

## **JOB ADVERTISEMENT** **AREA Science Park, Trieste, Italy**

We are seeking for highly motivated scientists with proven experience in Transmission Electron Microscopy to work at LAME (Laboratorio di Microscopia Elettronica) in the newly establishing world-class Electron Microscopy Center at Area Science Park in Trieste (Italy).

Valuable research associates will be given the opportunity to work in an international and multidisciplinary environment to perform cutting-edge research and be involved in competitive research projects in the area of electron microscopy applied to materials science. They will also contribute to instrumentation development for correlative approaches between different instrumental techniques, including the design of advanced sample preparation methods for electron microscopy and devices for in-situ/in-operando analysis on different instrumentation and their transfer through multiple environments.

Prior experience in TEM/STEM characterization of nanostructured systems is required. Knowledge on EELS, 4DSTEM, data analysis and simulation of TEM/STEM images, and on in-situ TEM/STEM/SEM experiments will be most positively valued. The successful candidate will work at the experimental activities concerning characterisation by scanning and transmission electron microscopy of nanostructured materials in strong connection with the research groups devoted to thin films growth and synchrotron-based advanced electronic characterization operational within the AREA Science Park campus in Basovizza.

**Applicants are encouraged to contact Dr. Regina Ciancio – Head of LAME - (preferably as soon as possible) for further information about the available positions and perspectives ([regina.ciancio@areasciencepark.it](mailto:regina.ciancio@areasciencepark.it)). A first round of interviews will be scheduled for expression of interests sent by email by May 10th.**

### **DESCRIPTION OF LAME**

The Electron Microscopy Center (LAME, Laboratorio di Microscopia Elettronica) at AREA Science Park in Trieste has formally established in 2022 and focuses its activities on the advanced characterization of materials, as part of the Innovative Materials Platform. Here a list of some of instrumentation now in course of installation:


- a JEM F200 TEM/STEM (cold FEG) equipped for
  - advanced chemical analysis,
  - double EDX and EELS,
  - tomography and in-situ applications
- a Tescan Amber X Plasma FIB-SEM for:
  - high-end in situ lamellae preparation,
  - advanced slice and view (including sample transfer)
  - optimized for in situ batteries device shaping and characterization with HTofSIMS
- a JEOL Grand Arm 300 KV (cold FEG), state-of-the art double corrected TEM/STEM microscope equipped for:
  - low dose TEM and STEM imaging modes;
  - phase contrast methods in TEM and STEM, including techniques based on 4D STEM;
  - optimized bright field imaging and DPC for visualization of light elements (e.g. Li);
  - advanced chemical analyses by double EDX with wide collection angle;
  - high resolution EELS spectroscopy coupled to a hybrid pixelated detector for low background noise spectroscopy and measurements at high energy range;
  - advanced data analysis based on open-source python-based packages.

The main research activities at LAME are:

#### **AREA SCIENCE PARK**

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- Advanced analysis of materials using TEM instrumentation capable of carrying out nanostructural analyzes using a corrected probe up to sub-Angstrom resolution and electron loss energy spectroscopy up to resolution lower than 300meV;
- Fine analysis of materials using TEM instrumentation capable of carrying out high resolution TEM and STEM analyses, tomographic and chemical compositional analyses;
- Nanomanipulation, growth of nanostructures and in-situ preparation of lamellae for TEM microscopy using dual beam focused technology (Dual Beam FIB-SEM);
- Morphological and chemical-compositional analysis of materials by scanning electron microscopy (SEM);
- In-situ/In-operando TEM/SEM analysis of transient states inside materials such as structural transitions, effects of corrosive processes, etc.

LAME is currently part of research national and EU programs and works in close collaboration with the academic and industrial world as well as with national and international bodies, providing open access to electron microscopy laboratories also in combination with other instrumentation. LAME is deeply involved in the IMPRESS project (coordinator Regina Ciancio) which aims to revolutionize the field of electron microscopy. For more info about the IMPRESS project, please go to: [www.e-impres.eu](http://www.e-impres.eu) or follow the IMPRESS [LinkedIn page](#).