PRad RC Report
for the week of
May 31 to June 7, 2016

Beam accounting and experiment status

May 31, Tuesday:

- Configuration change of HyCal from transporter to run cart in beam line.
- Survey of HyCal and GEM in the beam line.
- First e^- beam through HyCal to Faraday cup ($\sim 7:00$ pm).
- Power outage at 7:37 pm.

June 1–3, Wednesday – Friday:

- No beam.

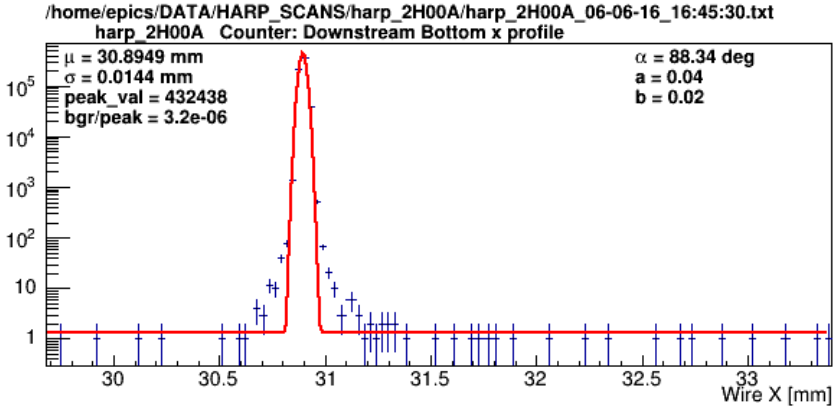
June 4–7, Saturday – Tuesday

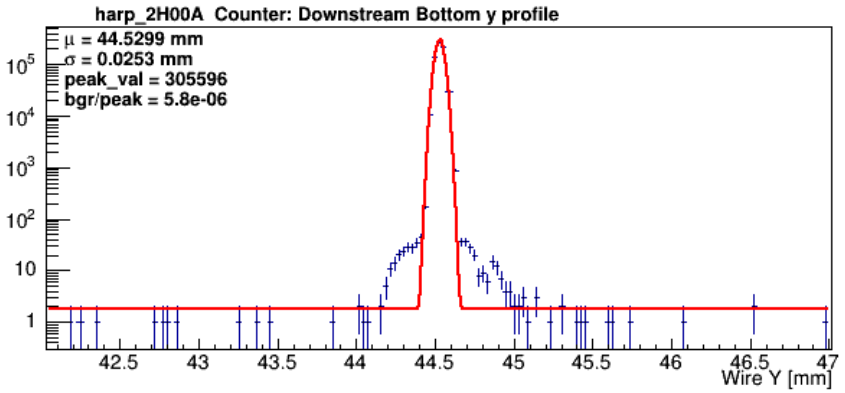
- Target setup for beam.
- Beam tuning to Faraday cup.
- Delivery of high quality tuned 1 pass beam at 5:30 pm on Saturday.
- Target cell aligned and commissioned in beam line:

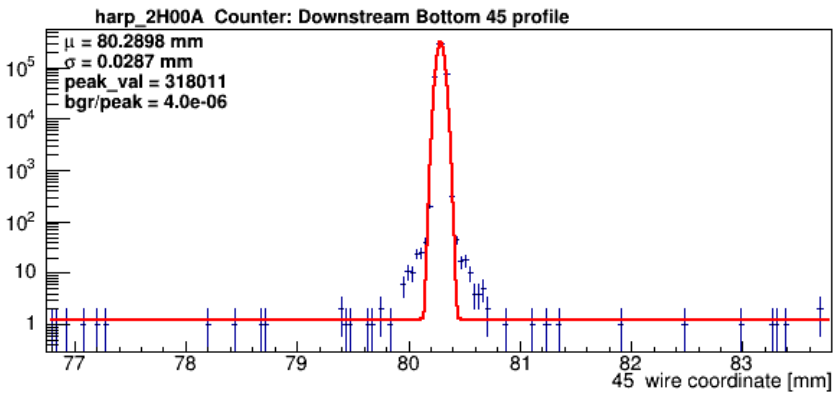
  Target thickness 1.8×10^{18} atoms/cm^2; temperature 19.5 K; H_2 flow rate 600 sccm
  Cell pressure 470 mTorr; chamber pressure 2.8 mTorr

- First production data on H_2 began at 7:30 pm on Saturday w/ 1 pass $I_e = 10$ nA
- $\sim 35\%$ of production data at 1 pass collected to date ($\sim 18\%$ of total experiment data).
- $\sim 27\%$ of total experiment hours used to date.

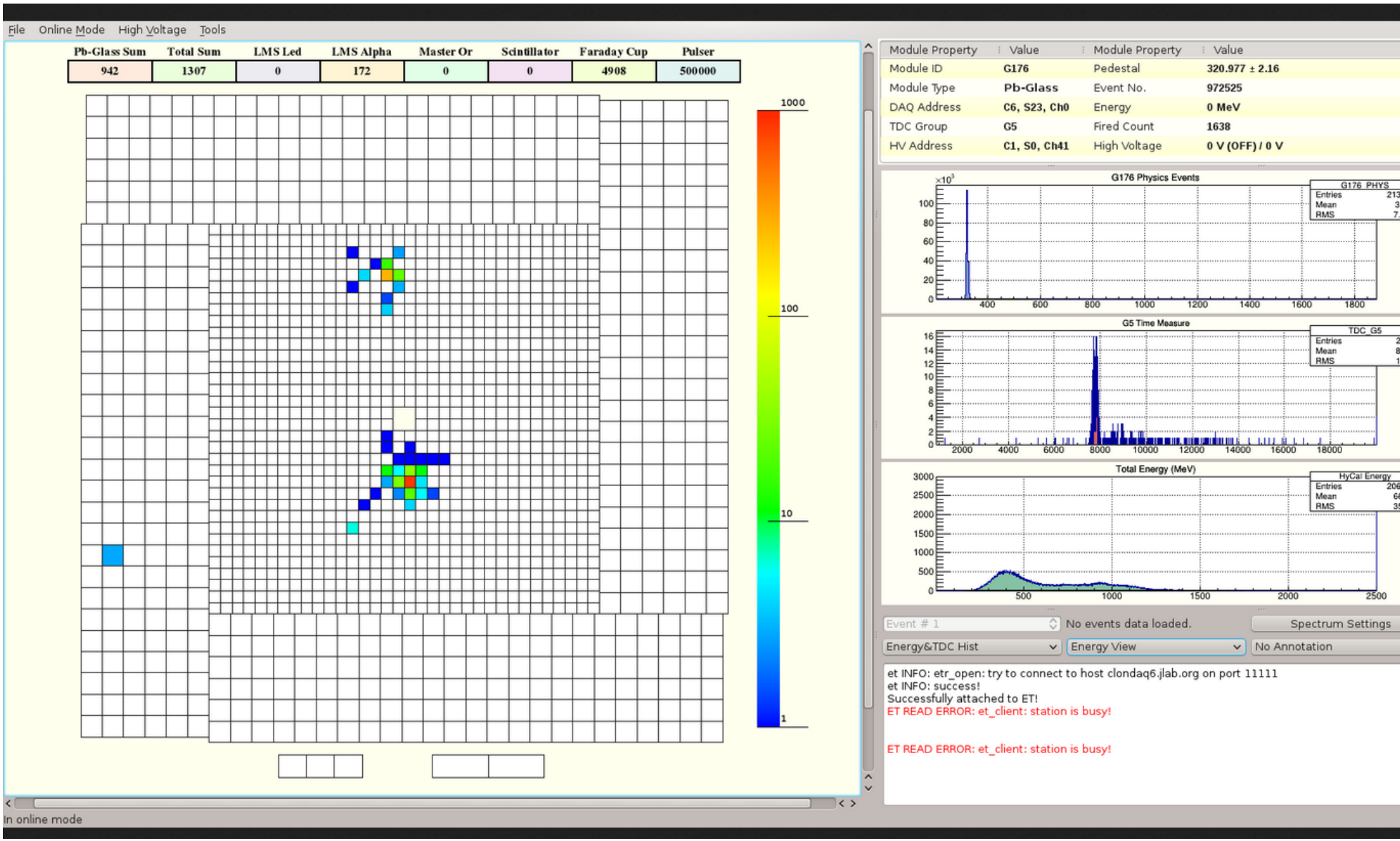
Beam profile at 2H00 harp





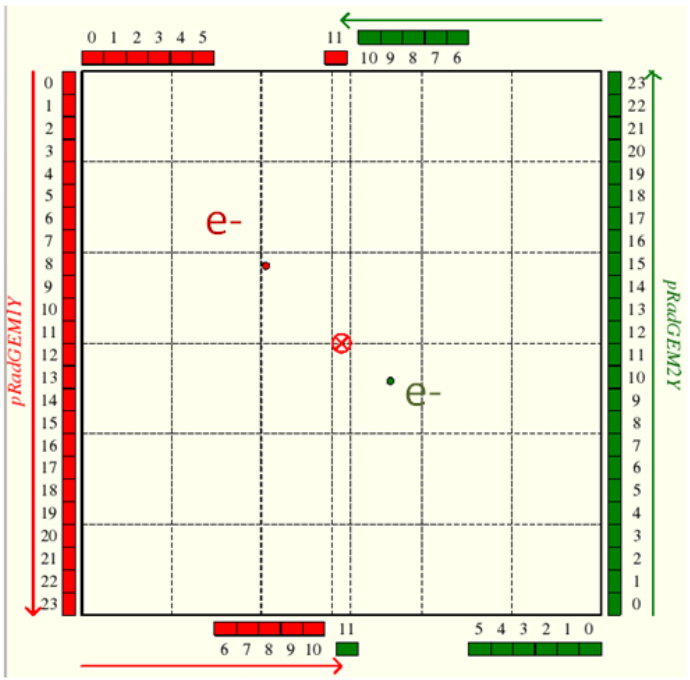


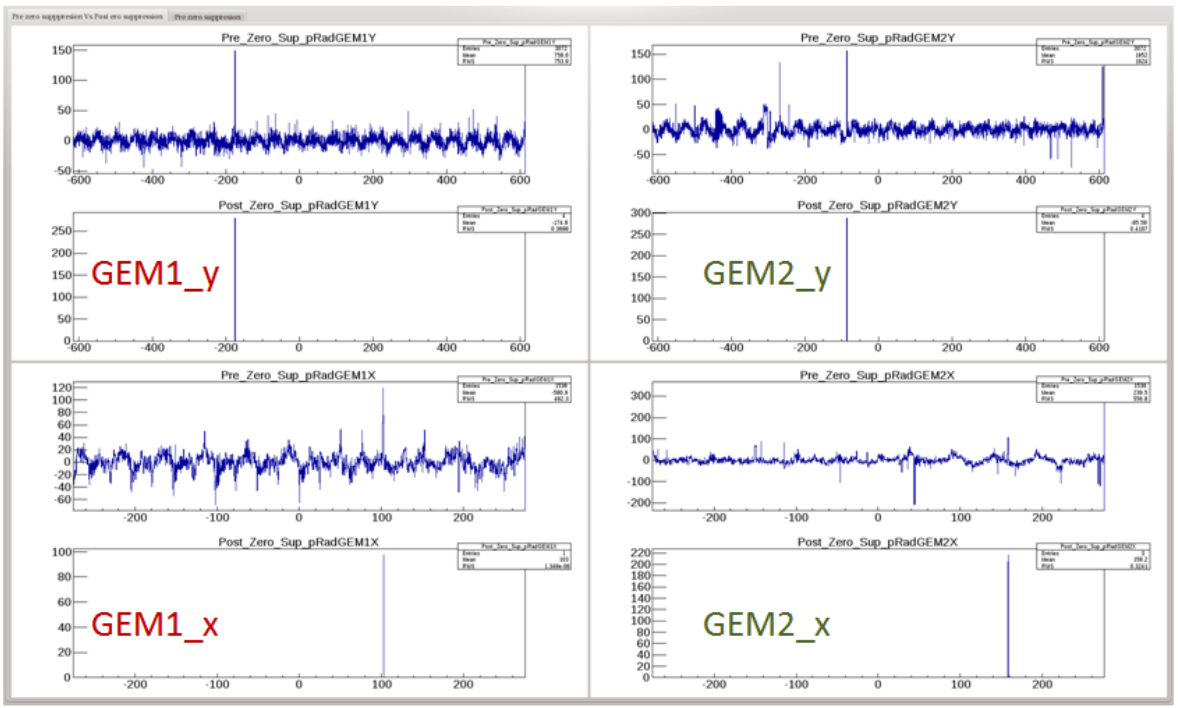
Møller event candidate in HyCal



Møller event candidate in GEMs

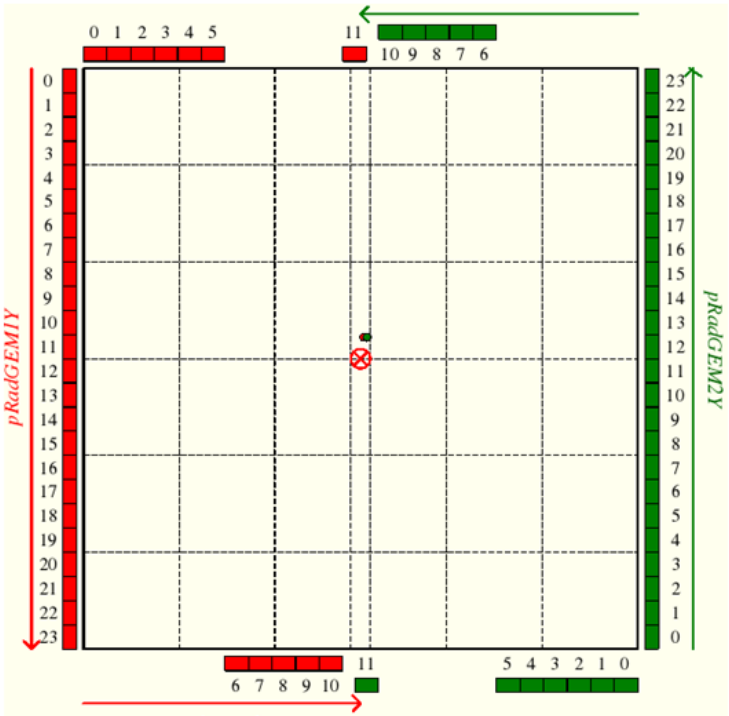
- 180° angle in azimuthal direction between two Møller e^- from target.
  - Expect one e^- detected by each of the two GEMs and reconstructed hits form a line w.r.t. center of target.
  - Will be used as a way to align the two chambers.

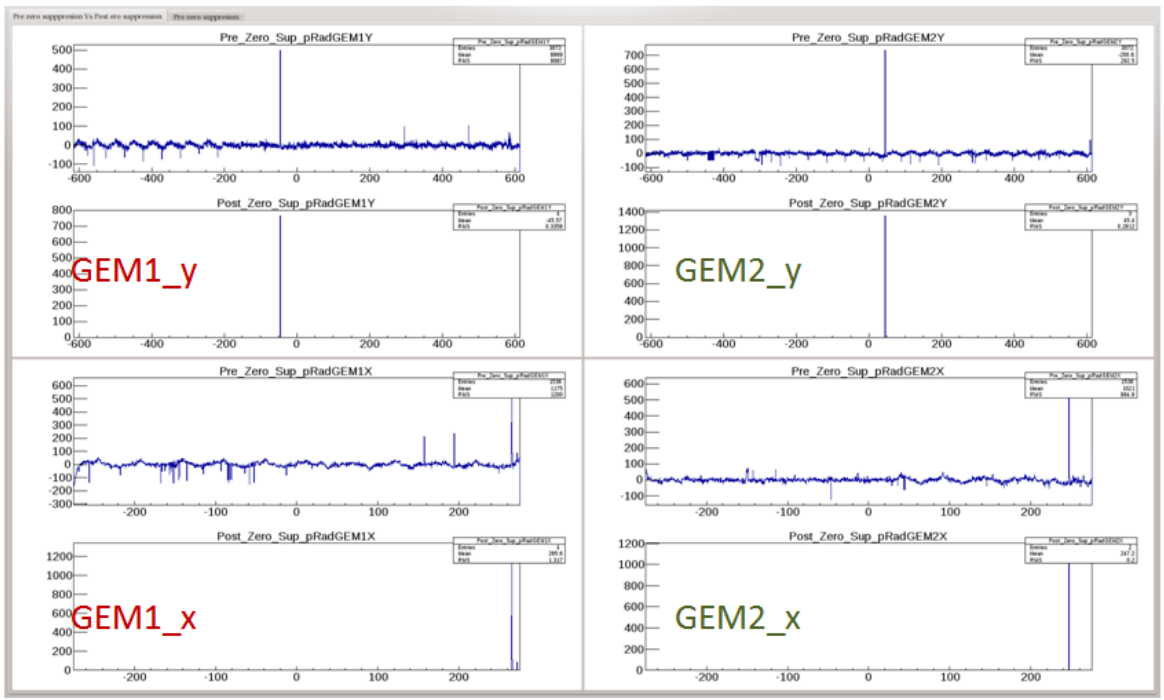




e-p event candidate in GEMs

- e^- from e-p will happen more likely at small angle (close to center) that coincides with two GEMs' active area where they overlap.





Plans for upcoming week

- Continue production at 1 pass.
- Complete one pass program and prepare for production at 2 pass.