

Scanning electron microscope equipped with ion gun (SEM/FIB)



Technical description:

The Quanta 3D 200i dual beam (SEM/FIB) microscope is a device dedicated to the preparation of thin films for TEM/STEM research. The instrument is equipped with two guns: electron (tungsten filament) and ion (Ga^+), a system of precise dosing of working gases (GIS) for the deposition of Pt/W and a micromanipulator (Omniprobe) for thin sample transfer. The microscope enables the preparation of thin lamellae from the majority of existing engineering materials (metals, alloys, ceramics, polymers, composites, coatings), from a place in the sample selected with an accuracy of several micrometers. The microscope is also equipped with an Energy Dispersive X-ray Spectrometer (EDS) and an Electron Backscattered Diffraction (EBSD) detector.

The microscope is characterized by the following operating parameters:

- electron source - W filament

- accelerating voltage (electrons) - 0.5-30 kV
- accelerating voltage (ions) - 2-30 kV
- ion beam currents - 1.5 pA - 65 nA
- detectors: LFD, GSED, SS STEM, Low kv SS BSED
- micromanipulator: Omniprobe Model 100.7
- GIS W

Trade name: Quanta 3D 200i FIB/SEM (FEI)

More details: </equipment/skaningowy-mikroskop-elektronowy-z-dziaem-jonowym/>

Access type: External

Type of accreditation / certificate: Not applicable

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Responsible body: Academic Centre for Materials and Nanotechnology

Group / laboratory / team: Department of Materials Engineering

Last update date: March 10, 2025, 1:37 p.m.

Year of commissioning: 2013

IDUB research areas:

(PRA 5) Materials, technologies, and processes inspired by nature: biotechnology, bioinspirations in engineering and materials science, biosensors, bioenergetics, biocatalysis, biocomputers, and biocomputation

(PRA 7) Design, production, and testing of modern materials and the technologies of the future based on a multidisciplinary approach combining materials engineering with chemistry, physics, mathematics, and medicine

Research capabilities:

Preparation of thin lamellae for TEM/STEM investigation.

Imaging using secondary (SE) and backscattered (BSE) electrons detectors.

EDS analysis of chemical composition.

EBSD analysis of crystallographic orientation distribution

Conditions for providing infrastructure:

Equipment is available in accordance with the Regulations for the Use of ACMiN's Research Infrastructure. (https://acmin.agh.edu.pl/home/acmin/5_Wspolpraca/Aparatura/Zasady_i_koszty_korzystania_z_infrastruktury_badawczej_ACMiN.pdf)