CCMR Shared Facility Rates - Academic Use
(Updated 3/16)

Manager Labor Rate (may be charged in addition to instrument rates below) $85 /hr
* indicates additional setup or labor charge may apply

**Electron Microscopy**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Rate 1</th>
<th>Rate 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CryoTEM</td>
<td>$55 /hr</td>
<td>$40 after hours</td>
</tr>
<tr>
<td>FEI F20 TEM STEM</td>
<td>$55 /hr</td>
<td>$40 after hours</td>
</tr>
<tr>
<td>FEI Strata 400 STEM FIB</td>
<td>$75 /hr</td>
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<tr>
<td>NION UltraSTEM 100 (4 hr minimum)</td>
<td>$50 /hr</td>
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<tr>
<td>FEI Tecnai T12 Spirit TEM STEM</td>
<td>$60 /hr</td>
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</tr>
<tr>
<td>FEI Tecnai 12 BioTwin TEM</td>
<td>$60 /hr</td>
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<tr>
<td>Air-SEM</td>
<td>$60 /hr</td>
<td></td>
</tr>
<tr>
<td>LEO 1550 FESEM (Keck SEM)</td>
<td>$60 /hr</td>
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</tr>
<tr>
<td>Tescan-Mira3-SEMET</td>
<td>$60 /hr</td>
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</tr>
<tr>
<td>JEOL 8900 Microprobe</td>
<td>$60 /hr</td>
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</tr>
</tbody>
</table>

**TEM Sample Preparation:**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Multiprep Polisher (A or B)</td>
<td>$25 /hr</td>
</tr>
<tr>
<td>Leica EM UC7/FC7 Cryoultramicrotome</td>
<td>$40 /hr</td>
</tr>
<tr>
<td>Leica Ultracut UCT Ultramicrotome - RT</td>
<td>$30 /hr</td>
</tr>
<tr>
<td>WELL Diamond Wire Saw</td>
<td>$30 /use</td>
</tr>
</tbody>
</table>

**Microscopy, Spectroscopy, Surface Analysis**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-Ray Photoelectron Spectroscopy (XPS)</td>
<td>$30 /hr*</td>
</tr>
<tr>
<td>Asylum-MFP3D-Bio-AFM-SPM</td>
<td>$35 /hr</td>
</tr>
<tr>
<td>Veeco Dimension 3100 Ambient AFM STM</td>
<td>$35 /hr</td>
</tr>
<tr>
<td>Bruker Hyperion FT-IR Spectrometer &amp; Microscope</td>
<td>$35 /hr</td>
</tr>
<tr>
<td>Renishaw InVia Confocal Raman microscope</td>
<td>$33 /hr</td>
</tr>
<tr>
<td>Nanonics Multiview 1000 or 2000 Near-field</td>
<td>$33 /hr</td>
</tr>
<tr>
<td>Scanning Optical Microscopy (NSOM)</td>
<td>$33 /hr</td>
</tr>
<tr>
<td>Tencor Alpha Step 500 Stylus Profilometer</td>
<td>$20 /hr</td>
</tr>
<tr>
<td>ADE Phase Shift MicroXAM Optical Interferometric Profiler</td>
<td>$25 /hr</td>
</tr>
<tr>
<td>Shimadzu UV-3600 UV-Vis-NIR Spectrometer</td>
<td>$25 /hr</td>
</tr>
<tr>
<td>Aviv 400 Circular Dichroism Spectrometer</td>
<td>$25 /hr</td>
</tr>
<tr>
<td>Novocontrol Broadband Dielectric Spectrometer</td>
<td>$35 /hr</td>
</tr>
</tbody>
</table>
Novocontrol Thermal Stimulated Depolarization Current (TSDC) $35/hr

### Soft Matter/Polymer Analysis
- TA Instruments DHR3 Single Head Rheometer $25/hr
- Waters MALDI Micro MX (MALDI-TOF) $20/sample
- JAI-LC9110NEXT-Recycling-Preparative-GPC $50/sample
- Waters Ambient-Temperature GPC $20/sample
- Waters Ambient-Temperature Aqueous GPC $20/sample
- Waters Breeze DMSO-GPC $20/sample
- TA Instruments Q500 Thermogravimetric Analyzer (TGA) $25/sample
- TA Instruments Q1000 Modulated Differential Scanning Calorimeter (MDSC) $40/sample

### X-Ray and Diffraction Analysis
- Rigaku SmartLab X-Ray Diffractometer $35/hr $30 after hours
- Scintag Theta-Theta X-ray Diffractometer (XRD) $30/hr
- Bruker General Area Detector Diffraction System (GADDS) $50/hr
- Multiwire Back-Reflection Laue Detector $55/hr
- Scintag XDS2000 Diffractometer $30/hr

### Mechanical Properties Testing and Analysis
- TA Instruments DMA Q800 Dynamic Mechanical Thermal Analysis (DMTA) $30/hr*
- TA Instruments Q400EM Thermomechanical Analysis (TMA) $40/hr
- Micro Hardness Tester $25/hr
- Micromechanical Analyzer $25/hr
- ATM Sonic sifter $10/hr

### Thin Film Deposition, and Material Processing
- Varian Thermal Bell Jar Evaporator Clark Hall $60/use
- Sputter Deposition $85/use
- KJL Magnetron Sputtering Tool $75/sample
- Neocera EX200 Pulsed Laser Deposition System $12/hr*
- KSV-NIMA-KN4010 Dip Coater $10/hr*
- KSV-NIMA-KN2002 Langmuir Blodgett Trough $10/hr*
Laurell WS-400A Spin Coater $10 /hr*

**Heat Treating**

Lindberg Vacuum Tube Furnace $2.25 /hr*
AcrossInternational, LabTemp, Lindbergh Tube Furnaces (two furnaces, Bard Hall) $2.25 /hr*
Marshall Two Zone Tube Furnace 1100C $2.25 /hr*
All other Air/Box Furnaces (Labtemp, Lindberg, and Vulcan) $1.50 /hr*
Hotpack or National Vacuum Ovens $1.50 /hr*

**Electronic & Magnetic Measurements**

Quantum Design Physical Property Measurement Systems (PPMS) $7.50 /hr*
Quantum Design MPMS-XL SQUID Magnetometer on request
Lakeshore Full Wafer Probe System $17 /hr
Lakeshore Tabletop Magnetic-Cryogenic Probe System $12 /hr
GMW-5201 Projected Field Magnet Probe System $10 /hr
GMW-5403 C-Frame Magnet Probe System $10 /hr
Cascade CPS-06 Four Point Probe $15 /hr

**Sample Preparation, Cutting, Polishing, etc.**

**Sample Prep**

Parr Pressure Reactor $10 /hr
Enerpac Hydraulic Press $10 /hr
Buehler Simplemet II mounting press $10 /hr*
Inert Gas Glove Box $20 /use
Ball Mill $5 /hr
Spex 8000 MIXER /MILL $20 /hr
Garlock GEM-T Jet mill $10 /hr
Meteor Coil Winder $20 /use

**Cutting/Cleaning/Polishing**

MicroMech Wafering Machine $20 /hr*
Buehler Isomet Low Speed Diamond Saw $20 /hr
Wale Diamond Band Saw $20 /hr
Conrad Universal Cutting Machine $35 /use
Glass Bead Abrasive Units (sand blasting)-Bard or Clark $15 /hr
SS White Sand Blasting Unit $15 /hr*
Buehler Grinding/Polishing 12-inch $15 /hr*
Buehler SiC Grinding Papers-Bard $25 /use
Struers Rotopol $25 /hr
Branson Ultrasonic Bath (large) $10 /hr

**Welding/Bonding**

Miller Intellitig40 Welder $20 /use
Unitek Portable Spot Welder (Bard Hall) $10 /use
Stationary Spot Welder Hughes HRW250B (Clark Hall) $10 /use
TPT HB05 Manual Wire Bonder $15 /hr
Kulicke - Soffa 4500 manual bonder $15 /hr

**Vacuum Equipment**

Extorr XT200amu Portable RGA Pump Station 1-Clark $0.83 /hr*
SRS RGA200amu Portable RGA Pump Station 2-Clark $0.83 /hr*
Varian 979 Port Leak Detector $1.87 /hr*
Portable Turbo Pump Stations (Clark Hall or Bard Hall) $0.62 /hr
Rough Pumps (Clark Hall) $0.20 /hr

**Test Equipment Lending Library**

(more info at http://www.ccmr.cornell.edu/instruments/test-equipment-library/) Common items: model name (facility tag number). Hourly rate can be calculated from daily rate.

Extech DC and BK Precision AC Power Supplies $0.10 /day
(9047-9051)
Agilent E3631A Triple Output Power Supplies (9040-9046) $0.24 /day
GPIB-to-USB Adaptors (9180-9183) $0.28 /day
HP 3325A Function Generators (9072-9077) $0.56 /day
HP 8657B 2GHz Signal Generator (9085) $0.60 /day
FW Bell Hall Probes (9140-9144) $0.65 /day
Extech IRC40 250C Thermal Imager (9152) $0.65 /day
Signal Recovery 5113 Preamplifiers (9024-9106) $1.00 /day
Agilent 33521A Arbitrary Waveform Generator (9078) $1.00 /day
Stanford Research SR560 Low Noise Amplifiers (9020-9031) $1.10 /day

HP 85662A Spectrum Analyzer (9132) $1.15 /day
Tektronix TDS2024 Four Channel Digital Oscilloscopes (9101-9103) $1.30 /day

DL Instruments DL1121 Preamplifiers (9021-9028) $1.50 /day
Yokogawa 7651 DC Programmable Power Sources (9060-9065) $1.50 /day

Signal Recovery 7265 Lock-in Amplifier (9001-9009) $2.00 /day
Stanford Research SR844 RF Lock-in (9000) $4.00 /day

Keithley 6430 Sub-femtoamp Source Meter (9160) $5.00 /day
Agilent 4284A Precision LCR Meter (9171) $6.50 /day
Tektronix TDS8000 Digital Sampling Oscilloscopes (9107-9108) $10 /day
Agilent E8257 PSG Analog Signal Generators (9081-9084) $10 /day

Picosecond 10070A Pulse Generators (9090, 9092) $10 /day
LeCroy 8500A Wavemaster Oscilloscope (9109) $10 /day
LeCroy SDA11000 Oscilloscope (9109) $10 /day
Agilent 8722ES Network Analyzer (9120) $10 /day
Agilent 8565E Spectrum Analyzer (9130) $10 /day
Andeen Hagerling DCPAX/TP1 Capacitance/Loss Bridge (9170) $10 /day
Agilent E4991A RF Impedance/Material Analyzer (9201) $10 /day
Agilent B1500 Device Analyzer (9203) $10 /day