Equipment

- Two 1”diameter(or greater) f=1m lenses, each with a mount which controls both angle and lens position (i.e. a 4axis or 5 axis lens mount) + stands for them
- The quad photodiode
- Control over the helicity board
- 3-5mW of Hall A laser for alignment (CW or pulsed, either is fine)
- >20uA of electron beam (preferably ~70uA, but not strictly necessary)
- (Conditions of injector beamline should be as if accelerator were going to run 70uA of 1GeV beam, or 150uA of 2GeV beam)

People – Caryn Palatchi, Sachinthani Premathilake, Ciprian Gal, Kent Paschke

Need walk-through of injector laser for Sachinthani Premathilake

- <u>Day1 benchmarking</u>
- **Morning**
- *Need someone in control room who can change beam current, turn on/off autogaining on bpms*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- BCM/BPM calibration scan - 5uA steps of current up to max current, auto gaining on injector bpms off
- Autogaining of injector bpms back on
- **Afternoon**
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- Tweak Pockels cell translation – 1 hour
- Repeat 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- **Evening**
- *Need Access to injector laser room*
- *Need someone who can get the laser to give us 3-5mW of Hall A laser beam*
- Get spiricon measure of spot size at cathode
- Repeat measure of spot size at pockels cell (will bring our own spiricon for this)

- Day2 downstream lens insertion
- **Morning**
- *Need Access to injector laser room*
- *Need someone who can get the laser to give us 3-5mW of Hall A laser beam*
- 3-5mW Hall A laser (CW or pulsed, either is fine)
- Insert 1m lens downstream of Pockels Cell at predetermined z-position (personal preference is upstream of clean-up polarizer, but only Hall A laser spot size will be affected)
- Measure spiricon spot size at cathode
- **Afternoon**

- *Need someone in control room who can change beam current*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- **Evening**
- *Need Access to injector laser room*
- *Need someone who can get the laser to give us 3-5mW of Hall A laser beam*
- 3-5mW Hall A laser (CW or pulsed, either is fine)
- Start Setup of QPD pickoff / calibration

- Day 3 upstream lens insertion and PC re-alignment
- **Morning**
- *Need Access to injector laser room*
- *Need someone who can get the laser to give us 3-5mW of Hall A laser beam*
- 3-5mW Hall A laser (CW or pulsed, either is fine)
- Remove downstream 1m lens
- Insert 1m lens upstream of Pockels Cell at predetermined z-position
- measure of spot size at pockels cell (will bring our own spiricon for this)
- Measure divergence of laser at Pockels cell
- Measure spiricon spot size at cathode
- Setup pick off to QPD
- Measure spot size at QPD
- **Afternoon**
- Calibrate QPD
- Check PC alignment starting point– S1, S2, no anal, RHWP scan
- Align Pockels cell
- **Evening**
- *Need someone in control room who can change beam current*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- PC translation if needed
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours

- Day 4 PC-realignment (if needed) + downstream lens insertion
- **Morning**
- *Need Access to injector laser room*
- *Need someone who can get the laser to give us 3-5mW of Hall A laser beam*
- 3-5mW Hall A laser (CW or pulsed, either is fine)
- Insert 1m lens downstream of Pockels Cell at predetermined z-position
- Measure spiricon spot size at cathode

- **Afternoon**
- *Need someone in control room who can change beam current, turn on*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- *Need Access to injector laser room*
- *Need someone who can get the laser to give us 3-5mW of Hall A laser beam*
- Remove 1m lens downstream of PC
- **Evening**
- Allow time opportunity for any PC realignments that seem necessary on the QPD
- *Need someone in control room who can change beam current*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours

- Day 5 Photocathode rotation and PC translation
- **Morning**
- *Need Access to injector room*
- *Need someone who can help us rotate the photocathode Angle #2*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- **Afternoon**
- *Need Access to injector room*
- *Need someone who can help us rotate the photocathode Angle #3*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- *Need Access to injector room*
- *Need someone who can help us rotate the photocathode Angle #4*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- **Evening**
- *Need Access to injector room*
- *Need someone who can help us rotate the photocathode FINAL ANGLE*
- HallA Electron beam >20uA (70uA is good) going up to at least FC1
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours
- PC translation to optimize
- 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2 hours