



JEOL 2100 LaB₆ TEM

- Magnetic measurements
- Mechanical properties
- Biological materials
- Special stages and manipulators



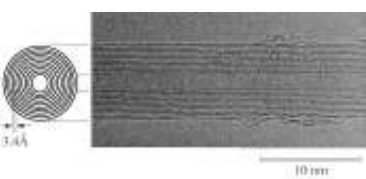
JEOL 2100F field emission TEM

- High resolution imaging
- Composition analysis (EDS and EELS) from areas of a few nanometers

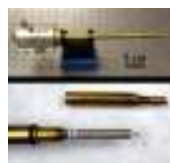


JEOL 8900 SuperProbe

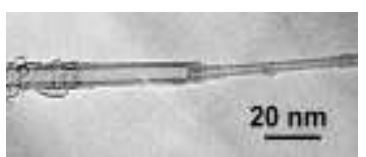
- High accuracy composition analysis
- EDS and WDS Spectrometers



Multiwalled C-nanotube

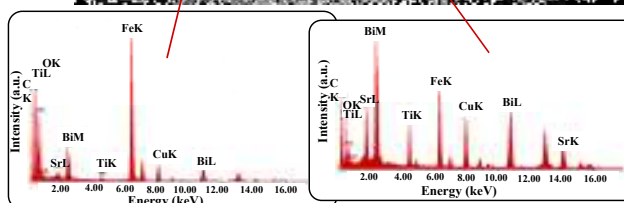


Manipulator stage

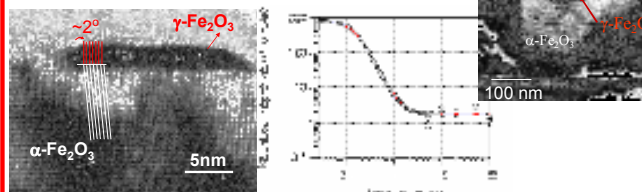


Telescoping C-nanotubes

The inner walls of a C-nanotube are pulled out by an AFM tip (left image) built in the custom-made sample manipulator. The nanotube returns to its original shape when the external force applied is below a critical value (right schematic).

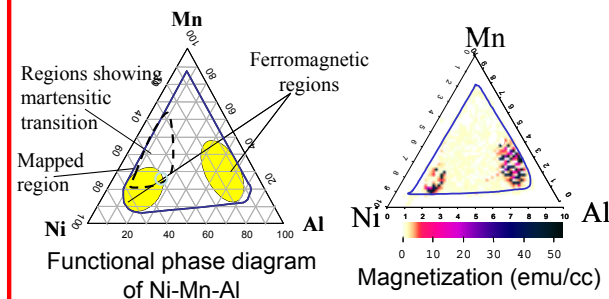
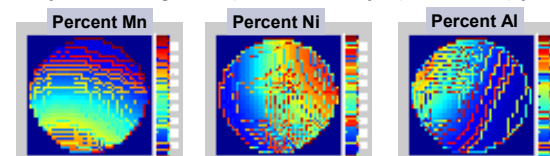


BiFeO₃ films grown by Pulsed laser deposition (supported by NSF MRSEC). Diffraction pattern on top left shows coexistence of second phase identified as α -Fe₂O₃ from EDS spectra (bottom)



Two phases observed in DP with different comp. Magnetic properties result from nanodomains of γ -Fe₂O₃ embedded in α -Fe₂O₃

Elemental maps of a combinatorial library of Ni-Mn-Al film deposited on a 3" Si wafer by magnetron sputtering. The maps were obtained by wavelength dispersive X-ray spectroscopy



Ni₂MnAl is a known ferromagnetic shape memory alloy (FSMA). The composition spread was designed to map a large region of the Ni-Mn-Al phase diagram in order to search for new FSMA's. WDS is used in conjunction with a scanning SQUID and a novel optical measurement system to form a functional phase diagram to identify new FSMA's.