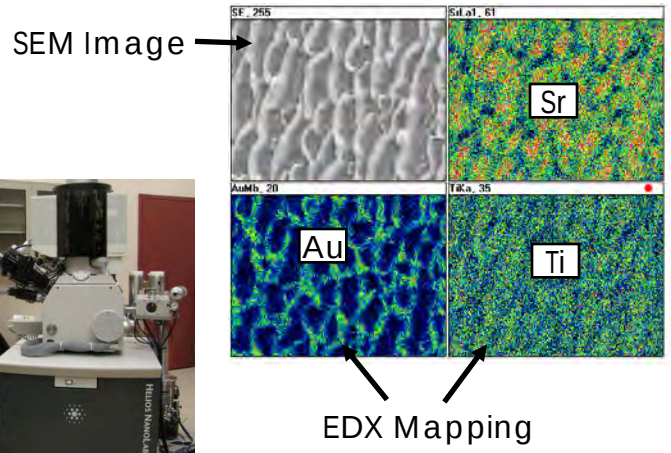
Environmental Scanning Electron Microscope-Focused Ion Beam (SEM-FIB) System

Capability/Need

- **Upgrades/replaces outdated** scanning electron microscope with significantly expanded capability
- Enhanced ability to analyze wet and insulating materials
- 3D section analysis morphology, structure and composition and using focused ion beam and electron backscattering diffractions/energy dispersive x-ray spectroscopy software
- High-temperature, gas interactions, selected area sample extraction



Science/Users

- Precise, 3D imaging and compositional analysis at nanometer scale
- **Essential tool** for many ceramics, electronics, geochemistry, geology, catalysis, and materials science investigators
- Ideal to investigate buried interfaces by nanomachining regions of interest
- Temperature and environment dependent compositional analysis
- Compositional analysis of aerosols and atmospheric particles

EMSL Strategy Alignment; Specifics

- Science themes: Geochemistry/Biogeochemistry and Subsurface Science; Biological Interactions/Dynamics; Science of Interfacial Phenomena
- Cross-cutting challenges: Unprecedented Resolution; Design/Synthesis of Complex Materials; Bridging Scales
- EMSL capability area: Microscopy
- Anticipated availability: April 2010
- Technical POCs: Lax Saraf, Bruce Arey