

## MOTT COMMISSIONING PLAN (v1)

### Commissioning I (499MHz, 6.3MeV, Pz)

- Calibrate BCM to FC2
- Configure and test BCM FSD
- Open Mott valve and check vacuum
- Test target ladder motion and FSD
- Test beam setup script
- Verify beam to target ladder OK
- Test ladder position with beam on viewer and thru hole
- Setup CW beam to 1 um target foil
- Set HV for detector pulse height
- Set coincidence trigger
- Set timing trigger
- DAQ checkout for FADC, TDC, xScaler
- Detector rate vs. beam position on multiple foils (up/down/left/right/center)
- Detector rate and dead time vs. current
- Detector asymmetry vs. helicity pick-up
- Detector asymmetry vs. charge asymmetry (IA)
- Detector asymmetry vs. position asymmetry (HM if we want to try)

### Commissioning II (499/31MHz, 5.0MeV, Px/Py/Pz)

- Set beam energy to 5.0MeV crested
- Compare transition from 499MHz to 31MHz using spectrometer and Mott
- Study dump using thru hole (analyzing power, rate from dump/ladder)
- Measure asymmetry vs. time to test reproducibility
- Measure asymmetry vs. rate
- Measure asymmetry vs. spin angle check Wien filter and alignment
- Measure asymmetry vs. position
- Measure asymmetry vs. spot size
- Measure all foils (rates, energy spectra, timing spectra, signal, background)

### Commissioning III (31MHz, 3-8 MeV, Px/Py/Pz)

- Measure energy, energy spread, emittance
- Determine control of spot size at target
- Measure rate, background, asymmetry using 1um Au with Px at each energy tested
- Define what is meant to set at different beam energies
- Determine acceptable range of beam energy
- Complete any Aluminum dump measurements (anticipate change in February)