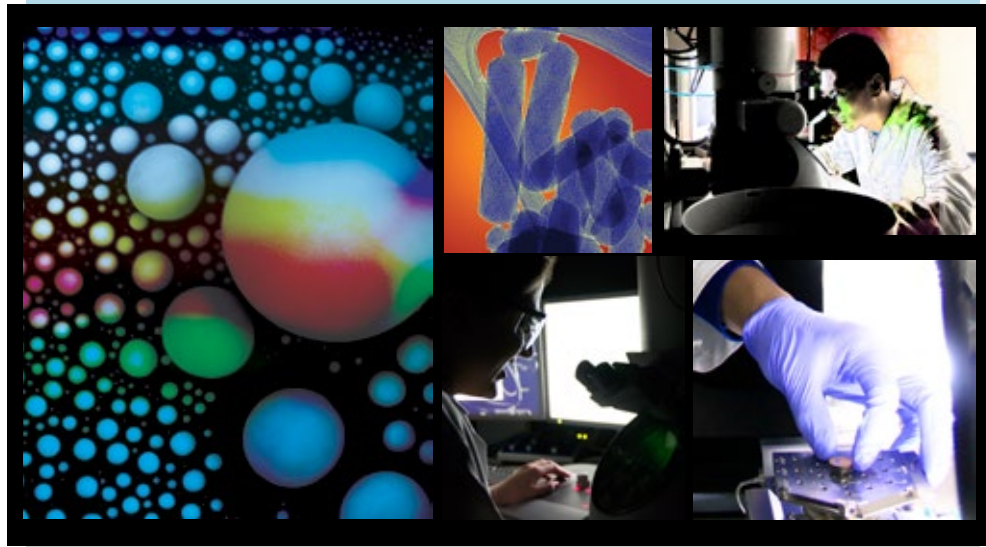


Sensitive Instrument Facility (SIF)

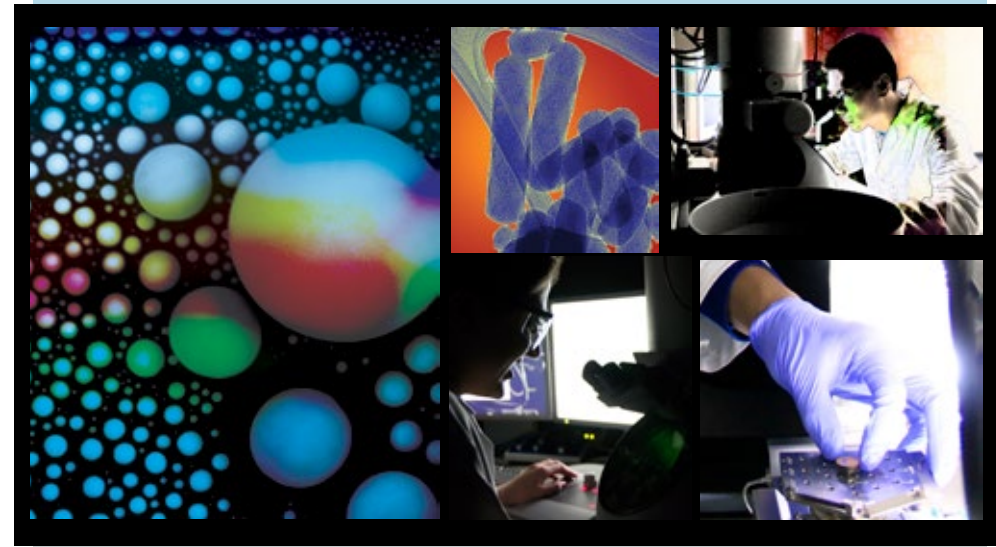
Ames Laboratory's Sensitive Instrument Facility features state-of-the-art electron microscopes housed in a vibration- and static-free environment that allows their capabilities to shine, and sample preparation labs that take scientific testing from start to finish on site.



Ames Laboratory's state-of-the-art characterization facility houses current and next-generation electron beam instruments made possible by cooperation with Iowa State University and with funding from the U.S. Department of Energy. The uniquely constructed facility enables the study of structure and chemistry at the atomic scale by isolating instruments from thermal, vibration, and electromagnetic interference. Unique details include two-foot thick concrete floors with built-in vibration dampening layers; aluminum-plate lined bays and fiberglass reinforced concrete for electro-magnetic isolation; and vibration-free heating and ventilation. These features help ensure the instrumentation achieves the highest possible resolution.

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Contact:

Sarah Wiley, Program Coordinator
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Our electron beam characterization tools include:

1 - FEI Teneo field emission scanning electron microscope with Oxford EDS/EBSD for combined elemental and phase mapping and texture determination



2 - FEI Helios Focus Ion Beam (dual beam) system with easy lift out capabilities for TEM and 3D atom probe sample preparation, auto-slice capability for 3D reconstruction and a multi-chemical deposition system for circuit editing



3 - FEI Tecnai G2-F20 scanning transmission electron microscope (STEM) with both EDX and EELS capability



4 - FEI Titan Themis 300 Cubed probe aberration corrected STEM with Super-X EDX detector, GIF quantum ER system and a Lorentz lens with biprism, which enables rapid, precise navigation from mesoscopic to atomic scale, as well as study of intrinsic magnetic and electric fields

A hysitronP95, a FEI NanoEx-i/v MEMS, a tomography and a Gatan70 Degree Cryo-transfer TEM holders gives researchers additional capability of 3D elemental mapping and in situ observation of structural and chemical change of materials with external effect, such as temperature, electric field, and stress/strain down to the atomic level.

Find out more at <https://sif.ameslab.gov>

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