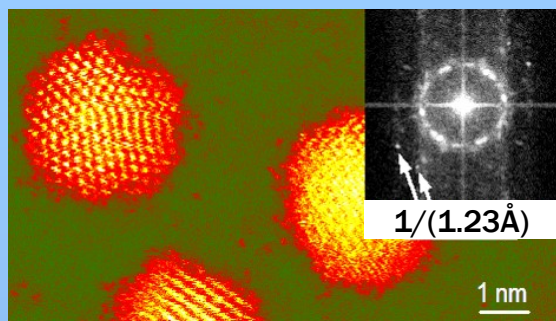


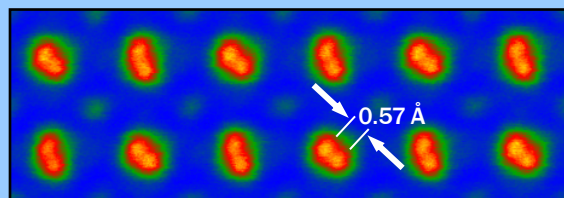


# tools for tomorrow™ UltraSTEM 200™

## High Spatial Resolution Imaging and Elemental Mapping

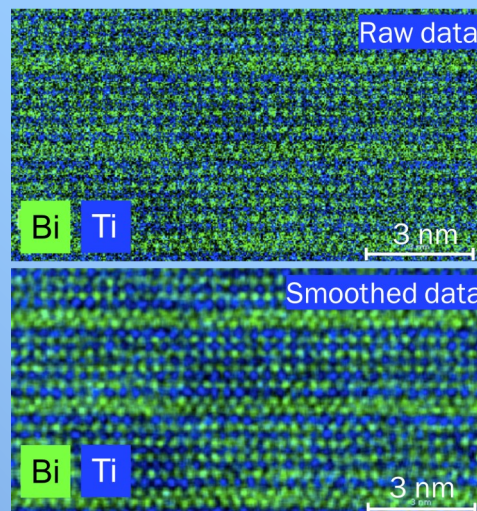
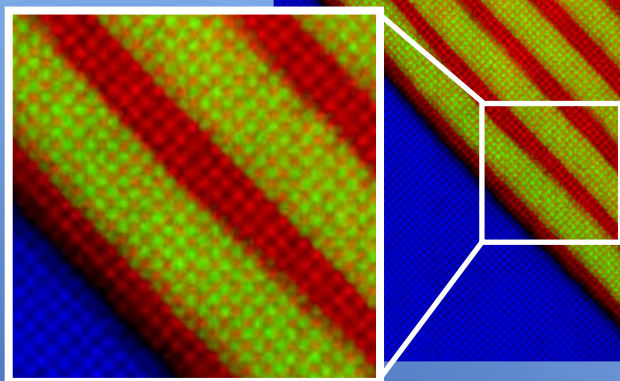
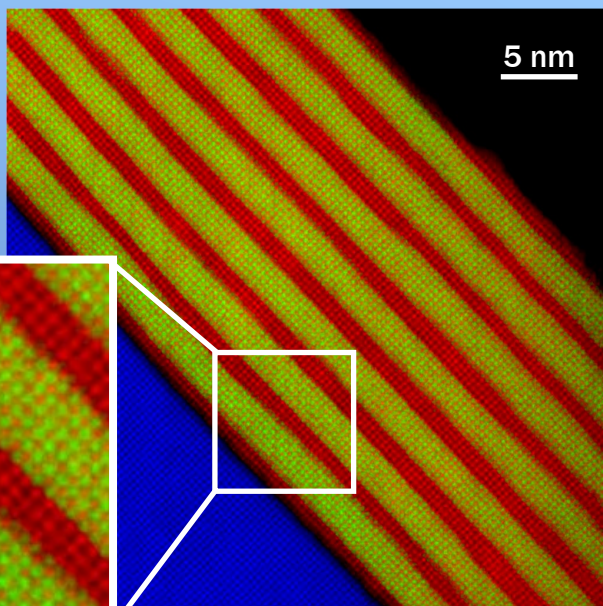


HAADF image of gold nanoparticles recorded at liquid N<sub>2</sub> temperature at 200 keV with a Cripta side-entry rod.



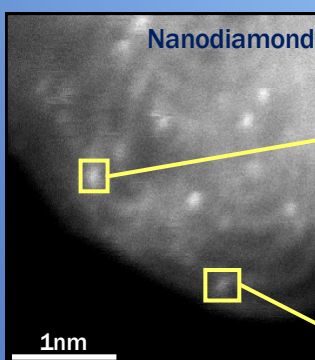
Double Yttrium columns resolved in an HAADF STEM image of a YAP crystal. Alternate double columns have different orientations. Nion UltraSTEM™, 200 keV. Courtesy Dr. M.F. Chisholm, ORNL, and SMRC, U. Tenn.

1k×1k EEL chemical map of LaMnO<sub>3</sub>/SrMnO<sub>3</sub> superlattice. Monkman et al., Nature Mater. 11 (2012) 855-859.



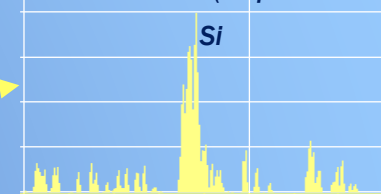
EDXS Mapping of Bi<sub>6</sub>Ti<sub>x</sub>Fe<sub>y</sub>Mn<sub>z</sub>O<sub>18</sub> Keeney et al., Sci. Rep. 7 (2017) article 1737.

- 30 – 200 keV
- Ultra-bright CFE electron gun
- Choice of:
  - ◆ Flexible side-entry rod stage
  - ◆ Ultra-stable detachable cartridge stage
- Ultra-high sample vacuum
- 0.6 Å spatial resolution (at 200 keV)
- 0.35 eV resolution EELS
- 0.7 sr solid-angle EDXS



HAADF STEM image of single-atom impurities in meteorite nanodiamond. Stroud et al., Appl. Phys. Lett. 108 (2016) 163101.

EDXS of atom 1 (acq. time = 9.4 s)



EDXS of atom 2 (acq. time = 8 s)

