

# Run plan for experiment 05038

## Beam tuning - all these steps need to have the HiRA monitor enabled

- Check focusing on target viewer with pilot beam
- Center beam on viewer even if not at non-steering position (should be 7 mm to the North)
- Set A1900 on  $^{\circ}\text{C}$  beam
- Remove target viewer - no target
- Check  $^{\circ}\text{C}$  transmission from XFP to S800 FP and purity (need to first turn on S800 FP detectors)
- If possible, look at  $^{\circ}\text{C}$  beam on target viewer with XFP and Object scintillators in as well as tracking CRDC detectors

## Setup and calibrations

- Check timing of FP scintillators as well as XFP and Object scintillators
- Debug tracking CRDC detectors
- Calibrate them using individual masks
- Take incoming beam composition calibration run
- Insert target mask and run target position calibration
- Insert Be target and set spectrograph on  $^{\circ}\text{B}$
- Calibrate FP CRDC detectors with their individual masks
- Look for coincidences between S800 and HiRA and set coincidence window
- Check rate calibration of scintillators using A1900 Faraday bar

## Run

- Depending on dead time, set trigger on both S800 singles downscaled and coincidences
- Rate in tracking CRDC detectors should not exceed 200k
- Run until statistics are satisfactory (should be around 12 hours)
- Lower beam intensity, set S800 back on unreacted  $^{\circ}\text{C}$  beam and run incoming beam intensity normalization
- Lower S800 magnetic rigidity by 3% - run 12 hours on low momentum tail
- Lower beam intensity, set S800 back on unreacted  $^{\circ}\text{C}$  beam and run incoming beam intensity normalization
- Raise S800 magnetic rigidity by 5% - run 12 hours on high momentum tail
- Lower beam intensity, set S800 back on unreacted  $^{\circ}\text{C}$  beam and run incoming beam intensity normalization
- Periodically perform tracking CRDC detector calibration by inserting their respective masks (every 4 hour or so)

### **On-line analysis**

- Identify  $^8\text{B}$  in S800 FP
- Check CRDC efficiencies
- Verify coverage of  $^8\text{B}$  parallel momentum distribution
- Check transverse acceptance of S800 in both planes (ata vs bta) - this requires FP CRDC detector calibrations and inverse map
- Identify high energy protons in HiRA
- Assess number of coincidences  $^8\text{B}$  in FP - high energy proton in HiRA
- Gate  $^8\text{B}$  parallel momentum distribution on HiRA protons and NOT
- Estimate cross sections for stripping and diffraction

### **To do list (as of 1/18/06)**

- Patch cables from HiRA to Data U-6 - Micha & Andrew
- Finish cooling installation on HiRA - Done - should ship fixed chiller soon - Betty
- Calibrate Csl with pulser - Vladimir & Daniela
- Reinstall  $^{228}\text{Th}$  sources in S800 FP - Done
- Check FP CRDC detectors with sources - Daniel & Alexandra
- Replace object scintillator with thin (5 mil = 127  $\mu\text{m}$ ) - Done
- Check object scintillator with dark current - Alexandra
- Vent lower dipoles, remove bellows between T4 and T5, remove gate valve between T5 and scattering chamber and ask Dave to install scope aligned on T5 - Daniel & Sean
- Remove feet + plate and weld together. Place back on frame - Daniel & Andrew
- Align HiRA table vertically on axis and horizontally 7 mm off axis to the North (left side when traveling with the beam) - Daniel
- Install bullet camera on scattering chamber (forward looking port) - Alexandre
- Check cameras at object and intermediate images - ask Mauricio
- Check HiRA rate monitoring (big brother on Csl) - Andrew
- Check SpecTcl - Daniel
- Isolate motor drives

### **Additional items**

- Si bias - correct for voltage drop in bias resistor (10 M $\Omega$ )
- Run  $^{207}\text{Bi}$  and  $^{228}\text{Th}$  sources and compare to pulser ramps
- Check Csl with cosmic rays and source
- Post run calibrations (alpha source, pulser ramp)