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

* Day1 benchmarking
* **Morning – bcm/bpm calibration**
* *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 – RHWP scans**
* 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 –laser QPD setup**
* *Need Access to injector laser room*
* *Need someone who can get the laser to give us 3-5mW of Hall A laser beam*
* Setup pick off to QPD
* Day 2 upstream lens insertion and PC re-alignment
* **Morning – QPD setup, camera measurements, lens alignment**
* *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~~
* Finish Setup of QPD pickoff / calibration
* *CHECK PC alignment with no analyzer (steering) and Aq in S2 (do PITA scan to make sure in S2)*
* Get spiricon measure of spot size at cathode
* Repeat measure of spot size at pockels cell (will bring our own spiricon for this)
* Insert 1m lens upstream of Pockels Cell at predetermined z-position **z=…**
* 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
* *Measure spot size at vacuum window(if possible)*
* Measure spot size at QPD
* **Afternoon – PC realignment**
* Calibrate QPD
* Check PC alignment starting point– S1, S2, no anal, RHWP scan
* Align Pockels cell
* **Evening – PC realignment (maybe RHWP scans)**
* *PC alignment*
* *(Or RHWP scans if there is time)*
* *(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)
* Day 3 PC -RHWP scans + downstream lens insertion
* **Morning – RHWP scans**
* *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
* 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2-4 hours
* **Afternoon – downstream lens insertion + camera measurements**
* *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 **z=…**
* Measure spiricon spot size at cathode
* *Measure spot size at vacuum window (if possible)*
* **Evening – bpm/bcm calibration + RHWP scans**
* *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) – 2-4 hours
* **decide to keep downstream lens or remove + RHWP scans**
* *Need Access to injector laser room*
* Remove 1m lens downstream of PC (if decided)
* Day 4 Photocathode rotation
* **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
* *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
* 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2-4 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) – 2-4 hours
* **Evening**
* *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) – 2-4 hours
* Day 5 Photocathode rotation final
* **Morning/Afternoon/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) – 2-4 hours
* PC translation to optimize
* 4 RHWP scans (IHWP in/out PITA 0/ PITA non-zero) – 2-4 hours
* ~~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~~