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

Manager Labor Rate (may be charged in addition to instrument rates below) $140 /hr

* indicates additional setup or labor charge may apply

Electron Microscopy

FEI F20 TEM STEM $400 /hr
FEI Strata 400 STEM FIB $250 /hr
NION UltraSTEM 100 (4 hr minimum) $400 /hr
FEI Tecnai T12 Spirit TEM STEM $200 /hr
FEI Tecnai 12 BioTwin TEM $200 /hr
Air-SEM $200 /hr
LEO 1550 FESEM (Keck SEM) $200 /hr
Tescan-Mira3-FESEM $200 /hr
JEOL 8900 Microprobe $200 /hr

TEM Sample Preparation:

Allied Multiprep Polisher (A or B) $100 /hr
Leica EM UC7/FC7 Cryoultramicrotome $100 /hr
Leica Ultracut UCT Ultramicrotome - RT $100 /hr
WELL Diamond Wire Saw $60 /use

Microscopy, Spectroscopy, Surface Analysis

X-Ray Photoelectron Spectroscopy (XPS) $165 /hr*
Asylum-MFP3D-Bio-AFM-SPM $145 /hr
Veeco Dimension 3100 Ambient AFM STM $145 /hr

Bruker Hyperion FT-IR Spectrometer & Microscope $145 /hr
Renishaw InVia Confocal Raman microscope $145 /hr
Nanonics Multiview 1000 or 2000 Near-field $145 /hr
Scanning Optical Microscopy (NSOM) $145 /hr
Tencor Alpha Step 500 Stylus Profilometer $75 /hr
ADE Phase Shift MicroXAM Optical Interferometric Profiler $110 /hr
Shimadzu UV-3600 UV-Vis-NIR Spectrometer $110 /hr
Aviv 400 Circular Dichroism Spectrometer $110 /hr
Novocontrol Broadband Dielectric Spectrometer $110 /hr
Novocontrol Thermal Stimulated Depolarization Current (TSDC) $110 /hr
**Soft Matter/Polymer Analysis**

- TA Instruments DHR3 Single Head Rheometer $100 /hr
- Waters MALDI Micro MX (MALDI-TOF) $200 /sample
- JAI-LC9110NEXT-Recycling-Preparative-GPC $200 /sample
- Waters Ambient-Temperature GPC $80 /sample
- Waters Ambient-Temperature Aqueous GPC $80 /sample
- Waters Breeze DMSO-GPC $80 /sample
- TA Instruments Q500 Thermogravimetric Analyzer (TGA) $100 /sample
- TA Instruments Q1000 Modulated Differential Scanning Calorimeter (MDSC) $160 /sample

**X-Ray and Diffraction Analysis**

- Rigaku SmartLab X-Ray Diffractometer $110 /hr
- Scintag Theta-Theta X-ray Diffractometer (XRD) $100 /hr
- Bruker General Area Detector Diffraction System (GADDS) $150 /hr
- Multiwire Back-Reflection Laue Detector $170 /hr
- Scintag XDS2000 Diffractometer $100 /hr

**Mechanical Properties Testing and Analysis**

- TA Instruments DMA Q800 Dynamic Mechanical Thermal Analysis (DMTA) $100 /hr*
- TA Instruments Q400EM Thermomechanical Analysis (TMA) $80 /hr
- Micro Hardness Tester $50 /hr
- Micromechanical Analyzer $50 /hr
- ATM Sonic sifter $25 /hr

**Thin Film Deposition, and Material Processing**

- Varian Thermal Bell Jar Evaporator Clark Hall $150 /use
- Sputter Deposition $200 /use
- KJL Magnetron Sputtering Tool $300 /sample
- Neocera EX200 Pulsed Laser Deposition System $30 /hr*
- KSV-NIMA-KN4010 Dip Coater $40 /hr*
- KSV-NIMA-KN2002 Langmuir Blodgett Trough $40 /hr*
- Laurell WS-400A Spin Coater $40 /hr*

**Heat Treating**
Lindberg Vacuum Tube Furnace $5 /hr*
AcrossInternational, LabTemp, Lindbergh Tube Furnaces (two furnaces, Bard Hall) $5 /hr*
Marshall Two Zone Tube Furnace 1100C $5 /hr*
All other Air/Box Furnaces (Labtemp, Lindberg, and Vulcan) $4 /hr*
Hotpack or National Vacuum Ovens $4 /hr*

Electronic & Magnetic Measurements

Quantum Design Physical Property Measurement Systems (PPMS) $20 /hr*

Quantum Design MPMS-XL SQUID Magnetometer
Lakeshore Full Wafer Probe System $40 /hr
Lakeshore Tabletop Magnetic-Cryogenic Probe System $30 /hr

GMW-5201 Projected Field Magnet Probe System $30 /hr
GMW-5403 C-Frame Magnet Probe System $30 /hr
Cascade CPS-06 Four Point Probe $30 /hr

Sample Preparation, Cutting, Polishing, etc.

Sample Prep
Parr Pressure Reactor $25 /hr
Enerpac Hydraulic Press $25 /hr
Buehler Simplemet II mounting press $25 /hr*
Inert Gas Glove Box $40 /use
Ball Mill $15 /hr
Spex 8000 MIXER /MILL $40 /hr
Garlock GEM-T Jet mill $25 /hr
Meteor Coil Winder $40 /use

Cutting/Cleaning/Polishing
MicroMech Wafering Machine $50 /hr*
Buehler Isomet Low Speed Diamond Saw $50 /hr
Wale Diamond Band Saw $40 /hr
Conrad Universal Cutting Machine $70 /use
Glass Bead Abrasive Units (sand blasting)-Bard or Clark $40 /hr
SS White Sand Blasting Unit $40 /hr*
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Description</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grinding/Polishing</strong></td>
<td>Buehler Grinding/Polishing 12-inch</td>
<td>$40 /hr*</td>
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<tr>
<td></td>
<td>Buehler SiC Grinding Papers-Bard</td>
<td>$50 /use</td>
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<td></td>
<td>Struers Rotopol</td>
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<td></td>
<td>Branson Ultrasonic Bath (large)</td>
<td>$20 /hr</td>
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<tr>
<td><strong>Welding/Bonding</strong></td>
<td>Miller Intellitig40 Welder</td>
<td>$40 /use</td>
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<td></td>
<td>Unitek Portable Spot Welder (Bard Hall)</td>
<td>$20 /use</td>
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<tr>
<td></td>
<td>Stationary Spot Welder Hughes HRW250B (Clark Hall)</td>
<td>$20 /use</td>
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<tr>
<td></td>
<td>TPT HB05 Manual Wire Bonder</td>
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<tr>
<td></td>
<td>Kulicke - Soffa 4500 manual bonder</td>
<td>$40 /hr</td>
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<tr>
<td><strong>Vacuum Equipment</strong></td>
<td>Extorr XT200amu Portable RGA Pump Station 1-Clark</td>
<td>$1.67 /hr*</td>
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<td></td>
<td>SRS RGA200amu Portable RGA Pump Station 2-Clark</td>
<td>$1.67 /hr*</td>
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<td></td>
<td>Varian 979 Port Leak Detector</td>
<td>$3.75 /hr*</td>
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<tr>
<td></td>
<td>Portable Turbo Pump Stations (Clark Hall or Bard Hall)</td>
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<tr>
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<td>Rough Pumps (Clark Hall)</td>
<td>$0.40 /hr</td>
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**Test Equipment Lending Library**

Common items: model name (facility tag number). Hourly rate can be calculated from daily rate.

- Extech DC and BK Precision AC Power Supplies (9047-9051) $1 /day
- Agilent E3631A Triple Output Power Supplies (9040-9046) $1 /day
- GPIB-to-USB Adaptors (9180-9183) $2 /day
- HP 3325A Function Generators (9072-9077) $2 /day
- HP 8657B 2GHz Signal Generator (9085) $2 /day
- FW Bell Hall Probes (9140-9144) $2 /day
- Extech IRC40 250C Thermal Imager (9152) $3 /day
- Signal Recovery 5113 Preamplifiers (9024-9106) $3 /day
- Agilent 33521A Arbitrary Waveform Generator (9078) $3 /day
- Stanford Research SR560 Low Noise Amplifiers (9020-9031) $3 /day
- HP 85662A Spectrum Analyzer (9132) $4 /day
<table>
<thead>
<tr>
<th>Equipment</th>
<th>Price /day</th>
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<tbody>
<tr>
<td>Tektronix TDS2024 Four Channel Digital Oscilloscopes</td>
<td>$5</td>
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<tr>
<td>DL Instruments DL1121 Preamplifiers</td>
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<tr>
<td>Yokogawa 7651 DC Programmable Power Sources</td>
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<tr>
<td>Signal Recovery 7265 Lock-in Amplifier</td>
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<tr>
<td>Stanford Research SR844 RF Lock-in</td>
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<tr>
<td>Keithley 6430 Sub-femtoamp Source Meter</td>
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<tr>
<td>Agilient 4284A Precision LCR Meter</td>
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<tr>
<td>Tektronix TDS8000 Digital Sampling Oscilloscopes</td>
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<tr>
<td>Agilient E8257 PSG Analog Signal Generators</td>
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<tr>
<td>Picosecond 10070A Pulse Generators</td>
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<td>LeCroy 8500A Wavemaster Oscilloscope</td>
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<tr>
<td>LeCroy SDA11000 Oscilloscope</td>
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<tr>
<td>Agilient 8722ES Network Analyzer</td>
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<td>Agilient 8565E Spectrum Analyzer</td>
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<tr>
<td>Andeen Hagerling DCPAX/TP1 Capacitance/Loss Bridge</td>
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<tr>
<td>Agilient E4991A RF Impedance/Material Analyzer</td>
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<tr>
<td>Agilient B1500 Device Analyzer</td>
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