With one of the largest concentrations of electron and ion beam analytical microscopy instruments in any North American institution, CEMAS brings together multidisciplinary expertise to drive synergy, amplify characterization capabilities, and challenge what is possible in analytical electron microscopy.

Our point of difference is our world-class multidisciplinary approach that enables academic and business partners to “see” more than ever before. We are challenging the current characterization limitations in medicine, environmental science, energy materials and beyond.

Our full-service facility – from extensive sample preparation laboratories to image-processing tools and support – allows researchers to carry out their entire microscopy and analysis program at CEMAS. Located in a purpose built facility on The Ohio State University’s West Campus, every instrument in the facility meets or exceeds manufacturer performance specifications. A support team of technical, research, administrative and academic staff based at CEMAS provides comprehensive support to all users through a variety of mechanisms from contract research to collaborative projects.

CEMAS KEY FEATURES

- World class multi scale imaging facility: optical scale to atomic resolution
- A unique, custom-designed environment where every instrument meets or exceeds manufacturer performance specifications
- Highly skilled support staff available to all users
- The electron microscopy collaboratory: a digital theater providing remote access to allow students and lecturers to seamlessly operate electron and ion microscopes
- Delivering solutions to medicine, advanced manufacturing, environmental science, energy harvesting and storage, and healthcare
- Comprehensive computer facilities for processing, simulation, and visualization of 2D and 3D datasets
- Extensive sample preparation laboratories for engineering, physical and biological sciences
World-class microscopy education in the theory of electron microscopy and all aspects of its use and operation is also available at CEMAS, both in-house and remotely, through our digital theater. Students have live access to CEMAS instruments in real time within a state-of-the-art classroom environment to meet every microscopy training need.

Video wall technology provides multiple display screens and projectors, allowing simultaneous display of microscope controls, microscope outputs and lecture slides. Students and lecturers can interact with and operate electron and ion microscopes from within the digital theater in a live, seamless manner – as if one were sitting in front of the instrument. Control of the microscope can be transferred to members of the audience using wired and wireless connectivity.

The microscopes can also be shared with students and researchers at geographically distant locations. Remote operation capabilities connect directly to the 100 Gb/s Ohio OARnet network, providing a unique opportunity for remote teaching and research to partners across the state of Ohio. CEMAS is pioneering the practical application of this technology for research and training of the next generation of electron microscopy specialists, providing an environment to facilitate world-class collaborative research, and maximizing productivity while minimizing economic and environmental impact. This remote electron microscopy collaborative system has been installed at the University of Dayton, The Ohio State University’s Wooster campus and the Air Force Research Laboratory at Wright-Patterson Air Force Base (Dayton), with additional locations planned for the near future.

INSTRUMENTS

- Thermo Scientific Image Corrected Titan³ G2 60-300 S/TEM
- Thermo Scientific Probe Corrected Titan³ 80-300 S/TEM
- Thermo Scientific Glacios
- Thermo Scientific Tecnai F20 S/TEM
- Thermo Scientific Tecnai G2 30 TWIN
- Thermo Scientific Helios NanoLab 600 DualBeam (FIB/SEM)
- Thermo Scientific Nova NanoLab 600 DualBeam (FIB/SEM)
- Thermo Scientific Quattro S eSEM
- Thermo Scientific Apreo LoVac Analytical
- Thermo Scientific Apreo LoVac High Resolution
- Thermo Scientific Quanta 200 eSEM
- Thermo Scientific HeliScan microCT
- Rigaku SmartLab
- Rigaku MiniFlex 600

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