

# Scanning Probe Microscopy (SPM-AFM) Facility Rules

## Access and Training

According to the level of expertise, two levels of access may be granted to users:

- 1. Untrained users** – they will be assisted by expert personnel either on collaborative projects or by fee-paying assisted service. Users in training are considered untrained until formal written approval from the instrument supervisor.
- 2. Trained users** – the access privileges will be granted after an adequate training on instrument and explanation of adequate background knowledge. Certification will be provided in writing by the instrument supervisors. The trained user can have direct access to on-line booking, and will be able to use the instrumentation without assistance. The qualification of trained user is strictly personal and will be certified by the instrument supervisor.

The **trained user** maintains an **active access status** provided, in the case of minimum utilization of the instrument at least one time every 6 months. Fully trained users, who did not maintain **active** their **access status**, require a supplementary training to reactivate their privileges. This ensures that every user owns a continuous and updated knowledge of the instrument features.

It is in the interest of all users to respect the rules and treat the instruments with the highest care to ensure ongoing access to state-of-the-art scanning electron microscopy. Access privileges may be revoked if the rules defined in this document are not strictly adhered to.

## Instrument Booking (<http://w3.uniroma1.it/sapienzanano/index.php?main=laborat>)

### Untrained users:

The availability of the instrument can be checked on the on-line scheduling system and the booking can be made by contacting the instrument supervisor. The slots for standard book time are: 09:00-12:00 and 14:00-17:00, from Monday to Friday. In the case of a requested assisted service, a fee will be applied to the user.

### Trained users:

- Access time may be on-line reserved and scheduled only when the technical assistance is not needed.
- If technical assistance is needed, it is required to coordinate in advance your booking together with the instrument supervisor.
- Once a booking has been finalized, cancellation or modification can be made only by the instrument supervisor.
- Reservations must be made at least 24 hours in advance. Fees are charged for the reserved time, when changes and cancellations are made less than 24 hours before the booked time, even if the instrument time is not used.
- Maximum booking time directly reserved is 4 hours/day. This can be extended for long experiments at the discretion of the instrument supervisor.

- Trained users who operate the instrument without assistance are responsible for any damage to the instrumentation. Any malfunction must be noted on the Log-Book and immediately notified to the instrument supervisor. If the damage responsibility cannot be ascertained, the reparation costs will be charged proportionally to the using time of previous users after the last efficiency control done by the supervisor.

## Training guidelines and access

### **Bruker Dimension ICON with Nanoscope V Controller (former-Veeco)**

Dimension ICON is a last-generation Scanning Probe Microscope, guaranteeing very high resolution. The optimal reproducibility in X-Y positioning, the low noise level and drift allow to explore the surface characteristics of wide area samples (up to 180 mm x 150 mm). The high efficiency electronics allows acquisition of high pixel-density images (up to 5120x5120) and the local measurement of the surface elastic constant (*Harmonix* registered system). The instrument can operate only at room temperature.

### **Bruker Multimode with Nanoscope III Controller (former-Veeco)**

Multimode with Nanoscope III guarantees the same resolution of Dimension Icon, with a limitation on the sample surface area (max diameter approximately 15mm) and the instrument does not operate with the *Harmonix* system for the measurement of mechanical properties. However, it is equipped with a very efficient thermostatic system (between -35 and +250 °C) and with a system for electrochemical measurements (bipotentiostat).

Training to obtain the qualification of “trained user” is runned under the supervision of either the instrument supervisor or a Bruker technician. Training requires about 2-5 days, depending on the operation modes that will be used, and it will be done each time for a group of 4-5 people.

Assistance for the data interpretation and to the run of complex experiments can be given by expert users, on the basis of collaborative work.

Booking must be done on the basis of the user status (see **Access and Training**) and can be done on-line (<http://www.xxxx>).

Manuals and procedures are available in pdf format in the computers associated to the microscopes, and can be sent under request.

## **Log Book**

Each user will fill the log-book associated to each instrument with the following information:

1. name of the operator and of the other components of the group present in the laboratory for the experiment;
2. actual using time;
3. samples number and kind, with short description and possible support;
4. using mode (*contact, non contact, electric force, TUNA, Harmonix, etc.*) scanner and possible accessories to be used;
5. tip number and kind (even if own property); any observation on possible problems,

malfunctions, suggestions, etc.

### **Sample Preparation**

Upon booking, users must give a short description of the samples. Laboratory and/or instrument supervisors may ask supplementary information, if needed. If the samples present specific risks for the personnell/instrument security and/or safety, access may be denied.

Assistance for the sample preparation may be given, on request.

### **Data Storage**

Users will archive their data in a specific and clearly identifiable folder (for example named with their names, group name) within the DATI folder. Files archived elsewhere can be deleted without notice. The user data folders will be anyway periodically emptied every six months.

### **Publications**

Publication of data taken at the SSN-Lab must explicitly mention the Laboratory.

### **Fees**

The fees reported on the Laboratory web site refer to both internal and external SNN-Lab users.

Reduced fees for external users may be applied on the basis of relevant projects in the field of nanoscience and nanotechnology.

Fee may be changed.