

PROCEDURES FOR KERR MAGNETOMETRY

Charlie Watts thesis, Spring 2000

- Be sure that the photoelastic modulator is attached to the *ref-in* of the lock-in amplifier.
- The detector must go to the A in or B in of the lock in amplifier and ALSO to the input of the digital voltmeter with a 50ohm resistance.
- Turn on the laser. Allow 20 minutes to warm up.
- Turn on the PEM, making sure the electronic head is plugged into the optical head via a blue coaxial cable.
- The other components can now be turned on, in any order:
 - magnetic power supply
 - chiller
 - DC power supply
 - lock-in amplifier
 - digital voltmeter
 - switching unit
 - gaussmeter
 - detector
 - computer
- Load the sample into the sample holder.
- Align the laser:
 - Make sure the laser is incident upon the concave mirror.
 - Adjust the concave mirror until the beam hits the mirror near the sample.
 - Adjust the concave mirror again until the beam returns back to it from the mirror near the sample.
- The analyzer and detector should be positioned to see the beam.
- The beam to the detector should be in phase with the incident beam from the PEM. Push the phase button on the lock-in amplifier.
- Push the gain button on the PEM to make sure that the signal's maximum will not overload the lock-in amplifier.
- Start the software program.
- Begin measuring.