We offer a very wide range of scientific services for advanced preparation and characterization of materials, which are open to interested parties whether these are academic or from industry, and participate in all kind of educational and promotional activities.

ICMAB EXCELENCIA SEVERO OCHOA
INSTITUT DE CIÈNCIA DE MATERIALS DE BARCELONA

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Scientific & Technical Services

Institut de Ciència de Materials de Barcelona

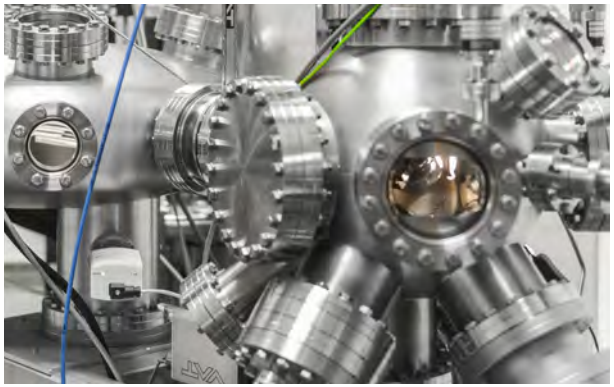
PREPARATION OF MATERIALS

Thin Films

The Laboratory of Thin Films allows the fabrication of complex oxides thin films by pulsed laser deposition (PLD) with/without real time growth by Reflection High Energy Electrons Diffraction (RHEED), and the growth of metals and alloys by magnetron sputtering.

Molecular Beam Epitaxy

Preparation of high quality crystalline epitaxial heterostructures based on type IV semiconductors. Growth characterization in-situ by Reflection High Energy Electrons Diffraction (RHEED).



CHARACTERIZATION OF MATERIALS

Atomic Force Microscopy

Investigation of structural and functional properties of material surfaces at the nanoscale, through advanced atomic force microscopy techniques (such as AFM, FFM, C-AFM, KPFM, PFM, MFM, etc).

Electron Microscopy (TEM/SEM)

Characterization of surface morphology of materials. Chemical and morphological analysis of nanocrystals and multicomponent nanostructured materials. Structural characterization by electron diffraction and TEM images.

Low Temperatures and Magnetometry

Electronic transport properties and magnetic characterization of materials as a function of temperature and magnetic field.

Spectroscopy Techniques

The techniques available are Fourier-Transform Infrared (FT-IR), Ultraviolet Visible Near Infrared (UV-Vis-NIR) and Electron Paramagnetic Resonance (EPR) Spectroscopies.

X-ray Diffraction

Qualitative and quantitative analysis of crystalline phases. Texture and stress determination in thin layers. Microstructural studies. Powder diffraction measurements on capillaries for identification purposes and microdiffraction studies. Determination of crystal structures from powder X-ray diffraction data.

Thermal Analysis

The Thermal Analysis and Surface Area Analysis Service is used for the study of the behavior of materials when temperature changes under different conditions and atmospheres, and for studies of surface area and porosity. The Service allows for simultaneous thermogravimetric analysis (TGA- DSC/DTA), differential scanning calorimetry (DSC), as well as Physical Adsorption Analysis (BET).

PREPARATION AND CHARACTERIZATION OF MATERIALS

Nanostructuration Platform-Nanoquim

A 200 m^2 clean room facility with restrictive temperature and humidity control (10000 class) devoted to advanced optical lithography and characterization methodologies at the nanoscale. Physico-chemical characterization of solutions. Chemical synthesis of nanomaterials, nanofabrication and growth of ultra thin films and nanostructures.

Soft Materials

The Soft Materials Service provides equipment and technical assistance for the preparation and characterization of micro and nanostructured soft molecular materials (molecular surfaces, micro and nanoparticulate molecular materials, plastic films, dispersed systems, SAMs, etc..) with interest in different areas of application (biomedicine, electronics, energy storage and other chemical and material application areas).

Bioservice

The Bioservice Platform assists users to carry out biological studies, from the evaluation in relevant media to the assessment in vitro with cells and bacteria, of materials and devices developed. We operate in a Biosafety Level 2 laboratory.