Thermal Equilibrium Measurement Procedure

Software

To aid in the TE calculation, use the "te_getter.pl" script in the g2p_te folder on poltarg2p2. This script reads the last 'x' data entries before unixtime 'y' (default is current time). It produces a datafile for these points and asks if you'd like to use them in a TE measurement. Then it performs the TE calculation and returns the results.

Assumptions:

- NMR System is tuned
- Magnet is at full field, persistent mode, leads are ramped down
- Nose is full, run valve in manual mode

Prepare Frig:

- Stop RB3, RB2, and RB1 (wait 2 minutes between each), if necessary
- Close roughing and bypass valve
- Put Run Valve, EV91120, in Manual Mode
- Establish a STEADY Nose level somewhere between 50-65%
- Try 0.17 on the run valve.
- If needed only make slight changes to Run Valve for rest of TE (+/- 0.05 each 10 min)

Take a Baseline:

- Hit "Unlock Magnet Controls" button
- Type the full-field current in the box labeled "Setpoint" (eg: 60.882)
- Type 3.00 into "Setrate" box, if necessary
- Hit "To Setpoint" Button
- Wait for leads to reach full current (approx 1 min)
- Hit "Hold"
- · Check that leads current and magnet current are equal
- Hit "Heater On" button
- · Wait for the 30 second timeout to expire
- Type the baseline current into the "Setpoint" box (eg: 59.882)
- Hit "To Setpoint" to start the magnet sweeping
- Wait for magnet to reach baseline current (approx 6 min)
- Hit "Hold" button
- Put NMR into pause mode if necessary
- Hit the Baseline button
- · Select "Create New Baseline", dialog box should then disappear
- Change sweeps to 2000 if necessary
- Double check that all NMR settings are where you want them
- Hit "One Point" button to take a single nmr measurement
- Wait for timer to count down
- Hit Baseline button
- · Select the baseline you just took from the list of timestamps
- Document the details of the baseline in the logbook:
 - Date Time, #Sweeps, MagCurrent, Top/Bottom, Gain, RFFreq, RFMod
- Type full-field current into "Setpoint" box (eg: 60.882)
- Type 3.00 into "Setrate" box, if necessary
- Hit "To Setpoint" button
- Wait for magnet to reach full current
- Hit "Hold" button
- Hit "Heater Off" button
- · Wait for 30 second timeout to expire
- Hit "To Zero" to ramp the leads down
- Hit "Lock Magnet Controls" button

Take TE measurements:

- Make sure ladder is in desired target position
- Make sure NMR is on desired channel (AND in agreement with target position!)
 Make sure you have a STEADY Nose level with roughing and bypass valve closed
- Use ~0.17 on the run valve (watch the nose temps.)
 Set sweeps to 2000, if necessary
 Hit "Take Data" button

- Wait for timer to count down

- Write the following in the logbook for the next 10 measurements:

 Time, NMR Area, 4He Press, 4He Temp, 3He Press, 3He Temp, Nose Level

 Watch data until it flattens out, if in good warm (~1.5K) semi-steady state for a while then it should take less than 30 minutes.
 calculate the TE calibration constant using poltar@poltarg2p2\$ /home/poltar/g2p_te/te_getter.pl 15

- Type Y to run te_calc on this data
 Move the output file te_result.txt to te_date_top/bot.txt
- Put new Cal. Const. in under Sweeps in PDP and move on to prepare frig for polarization