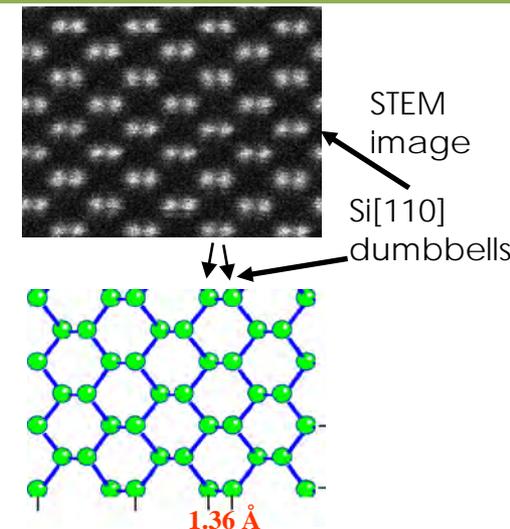


Capability/Need

- **New generation S/TEM** with unique features:
 - Combination of monochromatic electron beam and probe corrector
 - 1-Å STEM resolution and 0.3 eV energy resolution
 - Single atomic column structure and chemical composition analysis.
- Simultaneous acquisition of chemical and structural information at high spatial resolution
- **Major upgrade** of high-demand 12-year-old instrument



Science/Users

- Includes **essential set of tools** for determining active sites for design of new catalysts
- Provides high-resolution structural and chemical information about geo- and biogeochemical processes
- **Provides critical information** about structure and composition of buried interfaces and microstructure of new materials designed for energy production and storage
- Provides electronic structure and chemical-state information for nanostructured materials

EMSL Strategy Alignment; Specifics

- Science themes: Geochemistry/Biogeochemistry and Subsurface Science; Science of Interfacial Phenomena
- Cross-cutting challenges: Unprecedented Resolution; Design/Synthesis of Complex Materials; Characterization of Surfaces and Interfaces with Unprecedented Resolution
- EMSL capability area: Microscopy
- Anticipated availability: December 2010
- Technical POC: Chongmin Wang