

## CCMR Shared Facility Rates - Academic Use

(Updated 7/17)

Manager Labor Rate (may be charged in addition to instrument rates below) \$90.00 /hr

### Electron Microscopy

Cryo-S/TEM	\$56.50 /hr	\$41 after hours
FEI F20 TEM STEM	\$56.50 /hr	\$41 after hours
FEI Strata 400 STEM FIB	\$80.00 /hr	\$55 after hours
NION UltraSTEM 100 (4 hr minimum)	\$53.00 /hr	
FEI Tecnai T12 Spirit TEM STEM	\$62.00 /hr	
FEI Tecnai 12 BioTwin TEM	\$62.00 /hr	
Air-SEM	\$62.00 /hr	
LEO 1550 FESEM (Keck SEM)	\$62.00 /hr	
Tescan-Mira3-FESEM	\$62.00 /hr	
JEOL 8900 Microprobe	\$65.00 /hr	

#### TEM Sample Preparation:

Allied Multiprep Polisher (A or B)	\$25.00 /hr	
Leica EM UC7/FC7 Cryoultramicrotome	\$42.00 /hr	
Leica Ultracut UCT Ultramicrotome - RT	\$42.00 /hr	

### Microscopy, Spectroscopy, Surface Analysis

X-Ray Photoelectron Spectroscopy (XPS)	\$35.00 /hr	
Keyence VK-X260 3D Laser Scanning Confocal Microscope	\$35.00 /hr	
Asylum-MFP3D-Bio-AFM-SPM	\$36.00 /hr	
Veeco Dimension 3100 Ambient AFM STM	\$36.00 /hr	
Bruker Hyperion FT-IR Spectrometer & Microscope	\$38.00 /hr	(\$9 minimum)
Renishaw InVia Confocal Raman microscope	\$36.50 /hr	(\$9 minimum)
Nanonics Multiview 1000 or 2000 Near-field Scanning Optical Microscopy (NSOM)	\$34.00 /hr	
Tencor Alpha Step 500 Stylus Profilometer	\$20.60 /hr	
ADE Phase Shift MicroXAM Optical Interferometric Profiler	\$25.75 /hr	(\$6 minimum)
Shimadzu UV-3600 UV-Vis-NIR Spectrometer	\$25.75 /hr	
Aviv 400 Circular Dichroism Spectrometer	\$30.00 /hr	
Novocontrol Broadband Dielectric Spectrometer	\$15 + \$35.00 /hr	
Novocontrol Thermal Stimulated Depolarization Current (TSDC)	\$15 + \$35.00 /hr	

## Soft Matter/Polymer Analysis

TA Instruments DHR3 Single Head Rheometer	\$30.00	/hr
Waters MALDI Micro MX (MALDI-TOF)	\$20.60	/sample
JAI-LC9110NEXT-Recycling-Preparative-GPC	\$51.50	/sample
Waters Ambient-Temperature GPC	\$20.60	/sample
Waters Ambient-Temperature Aqueous GPC	\$20.60	/sample
Waters Breeze DMSO-GPC	\$20.60	/sample
TA Instruments Q500 Thermogravimetric Analyzer (TGA)	\$25.75	/sample
TA Instruments Q1000 Modulated Differential Scanning Calorimeter (MDSC)	\$41.20	/sample

## X-Ray and Diffraction Analysis

Rigaku SmartLab X-Ray Diffractometer	\$36.00	/hr
Bruker D8 General Area Detector Diffraction System (GADDS)	\$40.00	/hr
Bruker D8 Powder Diffractometer	\$40.00	/hr
Multiwire Back-Reflection Laue Detector	\$60.00	/hr

## Mechanical Properties Testing and Analysis

TA Instruments DMA Q800 Dynamic Mechanical Thermal Analysis (DMTA)	\$15 +	\$33.00	/hr
TA Instruments Q400EM Thermomechanical Analysis (TMA)		\$41.20	/hr
Micro Hardness Tester	\$5 +	\$5.00	/hr
Micromechanical Analyzer		\$25.75	/hr
ATM Sonic sifter		\$10.30	/hr

## Thin Film Deposition, and Material Processing

Varian Thermal Bell Jar Evaporator Clark Hall		\$62.50	/use
Sputter Deposition		\$90.00	/use
KJL Magnetron Sputtering Tool		\$75.00	/sample
Neocera EX200 Pulsed Laser Deposition System	\$75 +	\$15.00	/hr
KSV-NIMA-KN4010 Dip Coater	\$5 +	\$10.30	/hr
KSV-NIMA-KN2002 Langmuir Blodgett Trough	\$10 +	\$10.30	/hr
Laurell WS-400A Spin Coater	\$10 +	\$10.30	/hr

### Heat Treating

Lindberg Vacuum Tube Furnace	\$10 +	\$2.50	/hr
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AcrossInternational, LabTemp, Lindbergh Tube Furnaces (Bard)	\$10 +	\$2.50	/hr
Marshall Two Zone Tube Furnace 1100C	\$10 +	\$2.50	/hr
All other Air/Box Furnaces (Labtemp, Lindberg, and Vulcan)	\$6 +	\$1.55	/hr
Hotpack or National Vacuum Ovens	\$6 +	\$1.55	/hr

## Electronic & Magnetic Measurements

Quantum Design Physical Property Measurement Systems (PPMS)	\$35 +	\$10.50	/hr
Lakeshore Full Wafer Probe System		\$12.36	/hr
Lakeshore Tabletop Magnetic-Cryogenic Probe System		\$12.36	/hr
GMW-5201 Projected Field Magnet Probe System	\$6 +	\$1.50	/hr
GMW-5403 C-Frame Magnet Probe System	\$6 +	\$1.50	/hr
Cascade CPS-06 Four Point Probe	\$6 +	\$15.45	/hr

## Sample Preparation, Cutting, Polishing, etc.

### Sample Prep

Parr Pressure Reactor		\$10.30	/hr
Enerpac Hydraulic Press		\$10.30	/hr
Buehler Simplemet II mounting press	\$10 +	\$10.30	/hr
Inert Gas Glove Box		\$21.00	/use
Ball Mill		\$5.15	/hr
Spex 8000 MIXER /MILL		\$20.60	/hr
Garlock GEM-T Jet mill		\$10.30	/hr
Meteor Coil Winder		\$25.00	/use

### Cutting/Cleaning/Polishing

MicroMech Wafering Machine	\$15 +	\$20.60	/hr
Wale Diamond Band Saw		\$20.60	/hr
Glass Bead Abrasive Unit (sand blasting)-Clark		\$15.45	/hr
SS White Sand Blasting Unit	\$10 +	\$15.45	/hr
Buehler SiC Grinding Papers-Bard		\$25.75	/use
Struers Rotopol		\$25.75	/hr
Branson Ultrasonic Bath (large)	\$10 +	\$10.30	/hr

### Welding/Bonding

Stationary Spot Welder Hughes HRW250B (Clark Hall)		\$11.00	/borrowed use
TPT HB05 Manual Wire Bonder	\$5 +	\$10.00	/hr
Kulicke - Soffa 4500 manual bonder	\$5 +	\$10.00	/hr

## Vacuum Equipment

Extorr XT200amu Portable RGA Pump Station 1-Clark	\$20 +	\$0.51	/hr
SRS RGA200amu Portable RGA Pump Station 2-Clark	\$20 +	\$0.51	/hr
Varian 979 Port Leak Detector	\$15 +	\$1.93	/hr
Portable Turbo Pump Stations (Clark Hall or Bard Hall)	\$10 +	\$0.64	/hr
Rough Pumps (Clark Hall)	\$10 +	\$0.21	/hr

## Test Equipment Lending Library

(more info at <http://www.ccmr.cornell.edu/instruments/test-equipment-library/>)

Extech DC and BK Precision AC Power Supplies (9047-9051)	\$6 +	\$0.0032	/hr
Agilent E3631A Triple Output Power Supplies (9040-9046)	\$6 +	\$0.0064	/hr
GPIB-to-USB Adaptors (9180-9183)	\$6 +	\$0.0107	/hr
HP 3325A Function Generators (9072-9077)	\$6 +	\$0.0236	/hr
HP 8657B 2GHz Signal Generator (9085)	\$6 +	\$0.0858	/hr
FW Bell Hall Probes (9140-9144)	\$6 +	\$0.0279	/hr
Extech IRC40 250C Thermal Imager (9152)	\$6 +	\$0.0279	/hr
Optical Pyrometer-Portable-Bard Hall	\$6 +	\$0.0032	/hr
Signal Recovery 5113 Preamplifiers (9024-9106)	\$6 +	\$0.0440	/hr
Agilent 33521A Arbitrary Waveform Generator (9078)	\$6 +	\$0.0429	/hr
Stanford Research SR560 Low Noise Amplifiers (9020-9031)	\$6 +	\$0.0471	/hr
HP 85662A Spectrum Analyzer (9130)	\$6 +	\$0.0493	/hr
Tektronix TDS2024 Four Channel Digital Oscilloscopes (9101-9103)	\$6 +	\$0.0558	/hr
DL Instruments DL1121 Preamplifiers (9021-9028)	\$6 +	\$0.0646	/hr
Yokogawa 7651 DC Programmable Power Sources (9060-9065)	\$6 +	\$0.0643	/hr
Signal Recovery 7265 Lock-in Amplifier (9001-9009)	\$6 +	\$0.0867	/hr
Stanford Research SR844 RF Lock-in (9000)	\$6 +	\$0.17	/hr
Keithley 6430 Sub-femtoamp Source Meter (9160)	\$6 +	\$0.21	/hr
Agilent 4284A Precision LCR Meter (9171)	\$6 +	\$0.28	/hr
Tektronix TDS8000 Digital Sampling Oscilloscopes (9107-9108)	\$6 +	\$0.42	/hr
Agilent E8257 PSG Analog Signal Generators (9081-9084)	\$6 +	\$0.42	/hr
Picosecond 10070A Pulse Generators (9090, 9092)	\$6 +	\$0.42	/hr
LeCroy 8500A Wavemaster Oscilloscope (9109)	\$6 +	\$0.42	/hr
LeCroy SDA11000 Oscilloscope (9109)	\$6 +	\$0.42	/hr
Agilent 8722ES Network Analyzer (9120)	\$6 +	\$0.42	/hr
Agilent 8565E Spectrum Analyzer (9130)	\$6 +	\$0.42	/hr

Andeen Hagerling DCPAX/TP1 Capacitance/Loss Bridge (9170)	\$6 +	\$0.42	/hr
Agilent E4991A RF Impedance/Material Analyzer (9201)	\$6 +	\$0.42	/hr
Agilent B1500 Device Analyzer (9203)	\$6 +	\$0.42	/hr