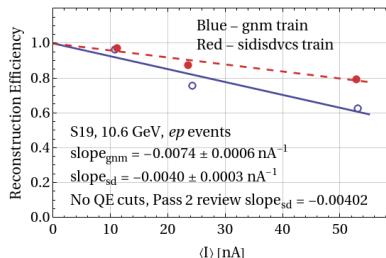


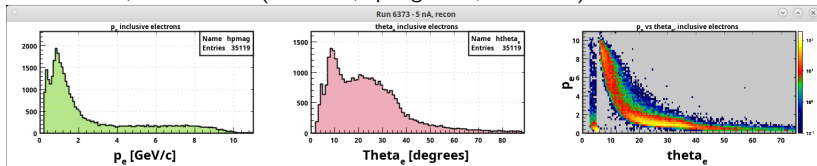
- ① Steeper slope of reconstruction efficiency with luminosity observed for ep events from gnm train compared with sidisdvcs train.
- ② Validate the gnm analysis by combining low-luminosity data with high-luminosity background events and compare results with full, high-luminosity measurements. See CLAS12-NOTE 2020-005.



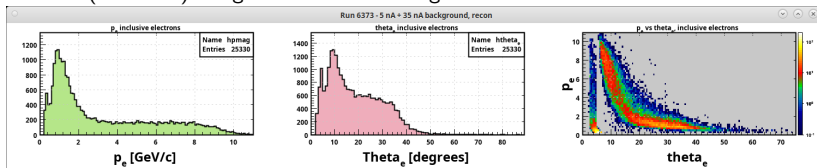
- ③ Steps.
 - ① Update the 5-nA, reconstructed data (run 6373). The spring, 2019 data files did not include the dictionary so this has to be done first.
 - ② Merge the 5-nA data from the previous step with the 35-nA background data.
 - ③ Run the denoising code on the output of the previous step.
 - ④ Reconstruct the output of the previous step using coatjava 11.1.0.
 - ⑤ Post-reconstruction analysis.

Combine Low-luminosity data with Background runs

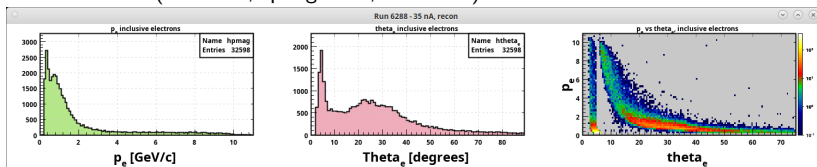
Clean, 5-nA results (run 6373, spring 2019, 10.6 GeV). First 50k events.



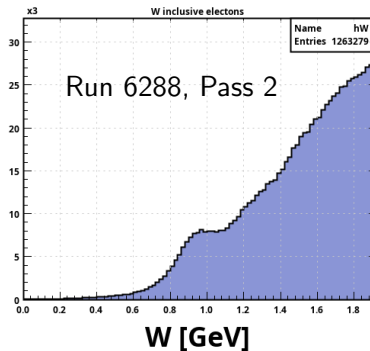
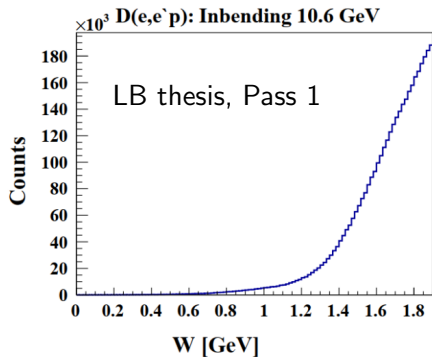
5-nA data (run 6373) merged with 35-nA background and reconstructed. First 50k events.



35-nA data (run 6288, spring 2019, 10.6 GeV) reconstructed. First 50k events.



Some Very Preliminary Results



Next Steps

- ① Continue checking results in initial analysis.
- ② Develop scripts for ifarm to analyze complete files.
- ③ Getting analysis using Lamya's code working.
- ④ Simulation to study luminosity effects.

Initial Cuts on Lamya's Plots

electron	proton	neutron
pid = 11 v_z vertex position $N_{ph} > 2$ PCAL fiducial V, W > 14 cm cut DC fiducial cut for 3 DC regions SF vs. $P_{ele} \pm 3.5\sigma$ Diagonal cut chi2pid $ \chi^2 < 3$ cut Minimum PCAL $E_{dep} > 60$ MeV	Positive charge particle hit calorimeter	Neutral charge particle hit calorimeter

More distributions - Run 6373, 5 nA, sprint 2019, 10.6 GeV

