On-site Preparations for g2p Experiment
(Students and Post-docs)

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g2p Collaboration Meeting, 30th Sept. 2010

On-site Students and Post-docs

- Currently we have two students and two post-docs on-site

- Students:

  - Min Huang (Duke)

  - Pengjia Zhu (USTC, China)

  - Melissa Cummings (at W&M)

  - One more student from UVA is expected to join later

- Post-docs:

  - Jixie Zhang (Hall-A)

  - Kalyan Allada (Hall-A)

Preparations for the Experiment

- Started organizing weekly meetings
  - Wednesdays 2pm-3pm, Room: F227
- On-site students have started working:
  - M. Huang: Optics simulations, rate calculations etc..
  - P. Zhu: Energy loss of electron for target irradiation
- Build on previous experience:
  - Previous (relevant) experiments : SANE, saGDH etc..
  - Gather simulation tools from experts
  - Modify according to the needs of this experiment
- J. Zhang and K. Allada : Work on the MC simulation for the experiment

Preparations cont'd...

- Modify HRS single arm Monte Carlo to include:
    - Target field (J. LeRose's transport function from SNAKE?)
    - Target material in the path of both beam and scattered particle for energy loss calculations
- Immediate goals: To answer questions which may affect any design aspects of the experiment, for example:
    - Rates for the optics (carbon) target with 120nA beam current?
    - Whether we need to change the design of the beam dump to run up to 1uA with target field?
    - How many target foils needed for optics run and how far they should be placed?
    - etc ..

Preparations cont'd...

- **Long-term goals:**

    - Develop MC simulation to understand:

    - Acceptance due to 5T target field +septum+HRS

    - Optics issues:

        - Vertex reconstruction (especially at small angle - 6 degrees)

        - Optics calibration will be done at around E'=1.0GeV

        - Lowest momentum particle detected in HRS is ~0.370MeV

        - How good is our optics model in this momentum range?

- **Plan to work on DAQ**

    - DAQ in two single-arm mode

    - More than 4kHz rate expected for few settings in lowest energies

    - Can use buffered mode and pipelined electronics

    - Details in A. Camsonne's talk