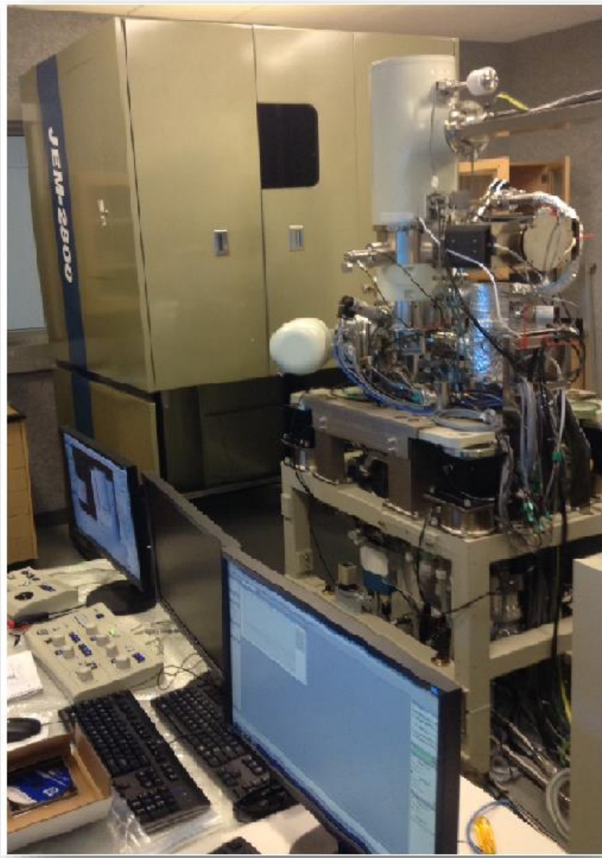


Jeol JEM-2800 Transmission Electron Microscope

The JEM-2800 is a high throughput nano-analysis TEM with automated functions

Operation Modes:
- TEM
- STEM
- SEM imaging capabilities

Electron Gun
- Schottky-Type Electron Gun
- Accelerating voltage: 100kV-200kV

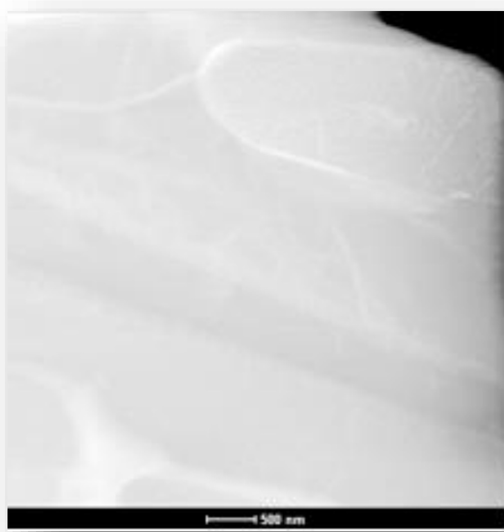
EDX
- Energy-Dispersive X-ray Spectrometer
- Dual Detector

STEM Features and Applications

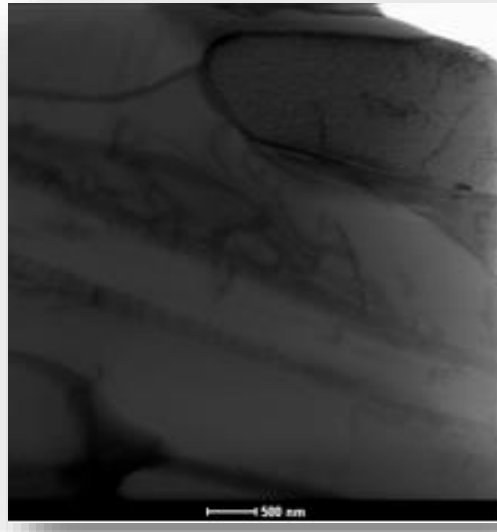
Magnification (on 24-inch wide LCD)

- SEM (Mag) 100 to 150,000,000x
- STEM (Mag) 100 to 150,000,000x
- TEM (Mag) 500 to 20,000,000x

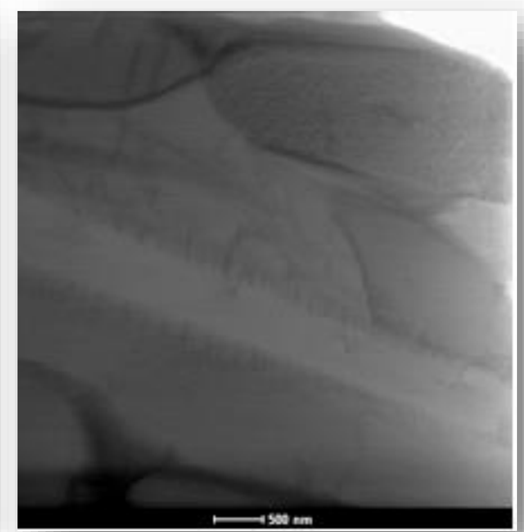
A titanium-aluminum-vanadium alloy sample from Koopman/Fang group



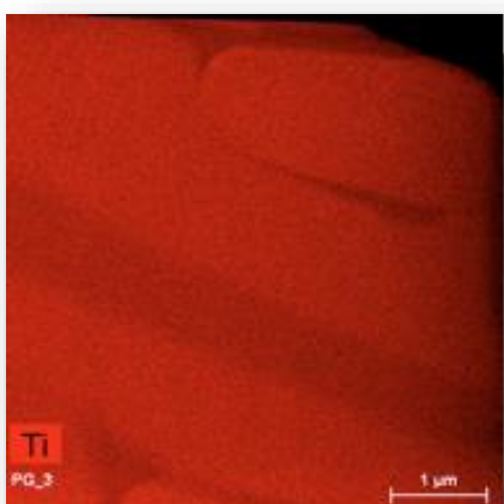
Bright Field Image shows thickness variation

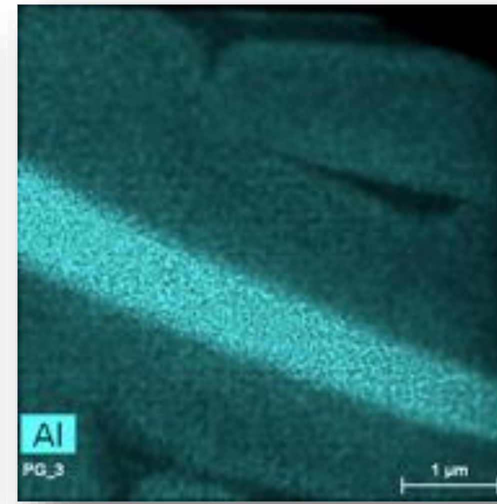


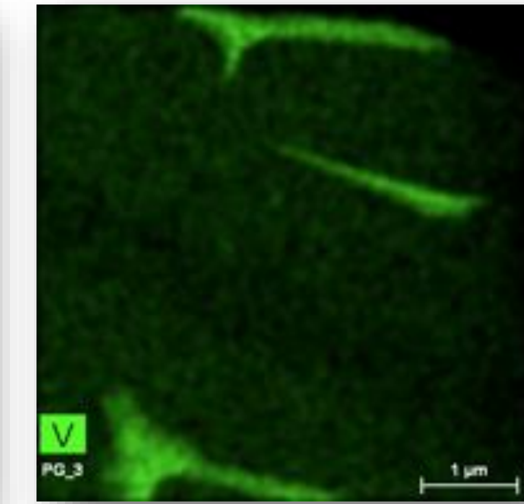
HAADF shows Z or elemental contrast



Dark field shows lattice mismatch

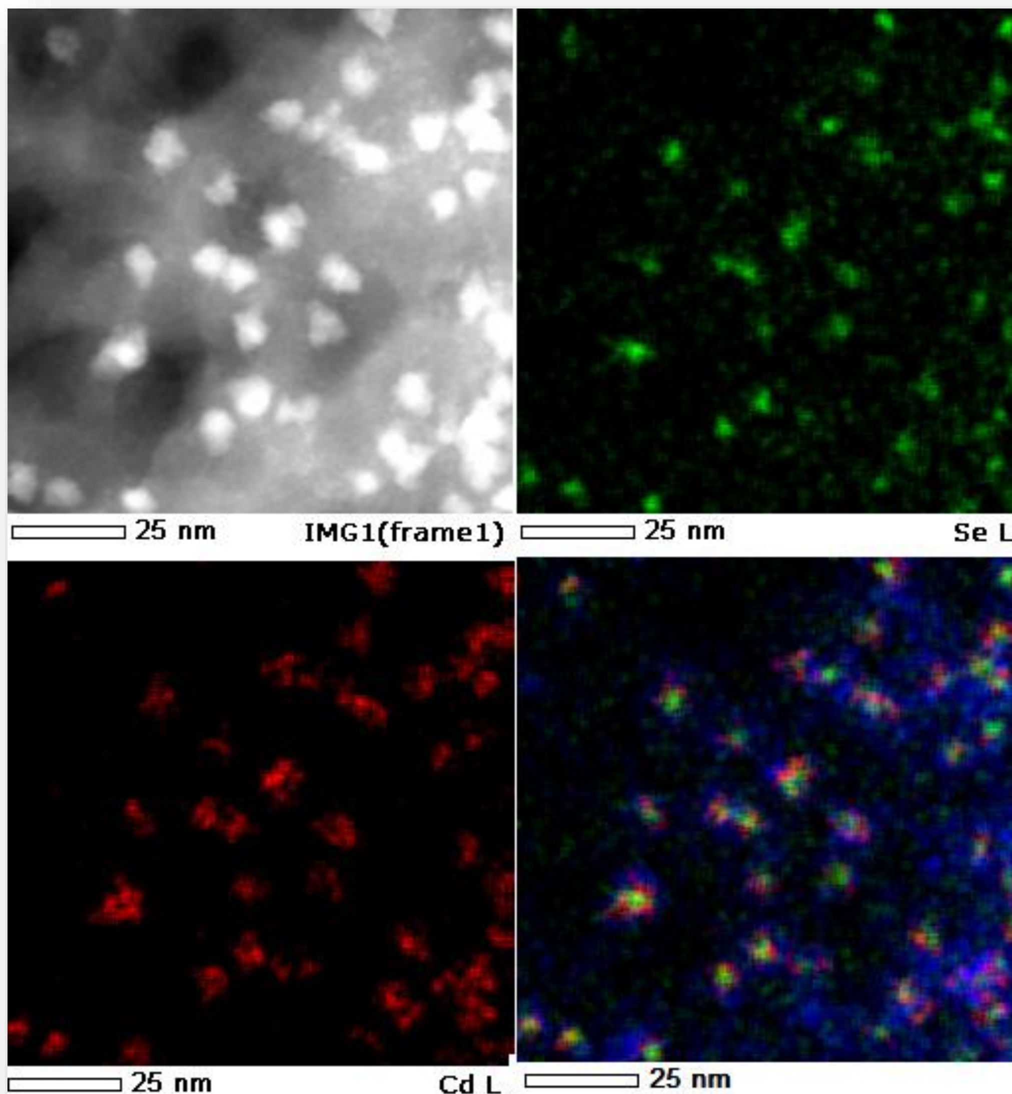






Elemental Mapping of the Alloy sample

CdSe/ZnS core shell nanoparticles from Marc Porter Group



Dark field image of nano particles (top left). There is a particle at the lower left that clearly has Se as a core and Cd as a shell, this most clearly shows up in the overlay composite image (bottom right). Note that the full width of these maps would be smaller than a single typical pixel acquired with a SEM based elemental map.

This is a calibration sample provided by the JEOL service engineers. Shown are the silicon lattice and then an even high resolution image showing the dumbbell structure of the lattice. Literature values for the dumbbell separation are 136 pm (.136 nm 1.36 A).