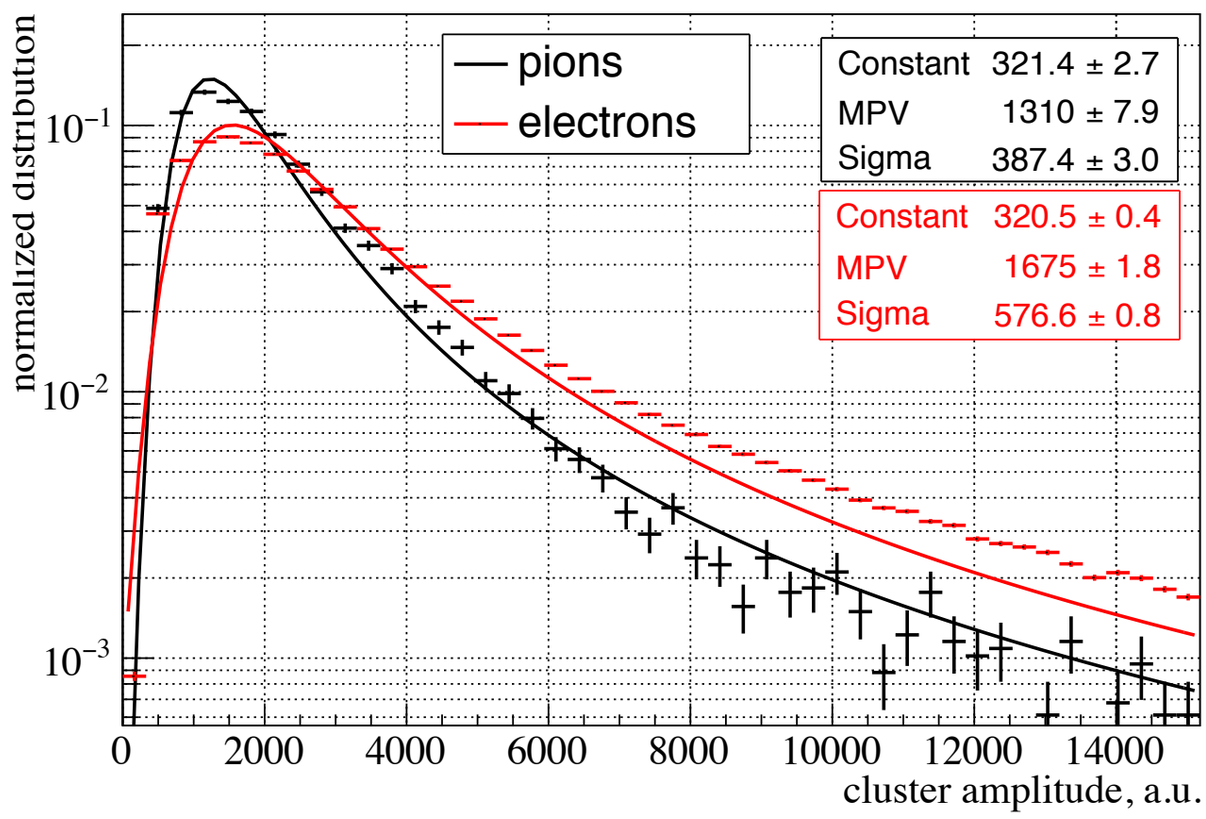


TR studies with GEM-TRD

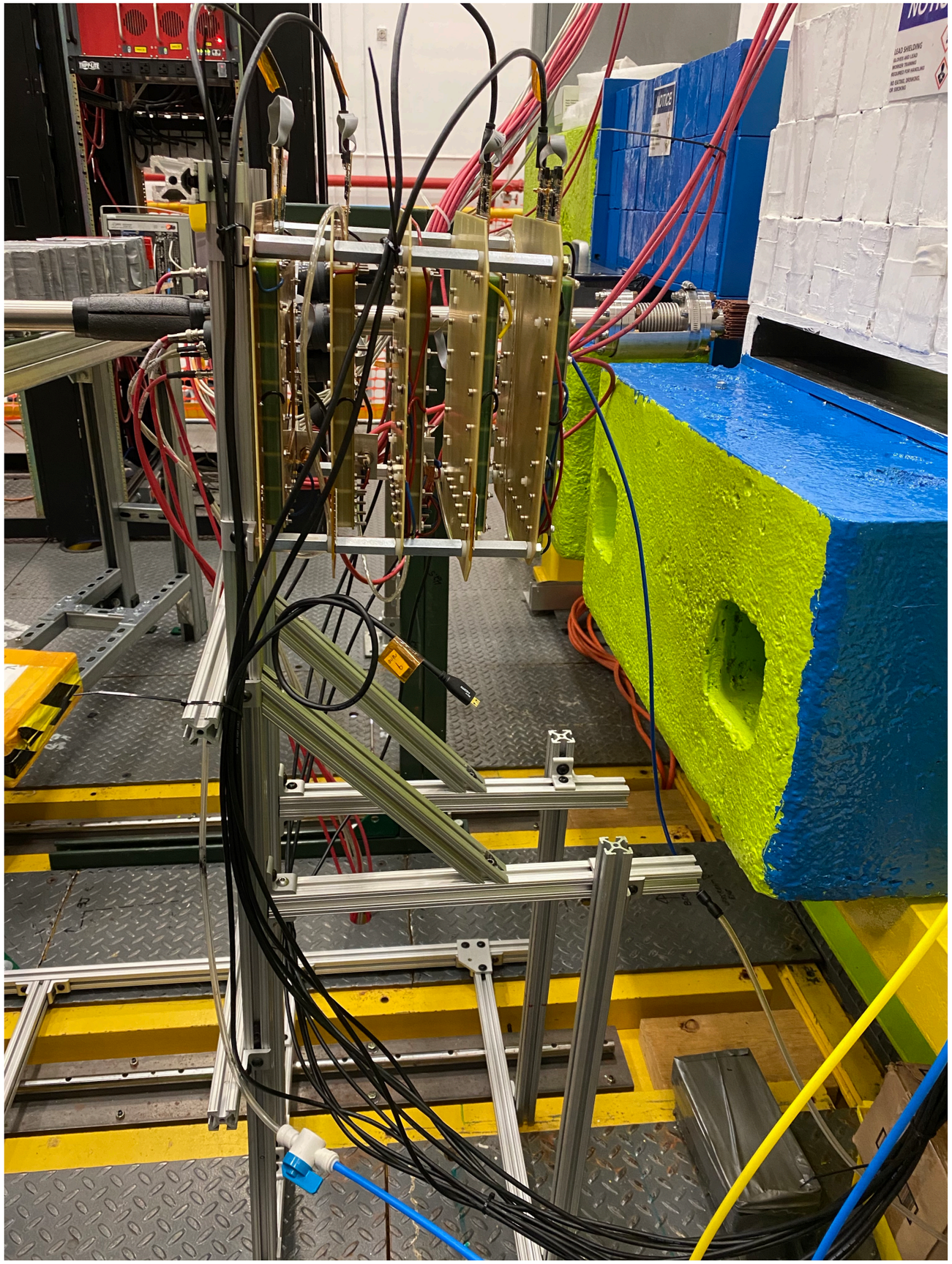




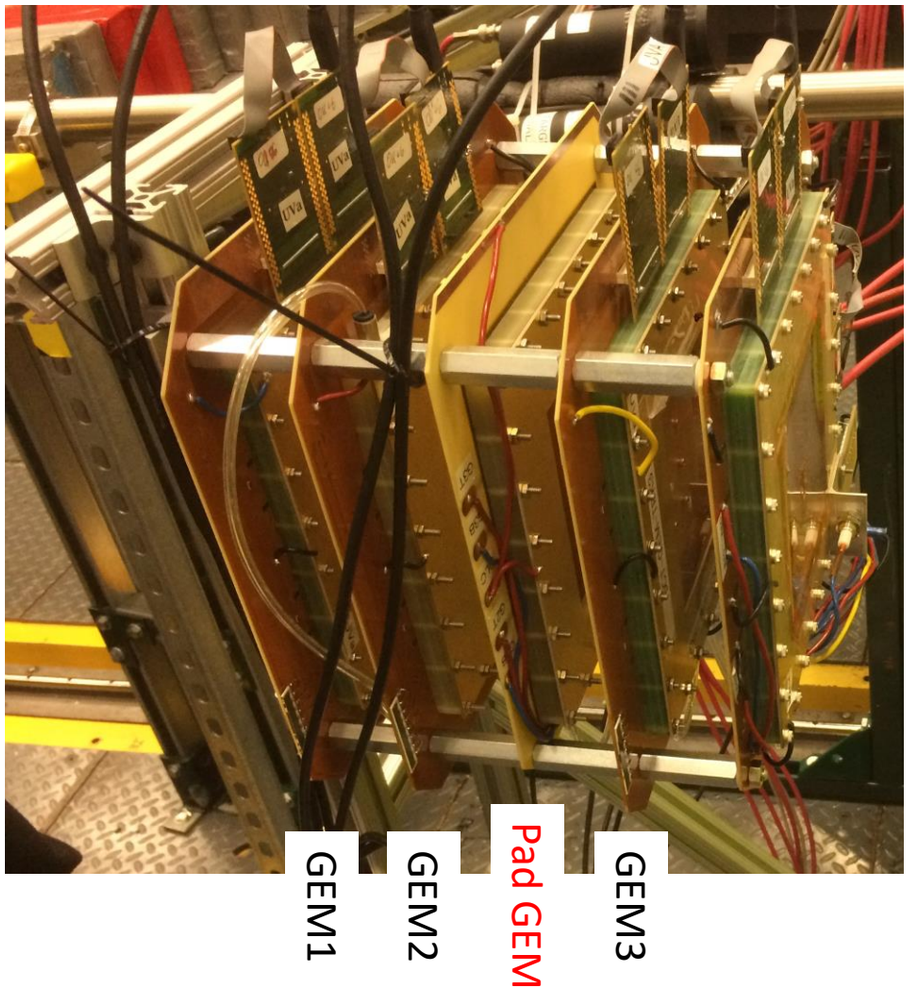


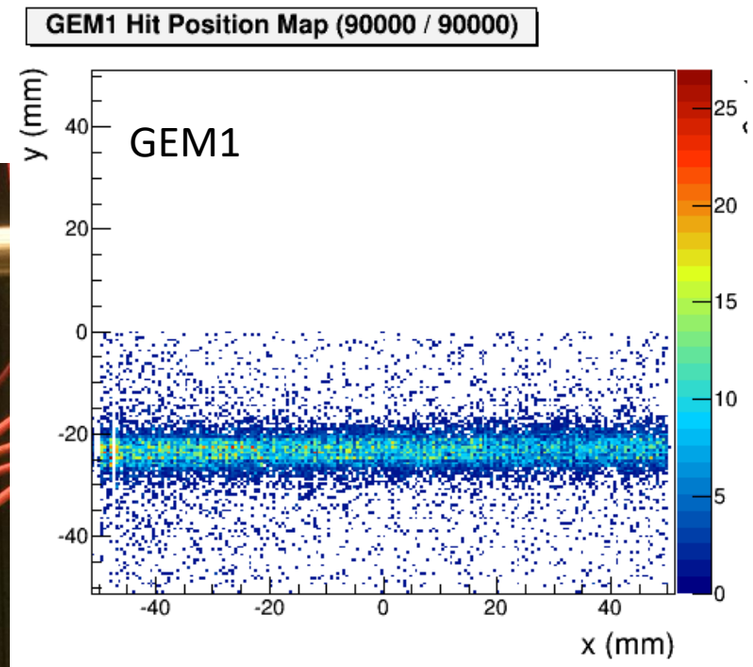


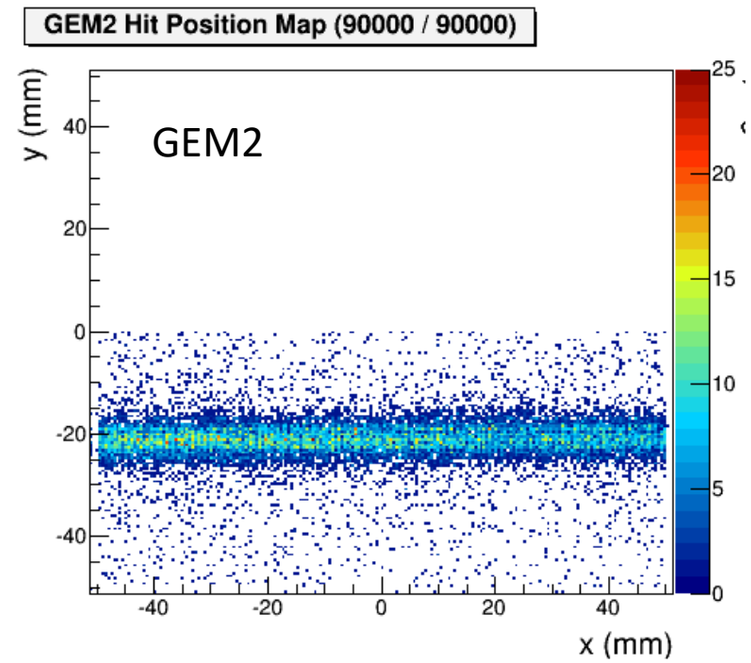
pad-GEM resolution studies

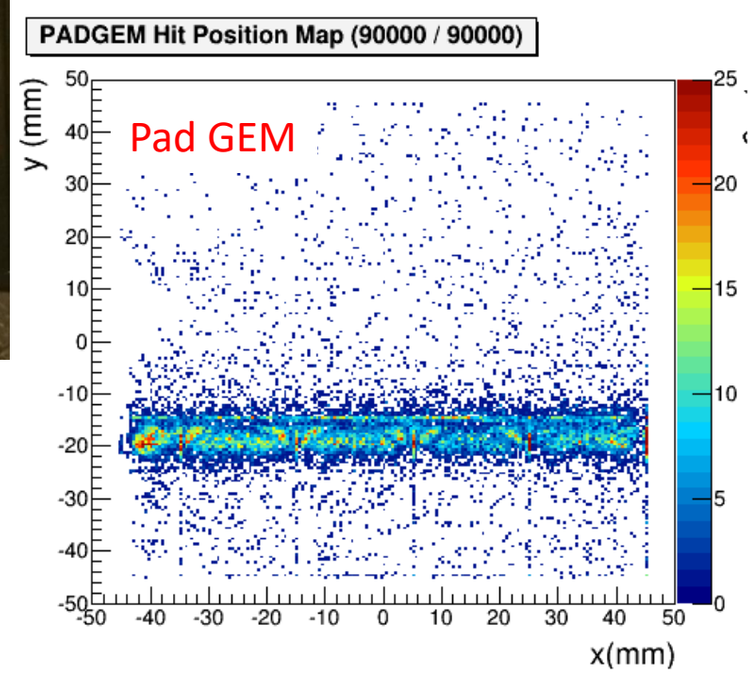


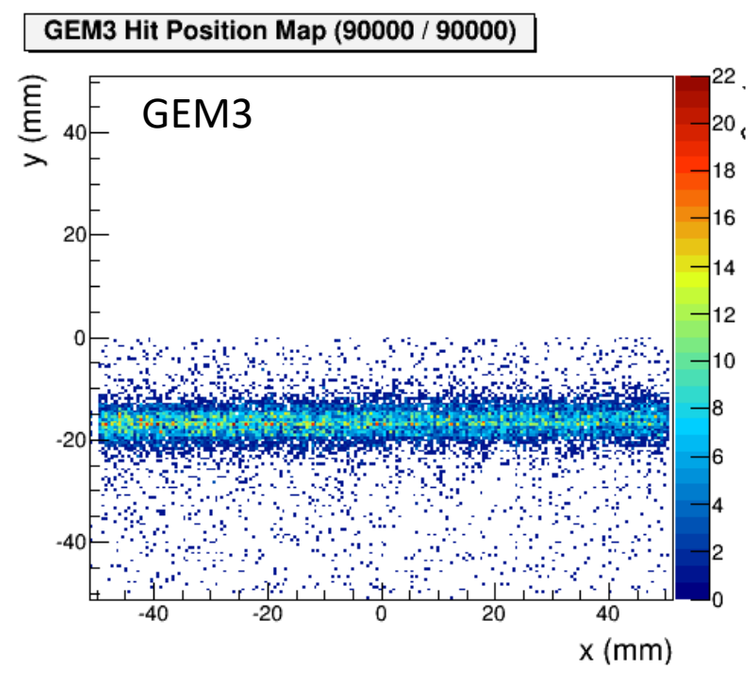
pad-GEM resolution studies (Kondo)







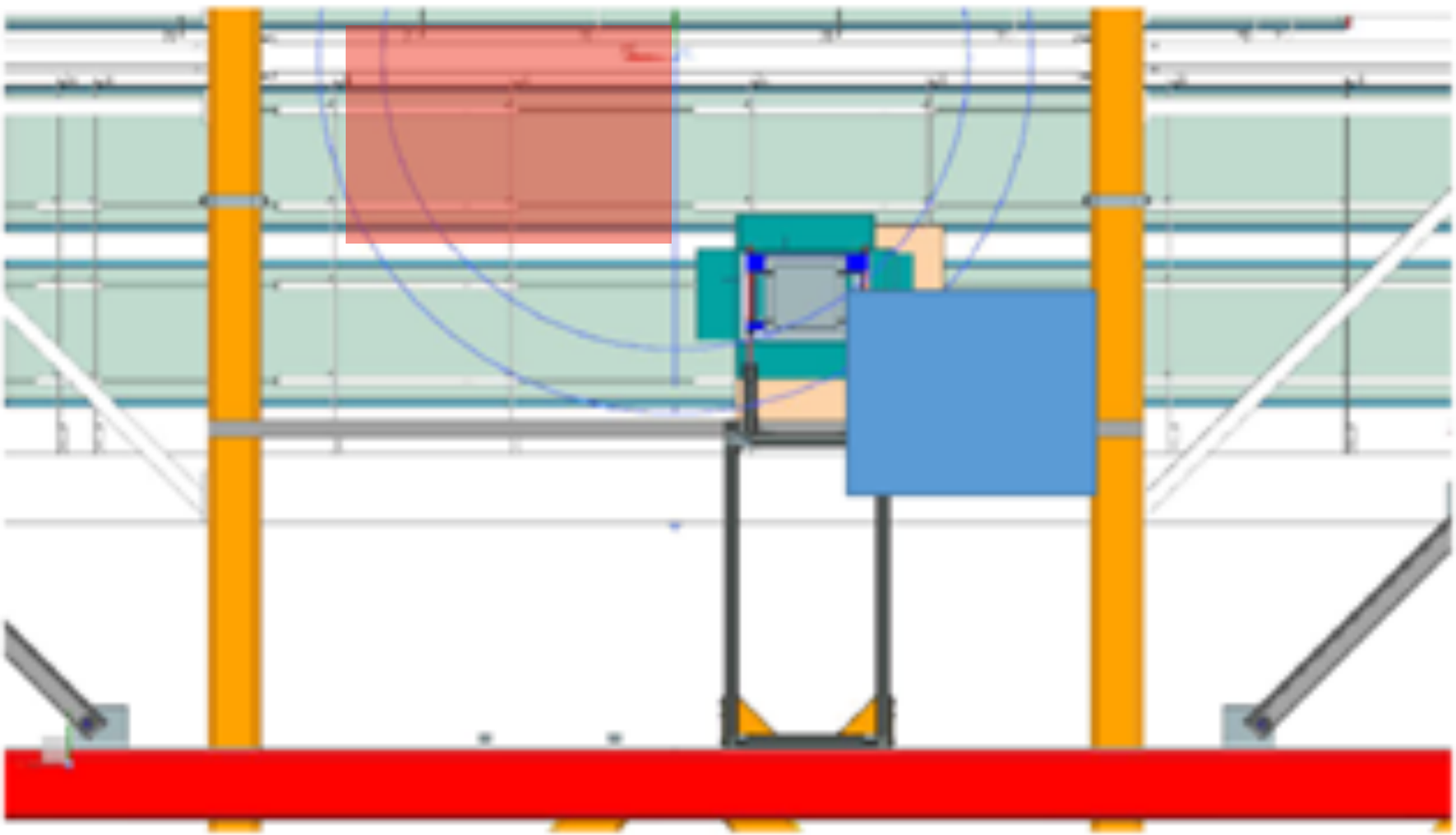




- Kondo estimates resolution of 450 um (preliminary, will share plots next week)
- However, HV up to 4850V with electrons and SRS (we had 4757V with pions and f125)

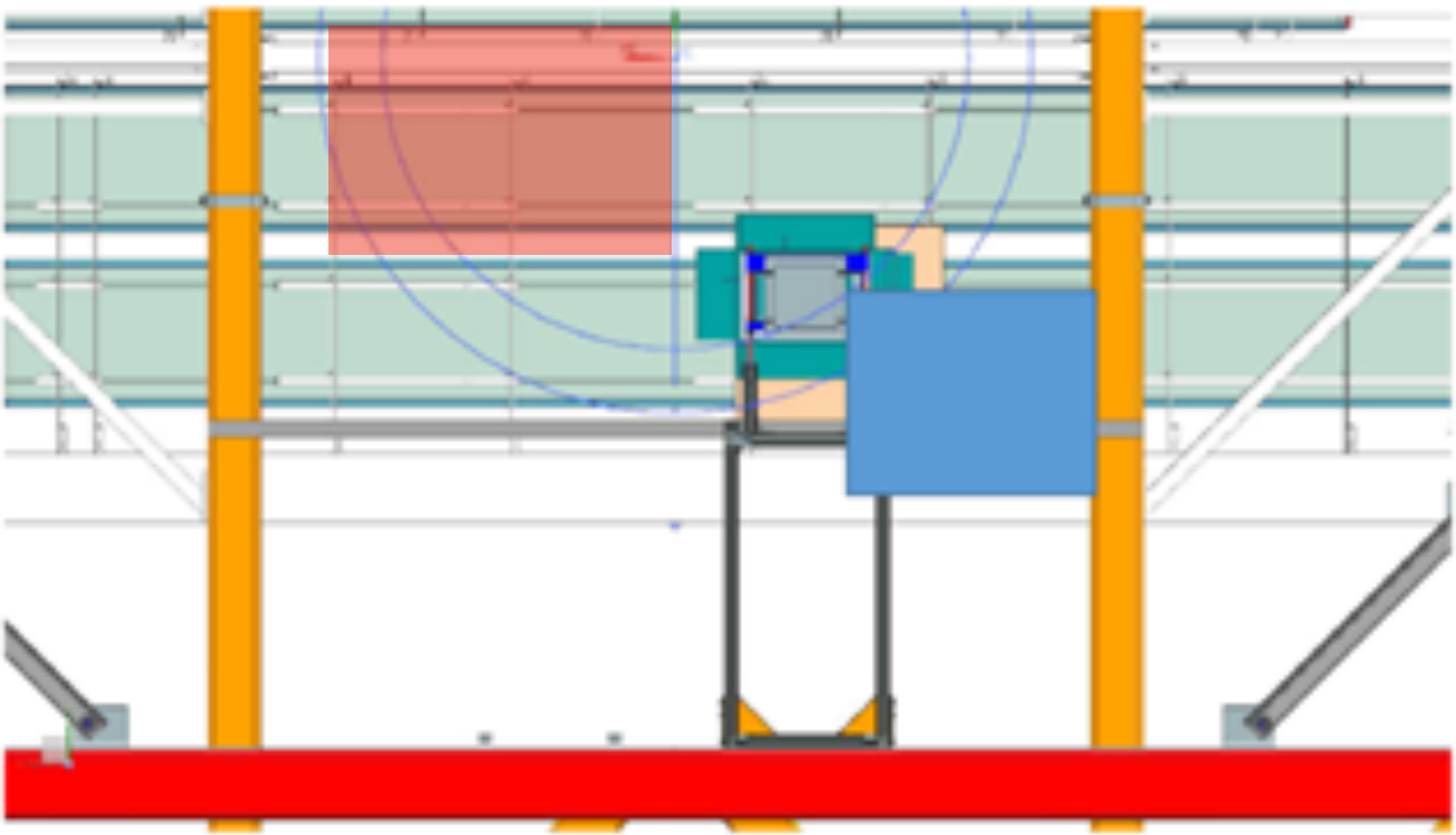
Large scale prototype 48x72 cm^2

- 3456 pads
- Electronics at one side (144 preamps, Fernando working on it)
- 48 fADC125 (streaming?, Cody working)
- 3 VME chasis (not VXS crates)



Large scale prototype 48x75 cm^2

- Electronics - ~$200k?
- Gas system - recirculated ~$200k?
- Detector and other - ~$100k?
- To be combined with EIC efforts



Large scale prototype 48x72 cm² (optional) large-strip readout

- 1500 strips
- Electronics at both x and y side side (63 preamps, Fernando working on it)
- 21 fADC125 (streaming?, Cody working)
- 2 VME chasis (not VXS crates)
- Electronics < $100k?

Capacitive-Sharing Large-Strip Readout: Low channel count X-Y strip readout