

Low Energy Run Plan

Characteristics of our LER:

- Torus setting in-bending
- Full-field on both torus / solenoid
- RGB Spring 2019 trigger with DC roads – all non-electron triggers pre-scaled to 0
- PROD66pin data taking to cook immediately
- As close to 50nA as we can (limited by DAQ or DC occupancy)
- Laser system ON
- Standard RGB CLAS12 configuration

Once torus flipped and beam energy established:

- Ensure in-bending firmware & trigger loaded/ready
- Establish physics-beam quality
- No Moller needed
- Take data at different beam currents (ramping up slowly) checking DAQ rate and DC occupancies and go up to 50nA or as high as we can go
- Take data

While data is collecting:

- Check monitoring histograms
- Check all offline histograms closely and consult detector experts
- Estimate $(e,e'p)$ counts and $(e,e'pn)$ counts and compare to table given collected charge / run-time:

Total charge-collected	# Hours Beam-on-Target	$(e,e'p)$ Counts	$(e,e'pn)$ Counts
	0-4		
	0-8		
	0-12		
	0-24		
	0-36		
	0-48		

Hour-by-hour estimate:

- 8:00-12:00
 - We are the only pass change; should take O(2-3 hours)
 - Torus should be switched to negative inbending; should take O(3-4 hours)
 - Magnet experts should be on-site
 - Changing firmware of trigger boards to inbending; should take about O(30 mins)
 - Ben Rado, Valery
- 12:00-16:00
 - Establish physics quality beam
 - Luminosity scan considering rates and trigger rates
 - 22k is pretty hard limit
 - Start at 10nA and ramp up until we can
 - Ideal DAQ rate is 18-20kHz, 500 MB rate, livetime O(90%)
- Monitor counts / charge