

# Materials Characterization Facility

## General rules

### General information

The Materials Characterization Facility (MCF) consists of 4 different laboratories, each with its manager as the responsible, namely: Mirko Prato for XPS Lab (and Facility Coordinator), Sergio Marras for XRD Lab, Marco Salerno for SPM Lab, Luca Ceseracciu for Mech Lab.

Prior to access any laboratory, users must read these rules and the specific laboratory ones and affix their signature indicating that they agree to abide by them.

Users violating any of the facility rules may lose their facility access rights.

More information can be found on the [Facility website](#). Reservations and requests for training or service are processed through the [iLab Core Management system](#)

### Access Eligibility

All IIT staff, collaborators and students are eligible to use the MCF. Users external to IIT may request for service measurements or be allowed to use the facility at the discretion of the MCF personnel. Similarly, access can be granted to industrial partners, whenever contractually agreed.

To access all the services, users must log in on the [iLab Core Management system](#) with their IIT credentials when applicable, or with iLab credentials, if external users.

### Training

The use of any instrument without the established training procedures is forbidden. Requests for training can be submitted on the [iLab Core Management system](#). For first training session, users must coordinate with the laboratory responsible for the choice of the sample on which the training will be performed. Once training has been completed and the lab responsible is positive that a user can work responsibly without supervision, system access rights and booking rights will be granted. Note: users that will not acquire the needed basic skills to operate an instrument during the offered training sessions will not gain access and booking rights.

Users are prohibited from training other users. Only facility personnel are authorized to provide training to new users.

### Health, Safety and Environment

During the first training session, users will be also informed/trained on the specific health, safety and environment risks of the laboratory according to IIT ISO 14001:2004.

- None of the Facility Labs is equipped for safe chemical processing. No chemical work more than rinsing or brushing with DI water or Ethanol and should be performed in the Facility Labs. Acetone can be used only under the fume hood located in the room of Requirement.
- All solid contaminated waste must be disposed of in the yellow bioboxes, available in all laboratories. Sharp objects (e.g. glass slides, silicon wafers, scalpels) must be disposed of in the Yellow/red sharp waste container. For liquid contaminated waste, please refer to the Facility staff.
- Non contaminated waste must be disposed of in the recycling containers located in the corridor.
- If you notice water on the floor leave the laboratory immediately and alert the Facility Staff.
- In case of alarms beeping (especially oxygen sensors), leave the Lab immediately and alert the Facility Staff.
- In case of any equipment failure or malfunctioning, users shall never try to fix the issues but inform immediately the Lab manager.
- No food or beverages are permitted in the laboratory.

- The use of any device that would prevent you from hearing an alarm (e.g. headphones) is forbidden.
- Desktops, devices, spaces and instruments used have to be always left clean and tidy.
- An emergency numbers list can be found affixed close to the phones and on the Lab doors.
- Always label samples with clarity. Remove samples from the instruments and workbench. All samples unattended will be disposed of.

### ICT rules

- Users must copy their data from the PC controlling the instrument at the end of the session.
- Users are solely responsible for the preservation and security of data collected. We do not guarantee that data will be backed up and safe from deletion and we do not guarantee that others cannot access and copy data of other users.
- The local data will be periodically deleted to save disk space.
- No software of any kind can be installed on the Lab computers without authorization.

### Booking policy

MCF includes both open access instruments and instruments run only by facility staff.

Sessions on the open access instruments can be booked on the [online system](#) under the SCHEDULE EQUIPMENT tab. There are booking limits for each instrument, detailed in the table below. If users require additional sessions, they must contact the laboratory manager, who will grant them if available.

For cancellation policy refer to the specific laboratory rules.

Instrument	Session duration	Max booked hours	lab opening hours		persons in charge
XRD PANalytical	1 h	4*	9.00 – 17.00*	max 3 sessions/day	S. Marras (+ L. Pasquale)
AFM Park	1 h	8	8.00 – 17.00	max 3 sessions / day	M. Salerno
AFM AR	1 h	12	8.00 – 17.00	max 3 sessions / day	M. Salerno
AFM JPK	2 h	12	8.00 – 17.00	max 3 sessions / day	M. Salerno
Profilometer AMBIOS	0.5 h	8	8.00 – 17.00	max 3 sessions / day	M. Salerno
Profilometer ZETA	0.5 h	4	8.00 – 17.00	max 4 sessions / day	M. Salerno
Instron testing machine	1 h	8	9.00 – 17.00		L. Ceseracciu
DMA Q800	2 h	--	9.00 – 17.00		L. Ceseracciu
CSM indentation platform	1 h	--	9.00 – 17.00		L. Ceseracciu

\*in addition to the 4 sessions/week, each user could also book one overnight session/week (corresponding to a 15 hours session from 17.30 to 8.30)

Activities on the other instruments (see list below) can be requested on the [online system](#) under the REQUEST SERVICES tab. The lab responsible will take care in booking the requested instrument for the specific requested activity and will run data acquisition accordingly.

instrument	Typical measurement	person in charge
XPS Kratos	Surface chemistry	M. Prato
XRD Rigaku	Crystalline phases	S. Marras
Micromaterials Nanotest	Nanoindentation	L. Ceseracciu
Deben uniaxial stage	Cyclic mechanical measurement	L. Ceseracciu

### Out-of-hours access

Use of instruments out of the core hours is permitted exceptionally upon authorization of the lab responsible, who will grant it on a case-by-case base.

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### **Acknowledgements/Authorship Policy**

Any papers incorporating data acquired or analyzed in the MCF must acknowledge the use of the MCF. Please include a statement in the acknowledgements section, such as “We thank the Materials Characterization Facility at the Fondazione Istituto Italiano di Tecnologia for help with [characterization]”. When you publish a paper incorporating data acquired at the MCF, please send either a reprint of the paper or the complete citation of the paper to the facility coordinator ([mirko.prato@iit.it](mailto:mirko.prato@iit.it)). Occasionally the MCF staff may become substantially involved in experimental design, data acquisition, or data analysis meriting co-authorship. In general, ordinary training and assistance with instruments does not merit co-authorship. However, in cases where there was a substantial contribution in the project development, both the user and staff should consider whether this merits co-authorship.