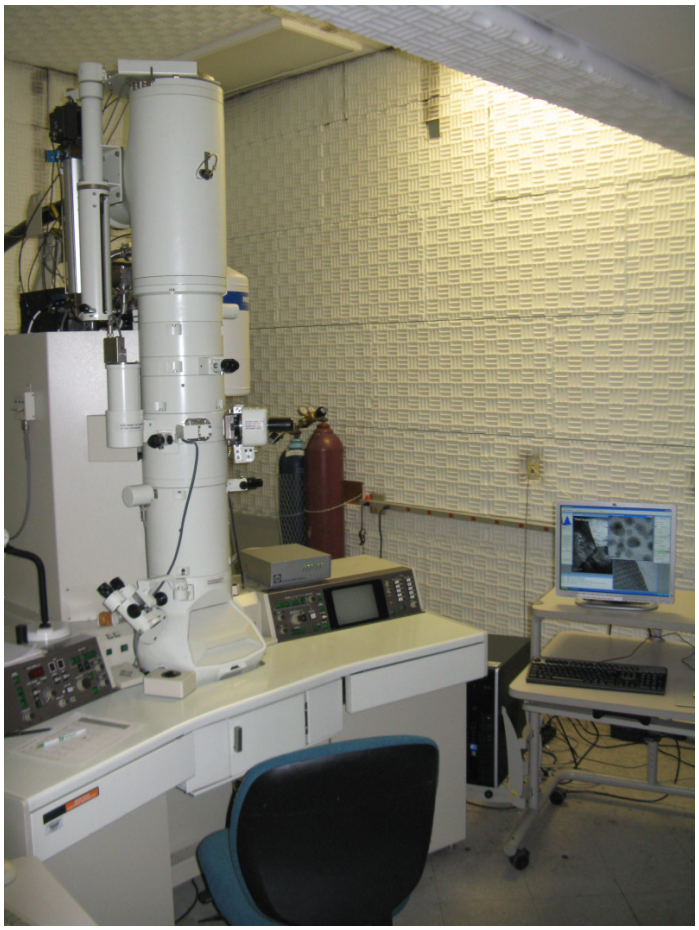
JEOL JEM-3010

Materials Science Transmission Electron Microscope

Location: Science and Engineering South, 116C



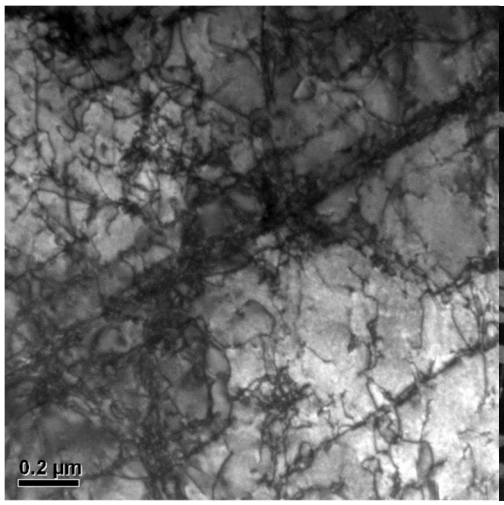
Description

The Materials Science TEM, the JEM-3010, is a 300kV transmission electron microscope with a LaB6 electron source, installed in 1998. It is fitted with an ultra-high resolution pole piece (C_s=0.6mm).

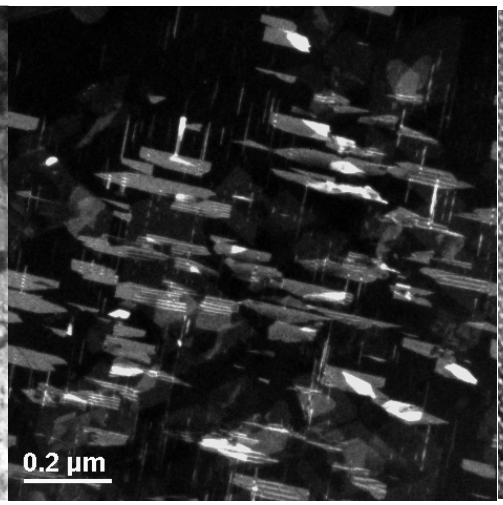
Images are collected using a Gatan Orius SC200 CCD camera (2K x 2K) with a Windows XP computer running Digital Micrograph software. This camera is capable of recoding in-situ events at TV rate as well as high-resolution images.

The microscope is also fitted with a Thermo Noran Vantage XEDS system with an atmospheric thin window X-ray detector.

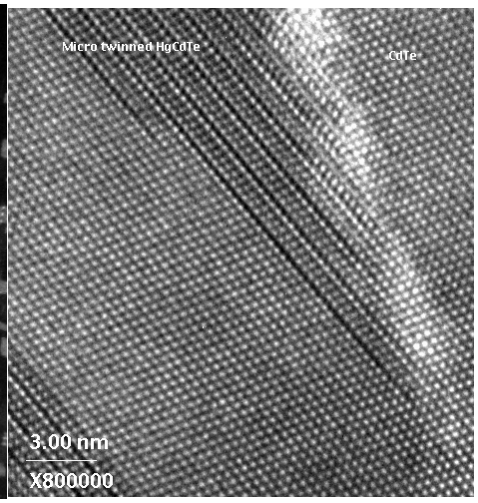
In addition to the standard holders, Double Tilt Heating (1000°C), Double Tilt Cooling (-170°C), STM-TEM, Double Tilt Electrothermal (1200°C), Vacuum Transfer and Single Tilt Tomography (+/- 70 deg) holders are available for this microscope.



Dislocations in Steel



Dark field image of Al_3Li precipitates in a aluminum-lithium alloy



Microtwining near a HgCdTe/CdTe interface in.

JEOL JEM-3010

Technical Specifications

- Resolution: 0.14nm lattice, 0.17nm point-to-point.
- Accelerating Voltage: 100, 150, 200, 250, 300kV.
- Objective lens: focal length 2.5mm, Cs 0.6mm, Cc 1.3mm, minimum focus step 1nm.
- Spot Size: TEM mode 200~20nm dia (5 steps), EDS/NBD/CBD mode 25~1.0nm (8 steps).
- Magnification Range: 4,000x - 1,500,000x.
- Camera length range: 120 - 3,000mm.
- Specimen Tilt range +/-20 degrees (X & Y).
- Specimen movement: 2mm (X,Y), 0.2mm (Z)