



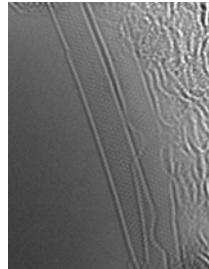
The new center is one of the largest microscopy facilities all over Europe and our goal is to achieve internationally high level research facility, where one can characterize materials down to **molecular and atomic resolution**. The center infrastructure will consist of various microscopy apparatuses for **soft, hard and biomaterials** characterization.

Additionally center will host **X-ray scattering** apparatuses with high brilliance microfocus rotating anode. 1) small-angle X-ray scattering apparatus, which is ideal for investigating materials that contain periodic structures from 1 nm up to 250 nm. 2) New high brilliance medium and wide angle scattering apparatus (MAXS/WAXS) is under installation to be completed 2008.

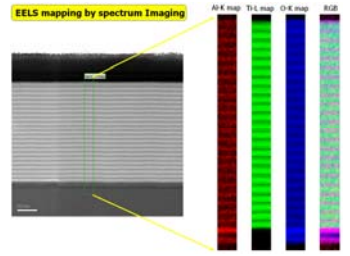
**JEOL JEM-2200FS TEM with double Cs correctors:  
Installation 3/2009**



- Probe Cs corrector + image Cs corrector
- Digital STEM unit
- EDS spectroscopy
- Three working high-voltages (80, 160, 200 kV)
- In-column energy filter (EELS/EFTEM)
- Double-tilt specimen holder  $\pm 35/ \pm 30^\circ$  (X/Y)
- Drift compensated by piezo motors
- TEM/STEM resolution up to 0.1 nm



Cs-corrected HRTEM image of SWCNTs

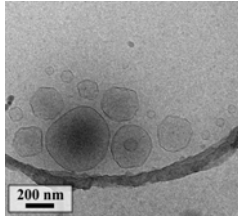


Cs-corrected STEM image with elemental analysis by EELS/EFTEM

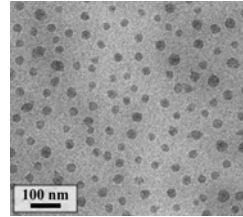
**JEOL JEM-3200FSC Liquid helium Cryo-TEM  
Installation 3/2009**



- Operation at liquid helium or liquid nitrogen temperatures.
- Lattice resolution 0.20 nm at 18 K/RT
- Energy resolution in image 20 eV
- Energy resolution in spectrum 0.9 eV
- Field-emission electron source
- Magnification 100-1,200,000X



Cryo-TEM micrograph of multilamellar liposomes in vitrified ice matrix.



Cryo-TEM micrograph of self-assembled triblock copolymer hydrogel sample.

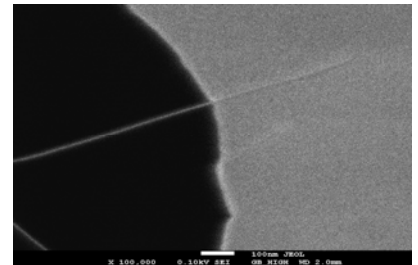


Electron diffraction analysis of modulated structure in YBaCo<sub>4</sub>O<sub>7+δ</sub>

**JEOL JSM-7500F Scanning Electron Microscope**



- Highest resolution at the lowest kV of any SEM available
- Resolution of 1.4 nm at 1 kV ; 0.6 nm at 30 kV
- Image Automation
- 5 axis motor stage control with specimen movement protection
- Samples up to 200 mm in diameter x 10 mm height.



SEM image of SWCNTs at extremely low voltage of 100V

**Veeco Dimension 5000 SPM**



- Designed for semiconductor imaging.
- Capable of loading samples up to 350 mm in diameter.
- Large scanning area ~90 x 90 um.
- Automatic measurement for up to 100 pre-selected areas.
- High pixel-density image capture 5120 x 5120 points.

**Veeco MultiMode SPM**

- Equipped with heating and cooling stages -30...250 °C.
- Contact mode liquid cell.



**FEI Tecnai 12 G<sup>2</sup> BioTWIN TEM**

- High-contrast
- Low-dose observation and imaging
- Tomography
- Versatile sample holders (double-/single-tilt, *in situ* cryo-/heating)

**Professional sample preparation tools**

