

## Hourly Use Rates for the Material Research Laboratory Facilities

Rates for researchers employed by the University of Illinois at Urbana-Champaign, other public sector employers, and companies located in the EnterpriseWorks Incubator at the University of Illinois Research Park.

If you have any questions, please contact the MRL Business Office at 217-333-1372.

The rates listed below do not include overhead fees, such as Facilities and Administration, which will be added depending on your funding instrument or agreement.

Center for Excellence in Soft Materials			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Malvern Zetasizer	Particle Size and Zeta Potential Measurements	\$13	\$53
Metrohm 915 KF Ti-Touch	Volumetric Karl Fischer Titration	\$13	\$53
Metrohm 917 Coulometer	Coulometric Karl Fischer Titration	\$12	\$52
Nanoparticle tracking NS300	Nanoparticle tracking analysis	\$20	\$60
Novocontrol C47 Analyzer	Dielectric, Conductivity and Impedance Spectrometer	\$19	\$59
Q50-TGA	Thermogravimetric Analysis	\$21	\$61
Q800-DMA	Dynamic Mechanical Analysis	\$19	\$59
Shimadzu DTA-50	Differential Thermal Analysis	\$17	\$57
TA DHR-3 Rheometer	Discovery Hybrid Rheometer	\$20	\$60
TA DSC 2500	Differential Scanning Calorimetry	\$21	\$61
Tosoh EcoSEC GPC	Gel Permeation Chromatography	\$16	\$56
Laser and Spectroscopy Facility			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Agilent CARY 5000	Spectrophotometry	\$18	\$58
Custom Experiment	Custom Laser Experiments	\$16	\$56
Gaertner Ellipsometer	Ellipsometry	\$18	\$58
Horiba Xplora-Nano TERS-TEPL	Tip Enhanced Raman and PL Spectroscopy	\$18	\$58
Inspire OPO Laser	Time-Domain Thermoreflectance, Custom Laser Experiments	\$15	\$55
Keyence VK-X1000	Optical Profiler	\$26	\$66
Montana Cryo Station	Closed He Cycle Optical Cryo Station	\$5	\$45
Nanophoton Raman 11	Raman Spectroscopy/Microscopy	\$22	\$62
Neaspec IR AFM	Tip Enhanced Infrared Spectroscopy	\$18	\$58
Newport Solar Simulator	Custom Experiments	\$15	\$55
Nicolet Nexus 670 FTIR	Fourier Transform Infrared Spectroscopy	\$17	\$57
OL 750 Spectroradiometer	Spectroradiometry	\$15	\$55
Oxford Cryo Station	Closed He Cycle Cryo Station	\$5	\$45
Photoluminescence	Photoluminescence/Fluorescence	\$21	\$61
Quantum Diamond Microscope	N-vacancy magnetometry	\$15	\$55
Rame-Hart Contact Angle	Contact Angle Goniometry	\$16	\$56
SLM ISS Fluorometer	Photoluminescence/Fluorescence	\$15	\$55
Thermo-Nicolet Is-50 FTIR	Fourier-Transform IR spectroscopy	\$15	\$55
Time Resolved PL	Photoluminescence/Fluorescence	\$20	\$60
Tsunami Ti-Sapphire Laser	Time-Domain Thermoreflectance	\$15	\$55
Tsunami Ti-Sapphire Laser 2	Time-Domain Thermoreflectance	\$15	\$55
Two Photon Microscopy	Optical Microscopy	\$15	\$55
Varian Cary5G UV-VIS-NIR	Spectrophotometry	\$18	\$58
Witec Alpha NSOM	Near Field Scanning Optical Microscopy	\$16	\$56
Woollam VAS Ellipsometer	Spectroscopic Ellipsometry	\$21	\$61

Micro & Nano-Fabrication Facility			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
ADT 7122 Wafer Dicer	Automated sample dicer	\$22	\$62
AJA Sputter Coater	Sputter Coater	\$25	\$65
AJA Sputter Coater 2	Sputter Coater	\$26	\$66
AJA Sputter Coater 3	Sputter Coater	\$27	\$67
AJA Sputter Coater 4	Sputter Coater	\$27	\$67
Atomic Layer Deposition	Atomic Layer Deposition	\$26	\$66
Atomic Layer Deposition 2	Atomic Layer Deposition	\$26	\$66
Ball Bonder	Ball Bonder	\$19	\$59
Cleanroom	Cleanroom	\$18	\$58
CM Furnace	Furnace	\$8	\$48
Desert Cryo Probe Station	Probe Station	\$23	\$63
E-beam Evaporator 1	Electron Beam Evaporation	\$26	\$66
E-beam Evaporator 2	Electron Beam Evaporation	\$26	\$66
E-beam Evaporator 4	Electron Beam Evaporation	\$27	\$67
Graphene Furnace	Furnace for the growth of carbon nanotubes and graphene layers	\$7	\$47
Harrick Plasma Cleaner	Plasma Cleaner	\$19	\$59
Heidelberg Maskless Writer	Maskless wafer aligner	\$26	\$66
Hydrogen Vacuum Furnace	Furnace	\$11	\$51
Ion Mill Evaporator	Ion Mill & Thermal Evaporator	\$30	\$70
Jandel 4 Point Probe	Four point probe	\$19	\$59
Lindberg 3 Zone Furnace - 2 inch	Furnace	\$10	\$50
March RIE	Reactive Ion Etcher for polymer samples	\$22	\$62
March RIE2	Reactive Ion Etcher for polymer samples	\$22	\$62
Mitutoyo Microscope	Optical Microscope	\$22	\$62
MTI Furnace - 2 inch	Furnace	\$9	\$49
Nanomaster RIE	Reactive Ion Etcher for polymer samples	\$23	\$62
Nanoscribe 3D Printer	Laser lithography 3D printer	\$24	\$64
Olympus Microscope	Optical Microscope	\$20	\$60
Oven-Vacuum	Oven	\$4	\$44
Parylene Coater	Parylene Deposition - SCS Labcoater 2	\$24	\$64
PECVD 2	Plasma Enhanced Chemical Vapor Deposition	\$22	\$62
Probe Station	Probe Station	\$21	\$61
Raith EBPG5150	Electron Beam Lithography	\$67	\$107
Raith e-Line	Electron Beam Lithography	\$52	\$92
RaithPrep	Cleanroom	\$18	\$58
Reactor Vacuum Furnace	Furnace	\$6	\$46
RIE	Reactive Ion Etcher	\$24	\$64
RTA Furnace	Furnace	\$12	\$52
Suss MJB3 - Deep UV	Mask Aligner - Deep UV	\$0	\$53
Suss MJB3 - Mask Aligner	Mask Aligner	\$0	\$53
Suss MJB4 - Mask Aligner	Mask Aligner	\$0	\$53
Thermal Evaporator	Thermal Evaporation	\$25	\$65
Tube Furnace - 6 inch	Furnace	\$7	\$47
Wedge Bonder	Wedge Bonder	\$20	\$60
Westbond Bonder	Wire Bonder	\$24	\$64
** Deposition of gold, platinum, or palladium incurs an additional charge of \$4 per every 10 nm deposited or fraction thereof.			

Microscopy-Scanning Probe			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Asylum AFM 1	Atomic Force Microscopy	\$20	\$60
Asylum AFM 2	Atomic Force Microscopy	\$20	\$60
Asylum Cypher AFM	Atomic Force Microscopy/High Resolution	\$23	\$63
Asylum MFP-3D-Bio AFM	Atomic Force Microscopy for biological materials	\$22	\$62
Dektak 3030	Surface Profilometry	\$16	\$56
Hysitron Tip	Nanoindentation	\$10	\$50
Hysitron TriboIndenter	Nanoindentation	\$24	\$64
Leitz Microhardness	Microhardness tester	\$5	\$45
Molecular Vista PiFM-Raman	Photo-induced Force Microscopy	\$21	\$61
Piuma Nanoindenter	Nanoindentation	\$21	\$61
Microscopy-Scanning Electron			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
HELIOS 600i FIB	Scanning Electron/Focused Ion Beam Microscopy	\$44	\$84
Hitachi S4800 SEM	Scanning Electron Microscopy/High Resolution	\$31	\$71
JEOL 6060LV SEM	Scanning Electron Microscopy/Low Vacuum	\$27	\$67
JEOL 7000F SEM	Scanning Electron Microscopy/Analytical SEM	\$31	\$71
Scios 2 FIB	Scanning Electron/Focused Ion Beam Microscopy	\$46	\$86
Thermo Axia ChemSEM	Scanning Electron Microscopy/Low Vacuum	\$30	\$70
Microscopy-Transmission Electron			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Hitachi 9500	Transmission Electron Microscopy	\$50	\$90
JEOL 1400 TEM	Transmission Electron Microscopy	\$35	\$75
JEOL 2010 LaB6	Transmission Electron Microscopy	\$34	\$74
JEOL 2100 Cryo TEM	Transmission Electron Microscopy	\$36	\$76
Thermo Talos F200X TEM-STEM	Transmission Electron Microscopy	\$57	\$97
Thermo Themis Z TEM-STEM	(Scanning) Transmission Electron Microscopy/Analytical	\$67	\$107
ThermoFisher Glacios Cryo-TEM	Cryo-TEM for SPA, tomography and micro-ED	\$64	\$104
** Self Use sessions on the ThermoFisher Glacios Cryo-TEM that are longer than 4 hours will be charged at \$40/hr after the 4th hour.			
Support Equipment			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Allied Multiprep	TEM sample preparation	\$7	\$47
Carbon Rod Coater	SEM Carbon Coater	\$10	\$50
Carbon String Coater	SEM Carbon Coater	\$10	\$50
FEI Vitrobot	Cryo-plunge for TEM sample preparation	\$14	\$54
FEI Mark IV Vitrobot	Cryo-plunge for TEM sample preparation	\$16	\$56
Gatan CryoPIPS	Cryo-Ion Miller for TEM sample preparation	\$10	\$50
Gatan PECS II	Ion Miller for SEM sample preparation	\$21	\$61
Leica EM UC6 Microtome	Microtome for TEM sample preparation	\$18	\$58
PicoIndenter	Nanoindentation	\$16	\$56
Princeton WS-25 Wire Saw	Wire Saw - High Precision	\$7	\$47
SEM Sputter Coater 1	SEM Sputter Coater	\$11	\$51
SEM Sputter Coater 2	SEM Sputter Coater	\$11	\$51
Tergeo EM Plasma Cleaner	Plasma Cleaner for TEM sample preparation	\$11	\$51
Vibratory Polisher 1	Vibratory Polisher	\$4	\$44
Vibratory Polisher 2	Vibratory Polisher	\$4	\$44

Physical Property Measurement			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
QD MPMS3 SQUID	Magnetic Property Measurement System	\$7	\$47
QD MPMS3 SQUID B	Magnetic Property Measurement System	\$7	\$47
QD Opticool	Optical Cryostat	\$6	\$46
QD PPMS	Physical Property Measurement System	\$9	\$49
QD PPMS B	Physical Property Measurement System	\$9	\$49
Surface Analysis			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Cameca LEAP 5000XS APT	Local Electrode Atom Probe Tomography	\$61	\$101
KRATOS AXIS XPS	X-Ray Photoelectron Spectroscopy/Imaging XPS	\$32	\$72
Kratos Supra XPS	X-Ray Photoelectron Spectroscopy / Imaging and Depth Profiling	\$40	\$80
NEC Pelletron	Ion Accelerator/Rutherford Backscattering Spectroscopy	\$47	\$87
PEI Trift-III TOF-SIMS	Secondary Ion Mass Spectroscopy/Time-of-Flight	\$28	\$68
X-ray Analysis			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Bruker D8 Advance	X-ray diffraction with high-temperature stage	\$23	\$63
Dexco Laue	X-ray Diffraction/Laue	\$16	\$56
PANalytical XPert	High-resolution X-ray diffraction and reflectometry	\$15	\$55
SAXS	X-Ray scattering: SAXS, WAXS, GI-SAXS and GI-WAXS	\$14	\$54
Shimadzu EDXRF	X-Ray Fluorescence	\$23	\$63
Siemens-Bruker D5000 XRD	X-Ray Diffraction/Powder	\$13	\$53
MRL Carver BioMaker Lab			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Autoclave	Sterilization	\$12	\$52
Biosafety Cabinet-Room 0014	Biosafety Cabinet	\$0	\$40
Biosafety Cabinet-Room 0015	Biosafety Cabinet	\$0	\$40
CarverBioMakerLab	Lab suite access for sample prep and imaging	\$1	\$41
Cellink BioX 3D bioplotter	3D printing (tissue, cell, etc. using bioinks)	\$20	\$60
CO <sub>2</sub> incubator	Cell culture	\$1	\$41
Fisher Gravity Incubator	Gravity Incubator	\$1	\$41
Fisher Isotemp Incubator	Isotemperature Incubator	\$1	\$41
GESIM nanoplotter	3D printing for cell spotting	\$20	\$60
Microfluidics flow control	Optional flow control for the printer	\$10	\$50
Microfluidics printer	3D printing of microfluidics structures	\$20	\$60
MTI electrospinner	3D printing of nanofibers	\$15	\$55
Nanodrop	DNA, RNA or protein concentration measurement	\$10	\$50
NUAIRE CO2 Incubator	CO2 incubator	\$1	\$41
Optima LE-80 Ultracentrifuge	Ultracentrifuge	\$15	\$55
Polarized Optical Microscope	Optical Microscopy	\$15	\$55
Thermo CO2 incubator-bottom	CO2 incubator	\$1	\$41
Thermo CO2 incubator-top	CO2 incubator	\$1	\$41
Zeiss Axio-Inverted Microscope	Fluorescence Microscopy	\$13	\$53
Zeiss LIVE7 Confocal Microscope	Fluorescence Confocal Microscopy	\$15	\$55

Biomaterial Services Lab			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Bio-BioSEM	Bio SEM Prep	N/A	\$59
Bio-Embed	Embedding & Deparaffinization	N/A	\$60
Bio-EMScopeVM	EM Scope Tech Time	N/A	\$80
Bio-LMSect	Trim & LM Sectioning	N/A	\$54
Bio-NegDevelop	Negative Development	N/A	\$75
Bio-NegScan	Negative Scanning	N/A	\$50
Bio-NegStain	Negative Staining & Grids	N/A	\$53
Bio-OptoMicro	Optical Camera Tech Time	N/A	\$54
Bio-TEMsect	Trim & TEM Sectioning	N/A	\$70
Reichert Ultracut	Microtome for TEM sample preparation	\$20	\$60
AMTEL-Advanced Materials Testing and Evaluation Laboratory			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Servo-hydraulic 1*	Uniaxial testing	\$50	\$90
Servo-hydraulic 2*	Uniaxial testing	\$50	\$90
Servo-hydraulic 3*	Uniaxial testing	\$50	\$90
Servo-hydraulic 4*	Uniaxial testing	\$50	\$90
Servo-hydraulic 5*	Uniaxial testing	\$50	\$90
Servo-hydraulic 6 (Bi-Axial)*	Bi axial testing (axial and torsion)	\$75	\$115
Electro-Mechanical 1*	Uniaxial testing	\$50	\$90
Electro-Mechanical 2*	Uniaxial testing	\$50	\$90
Electro-Mechanical 3*	Uniaxial testing	\$50	\$90
Thermo-Mechanical 1*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 2*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 3*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 4*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 5*	Uniaxial testing with combined thermal loading	\$75	\$115
Split-Hopkinson Bar*	High strain rate material testing	\$50	\$90
Creep Stand*	Temperature dependent creep testing	\$25	\$65
Rotating Bending*	Rotating bending high cycle fatigue testing	\$25	\$65
Dynamic Mechanical Analysis*	Dynamic mechanical analysis	\$50	\$90
High Speed - Thermal Camera*	High speed and/or thermal imaging	\$25	\$65
Strain - Thermal Acquisition Box*	Additional strain, thermocouple, analog input data acquisition	\$25	\$65
3D Digital Image Correlation*	Calibration, acquisition, and/or analysis of 3D surface coordinates	\$25	\$65
Paint Booth	Speckle painting for digital image correlation sample preparation	\$3	\$43
Laser Engraver	Engraving for digital image correlation sample preparation	\$3	\$43
Sand Blasting	Sandblasting for digital image correlation sample preparation	\$3	\$43
Wet-Dry Sander 1	Polishing for digital image correlation sample preparation	\$3	\$43
Wet-Dry Sander 2	Polishing for digital image correlation sample preparation	\$3	\$43
Vibration Polisher	Polishing for high magnification digital image correlation sample preparation	\$3	\$43
Pico Saw	Diamond blade wafer saw for sample preparation	\$6	\$46
Ultrasonic Bath	Ultrasonic bath for sample preparation	\$6	\$46
*Maximum charge of 2 hours per day of usage.			

Battery Fabrication and Characterization Laboratory			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
BatteryLabAccess	Access to 15+ tools for cells/pouch fabrication	\$1	\$41
Calendaring	Hot roller press	\$1	\$41
Electrochem characterization*	Potentiostat, gavanostat, electrcchemical impedance	\$5	\$45
Magnetic stirrer	Stirring and mixing solutions	\$0	\$40
Mixer - Thinky	Slurry mixing	\$1	\$41
Slurry coater	Automated coater for metal foils	\$2	\$42
Vacuum Oven - Battery Lab*	Up to 150C heating under vacuum	\$2	\$42
Vigor glovebox	With sealer, die cutter, welding and crimper	\$1	\$41
* Maximum charge of 1 hour per day of usage.			