## Providing Access to Experts & Instrumentation

### Electron Microscopy
- FEI Helios Nanolab 600i FIB/SEM
- FEI Quanta 600i Environmental SEM
- FEI Talos F200x TEM/STEM
- FEI Tecnai T12
- JEOL JSM-7000f Field Emission SEM
- PHENOM SEM
- TESCAN S8252G Raman SEM/FIB*

### Scanning Probe & Optical Microscopy
- ASYLUM MFP-3D Scanning Probe Microscope
- DIGITAL INSTRUMENTS Atomic Force Microscope
- KEYENCE VHX-5000
- D-600 Profilometer
- WITEC Laser Confocal Raman Microscope

### Materials Characterization
- CARY 5G UV-VIS Spectrometer
- Four Point Probe / Electrical Probe Station
- FTIR Spectrometer/Ellipsometer
- HL5500 Hall Effect Measurement System
- Janis SHI-4-2 Cryostat
- Solar Simulator
- WOOLLAM M-2000 Ellipsometer

### Mechanical Testing
- MARK-I- ESM 1500
- MTS Alliance RT/100
- INSTU-MET Renew 1125
- SATEC SONNTAG Fatigue Testing System SF-1-U
- DIC Fatigue Dynamics RBF-200
- Rotating Bending Fatigue
- DSI Gleeble 3500-GTC
- MTS Exceed E22 Impact Tester
- MTS Landmark 370.10
- MTS Landmark 370.25
- MTS 312.21 Top Actuator
- MTS 312.21 Hydraulic Grips
- MTS 312.21 Bending Under Tension
- MTS 312.41
- MTS 810 Material Test System 318.50
- Extensometers
- Digital Image Correction
- Heater and Cooling Furnaces

### Nanofabrication
- Class 1,000 Clean rooms
- ABM UV Mask Aligner
- AUTO GLOW 200 Reactive Ion Etcher
- KARL SUSS MJB3 UV400 Mask Aligners
- NANYTE Beam UV - Laser Lithography
- ULVAC-RIKO MILO-5000 Rapid Thermal Annealer
- RAITH VOYAGER E-Beam Lithography System
- Diffusion Furnace
- High Temperature Furnace
- Vacuum Furnace
- Wet & Dry Oxidation Furnaces
- TPT hb05 Wire Bonder

### Thin Film Deposition
- AJA Sputtering System
- AJA UHV Multi-Technique Deposition System
- ANGSTROM Thermal Evaporator
- High Temperature Thermal Evaporator
- Semicore Sputtering System
- Tabletop Gold Sputter Coater

### Water Quality Analysis
- DR-6000 Hach
- Shimadzu TOC-L Total Carbon Analyzer
- Thermoscientific Dionex ICS-900

### Mass Spectrometry
- CAMECA APT LEAP 4000X SI
- IONTOF TOF-SIMS.V*
- SCIEX 5500 Triple Quad
- SCIEX X500R QToF
- THERMO SCIENTIFIC Orbitrap Exploris 120

### X-Ray Diffraction & Computed Tomography
- PANALYTICAL Empyrean Modular X-Ray Diffractometer*
- PANALYTICAL X’Pert Pro X-Ray Diffractometer
- ZEISS Versa 520 XCT*

* Instrument has in situ capabilities
# Meet the Team

Our experts are happy to meet with your research groups, provide assistance with grant proposals, conduct individual consults or present technical talks. Submit your requests on our website: Mines.edu/Shared-Facilities

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For more detailed information on instrumentation capabilities, to request access or assistance, and view user rates, please visit: Mines.edu/Shared-Facilities