


Quantum Design MPMS-3: Measuring the Magnetic Moment

Quick Start Guide

- Start your session in iLab: this powers up the monitor on the MPMS-3 and connects it to internet (so it shows up on Teamviewer).
- The MPMS computer lock screen password is written in beginning of the MSDS binder in the lab, if you forget it.
- MPMS should be at 300 K, zero field, and purged chamber. If it is NOT, please tell Neil and note this in your log sheet.
- To prepare your sample, take out the MPMS-3 user kit from the drawer, put on clean gloves and follow instructions in Sample Mounting section of this document. The tools in the top-right drawer of the bench are for you to use in MPMS-3 sample mounting ONLY, as stated there.
- If using the oven mode, you will instead use the Oven user kit in the drawer. If your sample thickness is <0.5 mm, follow the Dry Mount sample instructions on the laminated sheet in the user kit or [HERE](#).
- Once sample is mounted to the sample holder, remove gloves.
- In MultiVu, install the sample pressing either *Sample > Install/Remove...* or the  icon.
- Once chamber is in Flooding state, please go to *Instrument > Chamber...> Seal* to prevent more helium gas consumption.
- Follow the steps in the install wizard
 - If you Scan to Center sample, you will need some field: try 1000 Oe, rate=700 Oe/sec
 - If Scanning does not return a good center, enter the sample offset that you measured while sample was in the red sample mounting platform from the user kit
- After the Purge/Seal sequence finishes, **make sure the pressure is less than 10 torr**. The system will call it “purged” after its pumpout completes, even if there is a leak at the o-ring.
- Example sequences to get you started are located in **c:\QdSquidVsm\Sequence** folder.
- To check instrument operation, train yourself, or generally get a reality check, we have demo samples which are contained in the MPMS-3 User Kit and include currently:
 - CoFeB PMA film (<2 nm)
 - CoFeB IMA film (5 nm)
 - Kapton tape with LOTS of dust, to demonstrate what dust magnetic signal looks like
- Sequences and corresponding data to these particular demo samples is found in folder **c:\QdSquidVsm\Sequence\reference samples** .

- **Mental checklist ANY time you step away from the machine:**

- **Is the cap on the chamber?**
- **Is the chamber pressure <10 torr?**
- **Is the system going to be left at 300 K and zero field at end?**
- **Is MultiVu software running?**
- **Are all tools put away and the benchtop clean for the next user?**

