

## **Laboratory procedures for the M5 AFMs**

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Please either leave your shoes at the door of the lab, or cover your shoes with lab booties. Food and coats are not allowed into the lab. Please open and close the door of the lab quietly; the default position of the door is closed in order to prevent dust entering from the hallway. Some people's voices can be seen in the AFM signal, therefore be aware of the volume of your speech.

### **When starting a new lab session:**

1. Sign the logbook.
2. Turn on printer and video monitor, and open the Data Acquisition program.
3. The previous user should have returned the instrument to its default configuration. The configuration can be read from the top of the Data Acquisition window. It should read "ProScan – HI.SPS INSTR.M5 OFF.EC AFM.HDM AFMSTM.MSW M5\_\*.SC5 GENERIC.BBC." (\* = 3246 for Alpha and 3174 for Beta.) If not, you may need to change the Configure Parts settings in the Setup menu.
4. Under the File Menu in the Data Acquisition program, choose New Session, and select your own directory.
5. Under the Setup Menu, change the Servo Units from nN to Volts.
6. Turn the laser off with the first icon in the top toolbar of the Data Acquisition program.

### **When changing cantilevers:**

1. Raise the scan head fully above the sample or stage.
2. Turn the laser off in the Data Acquisition program.
3. Turn off laser using the switch on the scan head.
4. Remove scan head without knocking it.

### **When changing samples:**

1. Raise the scan head fully above the sample.
2. Move stage. (You may use the "change sample" routine to do both steps 1&2.)
3. Remove sample without knocking the scan head.

### **When finishing a lab session:**

(Please start this procedure ten minutes BEFORE your time is up.)

1. Instrument head:
  - a. Raise scan head fully.

- b. Move stage. (You may use the “change sample” routine to do both steps a&b.)
  - c. Remove sample(s) without knocking the scan head.
  - d. If you want to keep the cantilever, remove it by following the procedure above. Otherwise it belongs to the next person.
  - e. Replace scan head after removing cantilever. Leave cantilever holder in an obvious spot.
  - f. Close hood.
2. Software:
- a. The top of the screen should read “ProScan – HI.SPS INSTR.M5 OFF.EC AFM.HDM AFMSTM.MSW M5\_\*.SC5 GENERIC.BBC.” (\* = 3246 for Alpha and 3174 for Beta.) If it doesn’t, change Configure Parts in the Setup Menu until it does.
  - b. Return any other changes that you made back to default values.
  - c. Ensure that the data you took is in your own directory.
  - d. Delete junk. (Your directory may not exceed 100 MB.)
  - e. Transfer data to your CD-R. (I am not responsible for your backups.)
  - f. Exit all programs.
3. Other components:
- a. Turn off video monitor and printer.
  - b. Leave computer and electronics module on.
  - c. Leave tools in easily visible spot(s).
  - d. Tidy up the lab.
4. Make a comment about the performance of the instrument in the logbook. If you noticed anything unusual about the behavior of the instrument, please note it in the logbook, send me an email, [nab@wpi.edu](mailto:nab@wpi.edu), and leave a note for the next user.

Here are obvious **INCORRECT** laboratory procedures:

1. Drop or knock the scan head.
2. Damage the scanner by being too aggressive with the adjustments.
3. Leave something in the path of the motorized stage.
4. Disregard the instructions on the door of the lab.
5. Put your coffee cup or teacup near the electronics.
6. Put your fingerprints on the monitor screens.
7. Leave your files in other people’s directories.
8. Don’t follow the correct procedures.