

Asylum Research BioAFM Training Protocol

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NEW USERS: Every new user is required to become sufficiently familiar with the equipment to safely characterize dry and wet surfaces with the BioAFM in conjunction with the Nikon inverted optical microscope. These training steps are for all users that are part of a research group at Carnegie Mellon University. Regardless of previous AFM experience, every potential user is required to follow this protocol to ensure sufficient skills to work independently on the Asylum BioAFM.

Step 1: Standard AFM training session with Adam Wise (MSE, Scanning Probe and Facilities Specialist)

- This training will provide each student with hands-on time with the AFM in basic theory, operation, tip mounting/dismounting, alignment, etc.
- Each user must be certified in the use of basic AFM techniques
 1. Basic operation of tip mounting, aligning and AFM setup
 2. Contact mode imaging (air and liquid)
 3. AC (Tapping) Mode imaging (air and liquid)
 4. Force curves (air and/or liquid)
- Session options (Note: prices subject to change):
 1. 2 hour one-on-one training session for \$100 (Recommended)
 2. 3-4 hour training session with multiple students for \$50/hr
 - Note: Users that require additional training in order to pass certification will need to arrange and pay for the additional training.
- Contact Adam Wise in the MSE Characterization Facility to set up training at adamwise@cmu.edu, inform him that you plan to use the Asylum BioAFM located at PTC.

Step 2: BioAFM training

- This training will be designed to provide the user with specific skills to use the Asylum BioAFM. This is designed to build upon the standard training received in Step 1.
- Each new user is required to:
 1. Contact a currently authorized user and coordinate a shadowing session. If you do not know an authorized user, contact Prof Feinberg for a name. This will provide the new user the experience to see the AFM operated by an experienced user and ask questions about the AFM.
 2. Each research group will have a designated superuser responsible for training other members of their group. If your group does not have a superuser yet, contact Prof. Feinberg. The superuser will train you on operation of the BioAFM and all imaging modes including contact, AC and force curves in air and liquid. Additionally, training will be provided on operation of the Nikon inverted fluorescent microscope.
 3. Once the new user has been trained by a superuser, you will be certified to use the BioAFM. Initially this certification will be performed by Prof. Feinberg, but this list will expand. The new user is expected to know how to run the

system, acquire an image in all modes described in Step 2 and then shut down the system. This is not a training session, if the user is unable to complete certification he/she will need to repeat Step 2.

- This training will provide students with individual experience on the BioAFM and the Nikon inverted fluorescence microscope. Trainees are encouraged to bring their own samples for use during training and certification.
- Location: PTC 1410
- Contact Rachelle Palchesko with any additional questions.

TRAINED USERS

Training/Reference Resources

1. PDF manuals are located on the desktop of the AFM computer, feel free to copy these to a flash drive for your use.
2. Asylum Research has extensive online help
 - a. Online Support forum
<https://support.asylumresearch.com/forum/content.php>
 - b. Application Notes
<http://www.asylumresearch.com/Applications/Applications.shtml>
 - c. Published Methods
<http://www.asylumresearch.com/References/Bibliography.shtml>
 - d. Email: support@Asylumresearch.com
 - e. Phone: 888-472-2795, 805-696-6466
3. Contact other certified users. Contact Prof. Feinberg if you need to be placed in contact with a trained user who is proficient in the technique of interest.