

## AFM Imaging Request Form

Requestor: \_\_\_\_\_ PI/Advisor: \_\_\_\_\_

Project: \_\_\_\_\_

### Overview

In order to obtain useful AFM images/data for you, we need to know a little bit about your sample(s) and what kind of data you're interested in. Additionally, you need to be aware of some of the important limitations and considerations associated with acquiring AFM images.

- AFM samples have to be scrupulously clean. This can't be emphasized enough – if you can see even the smallest speck of dirt on your sample, there's even more the AFM will pick up that will almost certainly obscure what you actually want to observe.
- Maximum XY scan range depends on the particular AFM used (ranging from ~90  $\mu\text{m}$  for the Icon down to ~15  $\mu\text{m}$  for the MultiMode).
- XY resolution is limited by the larger of:
  - Probe radius (~2-25 nm depending upon probe type)
  - Pixel size (max of 5120 x 5120 pixels, regardless of scan size in  $\mu\text{m}$ )
- Maximum Z range depends on the particular AFM used (ranging from ~12  $\mu\text{m}$  for the Icon down to ~3  $\mu\text{m}$  for the FastScan and MultiMode).
- To ensure the safety/integrity of data, the SSL computers and associated data are isolated on an internal network and thus not externally accessible via the internet. Thus to obtain your data/images, you will need to come by the SSL with a **virus free** USB flash drive. It is **mandatory** that you run a virus scan on your flash drive in the presence of an SSL staff member before inserting it into any of the computers to protect both your data and that of everyone else who uses the SSL.
- Please plan ahead - if you require rapid turnaround on imaging of your sample(s), you will need to work with SSL staff to make arrangements ahead of time so they can schedule/reserve the necessary equipment and create the time in their schedules to accommodate your request.

### Sample Considerations

1. Are there any hazards associated with the materials/composition of your sample?
2. How was your sample prepared and cleaned?
3. Can we clean the sample further if necessary? If so, how (e.g., UHP  $\text{N}_2$  gas,  $\text{CO}_2$  "snow" cleaning, ultrapure water, soap and water, alcohols, ketones, ...)?
4. Are there any special handling considerations for your sample?

5. When will you be coming to collect your sample (e.g., within 1 week, 2 weeks, 1 month)?

## Imaging Needs

1. Number of images with desired XY Scan size (in  $\mu\text{m}$ ) and lateral image resolution (in nm). Note limitations above.
2. Expected height/Z range (in nm or  $\mu\text{m}$ ). Note limitations above.
3. Naming convention to be used for data. Include both an informative filename and a logical file directory structure for organization of data by project and sample type (**not** your name) for ease of future reference/long term data storage and management requirements.
4. Type(s) of data needed (e.g., height/topography, surface roughness, conductivity, surface potential, etc.).
5. Do you have any literature references showing similar samples/images? If so, please attach them.
6. How soon do you need your sample(s) imaged (e.g., next few days, 1 week, 2 weeks, etc.)?
7. How do you want to receive the data (e.g., email, network drive, bring a flash drive, etc.)?
8. If you want us to carry out image processing and data analysis, please indicate what you need (e.g., raw images, tabular numerical results, journal quality images, summary report, etc.).

## Acknowledgment of the SSL

All written publications (e.g., posters, papers, conference proceedings) and oral presentations that utilize primary and/or secondary data obtained using the equipment housed in the SSL should acknowledge the SSL and **include the make(s) and model(s) of instrumentation employed**.<sup>1</sup> The SSL staff can assist you in crafting an appropriate experimental description. Depending upon the extent of involvement, we ask that you also consider including as co-authors SSL staff members if they contribute significantly to a project. By signing below, you acknowledge that you have read and agree to abide by the above as well as the **SSL Use Request Form** and **Fee Schedule**, which are incorporated herein by reference.

User Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Advisor Signature: \_\_\_\_\_

Date: \_\_\_\_\_

<sup>1</sup> Examples of primary data include AFM data channel images or force curves. Secondary data include plots derived from the results of image or data analysis.