

Materials Characterization Lab (MCL) Rates			
Technique	Academic	Unit	Typical Training Time (hr)*
ELECTRON MICROSCOPY			
Electron Probe Micro Analyzer (EPMA)	\$43.00	hour	TBD
ExpressLo Lift-Out Station	\$20.00	hour	2
Field-Emission Scanning Electron Microscopy (FE-SEM), (EDS)	\$47.00	hour	4
Focused Ion Beam (FIB), (EDS) ¹	\$49.00	hour	4
Focused Ion Beam (FIB) High Resolution, (OIM), (EDS)	\$71.00	hour	8
Scanning Electron Microscopy (ESEM), (EDS)	\$39.00	hour	2-5**
Transmission Electron Microscopy (TEM): FEI Talos, (EDS)	\$71.00	hour	4
Transmission Electron Microscopy (TEM): Tecnai LaB6, (EDS)	\$51.00	hour	4
Transmission Electron Microscopy (TEM): Titan ² , (EDS)	\$93.00	hour	8
MOLECULAR SPECTROSCOPY			
Fourier Transform Infrared Spectroscopy (FT-IR)	\$33.00	hour	2.5
Ultraviolet-Visible Spectroscopy (UV-VIS-NIR)	\$33.00	hour	2.5
Confocal Raman	\$33.00	hour	2.5
SURFACE ANALYSIS			
Auger Electron Spectroscopy (AES)	\$50.00	hour	32
Contact Angle ³	\$8.50	hour	1
Nanoindentation	\$20.00	hour	6-12
Time of Flight Secondary Ion Mass Spectrometry (TOF-SIMS)	\$55.00	hour	TBD
X-ray Photoelectron Spectroscopy (XPS)	\$50.00	hour	32
SURFACE METROLOGY			
Atomic Force Microscopy (AFM)	\$35.00	hour	9
Optical Profilometry	\$35.00	hour	2.5
Thermoreflectance Microscope	\$35.00	hour	TBD
MATERIALS PROCESSING			
ADT 7100 ProVectus Dicing	\$33.00	hour	6
Ion Thinners, Polishers ⁴ , Dicer (within Sample Prep Lab)	\$11.00	hour	0.5
Machine Shop	\$26.00	hour	N/A
Optical Microscopy	\$10.50	hour	TBD
Polishers	\$11.00	hour	N/A
Sample Preparation/Polish Lab	\$30.00	day	0.5 - 1.5
Sintering Furnaces	\$0.83	hour	0.5
Sputter Coating	\$10.00	run	0.5
PARTICLE ANALYSIS			
Helium Pycnometry	\$17.00	hour	1.5
Particle Sizing/Zeta Potential	\$30.00	hour	1.5
THERMAL ANALYSIS			
Differential Scanning Calorimetry (DSC) ⁵	\$10.50	hour	3-5*
Dynamic Mechanical Analysis (DMA) ⁵	\$10.50	hour	3-5**, **
Gas Adsorption Analysis/Surface Area ⁶	\$5.00	hour	2
Mercury Porosimetry	\$130.00	sample	TBD
Simultaneous DSC and TGA (SDT) ⁵	\$10.50	hour	3-5*
Thermal Gravimetric Analysis (TGA)/Mass Spectrometry ⁵	\$10.50	hour	3-5*
X-RAY SCATTERING			
X-ray scattering ⁷ , SAXS, and XRF	\$31.00	hour	2 - 4**
ELECTRICAL CHARACTERIZATION			
Dielectric ⁸	\$18.00	hour	1.5
TECHNICAL STAFF ASSISTANCE			
Technical Staff Assistance/Operation ⁹	\$51.50	hour	N/A

¹Capped at 10 hours of consecutive use; ²Internal use capped at \$1000 per run; ³1 hour minimum charge; ⁴3 hour minimum charge; ⁵2 hour minimum charge; ⁶Capped at 2 hours of consecutive use; ⁷Laue: 1/2 hour minimum charge; ⁸Capped at 8 hours of consecutive use; ⁹Hourly staff rate is in addition to instrument rates; *Sample and user dependent; **Technique dependent;

Effective Date: July 1, 2017

Rates are subject to change without notice