Commissioning and Manpower

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DarkLight @ TRIUMF ARIEL Collaboration Meeting

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Commissioning

I assume some "commissioning" completed before the commissioning with beam period

- vacuum has been established satisfactorily
- spectrometer magnets have been tested and are working
- at least one GEM detector is located roughly on each spectrometer magnet
- the GEM detectors are working
- shielding is in place
- the target system is working

These things should have all been performed during access and installation periods

Commissioning with Beam

Establish electron beam into DarkLight beamline and into the beam dump

- beam energy around 30 MeV
- beam current whatever is convenient and stable

Measure radiation levels at various locations

- inside detector enclosure, electronics hut, outside beam dump
- repeat for no target, 0.5 μm Ta, and 1 μm Ta targets
- assuming everything is acceptable continue

Find focal plane

- both magnet polarity set for electrons
- setup trigger electronics for coincidence
- collect data from GEMs with magnets set for beam energy
- collect GEM data with magnets set at $\pm 20\%$ of beam energy
- access hall and move GEMs ± 5 mm
- repeat GEM data at nominal and $\pm 20\%$ of beam energy

Test Experiment Rates

Establish electron beam into DarkLight beamline and into the beam dump

- beam energy around 30 MeV
- beam current whatever is convenient and stable

Pretend this is an actual measurement

- set 36° spectrometer polarity for positrons and 10 MeV
- set 20° spectrometer polarity for electrons and 18 MeV
- setup trigger electronics for coincidences
- measure rates for no target, 0.5 μm Ta, and 1 μm Ta targets

Take Møller scattering data if possible

Declare victory and go for a beer !

Manpower

MIT

- Ethan and Doug basicly available at any time
- will ship GEMs and system by end of June
- suggest Ethan or me come to train TRIUMF people on GEM test (1-2 weeks)
- Story available in January to help with installation
- hope all equipment shipped to TRIUMF by end of summer early fall
- MIT-Bates technical support available in January

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