<table>
<thead>
<tr>
<th>Category</th>
<th>Instrument</th>
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| 1. Spectroscopy | Agilent 6530 q-TOF LC/MS  
Diamond ATR Golden Gate Accessory  
7700 Agilent ICP-MS inductively coupled plasma-mass spectrometer with laser ablation interface  
Thermo Nicolet Nexus 6700 FT-IR with HATR accessory  
Thermo Nicolet 380 FT-IR infrared spectrometer  
Thermo Nicolet Nexus 6700 FT-IR  
Bruker Avance 600 MHz NMR with Broadband and Variable Temperature Capabilities + $3,000 2013 workstation upgrade.  
Bruker Vertex 70 FT-IR  
Rudolph Research Polarimeter  
JEOL JMS-T100DART AccuTOF Mass Spectrometer with AP-MALDI and ESI  
Power Technology Laser system, Diod laser blue 405 nm and 50 MW output  
Beckmann Coulter Fluorescence DTX 880 multimode Plate Reader  
Thermo Nanodrop Spectrometer  
Biotek H4 Microplate Spectrophotometer  
Agilent Diode Array 8453 Spectrophotometer  
Quantech Fluorometer  
Biotek Eon Microplate Spectrophotometer  
RBD Sputter gun and accessories  
Hiden Analytical Mass Spectrometer and UHV chamber and Accessories  
Vacuum Pumps  
16 inch spherical UHV chamber CHAM-5-16  
Bruker DPX-300 NMR with QNP and Broadband Probes, and VT Accessory  
McAllister Tech Services - XYZ Manipulator system MB3004-SP  
Shimadzu UV-1601 UV-Vis Spectrophotometer (SN A10753782123)  
Lamba Bio+ UV/Vis Spectrophotometers (SN 3104)  
Oriel Instruments Nitrogen Laser  
Shimadzu UV-1601 UV-Vis Spectrophotometer  
SpectraTech Inspect IR  
LSI Nitrogen Laser  
Nicolet Avatar 370 FT-IR infrared spectrometer  
Agilent Diode Array 8453 Spectrophotometer  
Lambda 35 UV-Vis Spectrophotometer with data station  
Avatar Heated ARK flow cell  
Bruker Alpha FT-IR (with ATR accessory)  
Lamba Bio+ UV/Vis Spectrophotometers (SN 1994)  
Lamba Bio+ UV/Vis Spectrophotometers (SN 1997) |
Bruker TXI Inverse Triple Resonance Microprobe for 600 MHz NMR for observation of H, C and N including D lock and BLAX500 Linear Broadband Amplifier
Jasco FP-8500 Fluorometer
Lamba Bio+ UV/Vis Spectrophotometers (SN 2165)
Lamba Bio+ UV/Vis Spectrophotometers (SN 2216)
Lamba Bio+ UV/Vis Spectrophotometers (SN 2215)
Thermo Spectronic 200
Varian DuoAA atomic absorption spectrophotometer 240FS
Augier spectrometer
Jasco 810 CD/ORD
Lambda 2S
Infinity Diode array detector
Agilent 6460 QQQ LC/MS
Infinity Diode array detector
Thermo Spectronic 200 (2)
Bruker Bio-ATR Accessory for FTIR
StellarNet UV-Vis spectrometers(7)
Bruker D PX-300 upgrade to AVANCE III HD 300 High Performance Digital NMR console (BH054399), 5 mm BBFO probe including GRASPII actively shielded Z gradient coil and ATM accessory, BSVT Variable Temperature control, New workstation and software upgrade to Topspin 3.2 (magnet not upgraded)
Varian DuoAA atomic absorption spectrophotometers 220FS
Thermo Spectronic 200 (7)
Thermo Spectronic 200 (2)
Nicolet 560 FT-IR infrared spectrometer (2)
Jasco Fluorescence Monochrometer, for 810 CD/ORD
Agilent 6224 TOF LC/MS
Bruker DRX-400 NMR with Broadband Gradient Probe and VT Accessory, 10mm BBO probe, 5mm ATM BBO probe
Bruker DRX-400 upgrade to AVANCE III HD 400 High Performance Digital NMR console (BH088796), 5 mm BBFO probe including GRASPII actively shielded Z gradient coil and ATM accessory, BSVT Variable Temperature control, New workstation and software upgrade to Topspin 3.2 (Magnet not upgraded)
Support Frame and 2 high precision leak valves
Ion gauge and cables, titanium sublimation pump, and flanges
Turbo Pump and accessories
Sample Temperature Controller and heater
Thermo Spectronic 200 (8)
Cary 50 UV/Vis
Perkin-Elmer 5100 PC Atomic Absorption Spectrometer (FAAS & GFAAS), lamps and accessories
Cary 50 UV/Vis upgrade for temperature control and autosampler
Thermo Spectronic 200 (3)
### 2. Laser Lab

- **Power Technologies Lasers**
- **New Wave Nd/YAG, 90 mJ, 2-3µJ pulse laser**
- **Agilent Infinium 1GHz Digital Oscilloscope**
- **Continuum High Power ND/YAG Laser w Optical Parametric Oscillator and Pulsed Supercontinuum Light Source**
- **Extrel CMS Flange mounted quadrupole Mass spec**
- **Pulsed Supercontinuum Light Source**
- **Stanford Research Systems Galvanostat**
- **Newport, High Performance Optical Power/Energy Meter**
- **Bristol Instruments, Laser Spectrum Analyzer**
- **Stanford Research Systems, Spectrum Analyzer**
- **MKS Instruments, Manometer**
- **ILX Lightwave, Distributed Feedback Laser Control System**
- **Stanford Research Systems, DSP Digital Lock-In Amplifier**
- **Stanford Research Systems, Synthesized Function Generator**
- **Stanford Research Systems, Synthesized Function Generator**
- **Daylight Solutions Laser system**
- **Argon Ion**
- **Li-Cor, Portable Dew Point Generator**
- **Jarrell-Ash 1/2 meter scanning monochromator**
- **Hewlett-Packard 400 MHz Digital Oscilloscope**
- **Princeton Instrument Silicon Detector Array**
- **Pulse Generator**
- **Oscilloscopes**
  - **He/Ne (6)**
- **Optics, positioning equip, etc.**
- **Helium/Cadmium (2)**
- **Support accessories (e.g. lock-in amplifiers, computers (5), choppers, interfaces, etc.**
- **Hewlett-Packard 100 MHz Digital Oscilloscope (2)**
- **Nitrogen (3)**
- **Nd/YAG (3)**
- **CVI Digital Monochromator**
- **Spectrometer**

### 3. Microscopy and Materials

- **Antatech Sputter Coaters**
- **Quintel Expo 4K6 Mask Aligner**
- **J. A. Woollam Variable Angle Spectroscopic Ellipsometer**
- **Magnetic susceptibility balance**
- **Laurell Wafer Spin Processor**
Allied High Tech Products Multi-Prep Polishing System
Nanoscope III Scanning probe (99 upgrade)

Digital Instruments 3100 Scanning Tunneling Multimode Microscope
PANalytical XRD
Leica Fluorescence Module for MZ6 Microscope
Nikon Instruments 80i Upright Research Microscope
Digital Instruments 3100HP Atomic Force Multimode Microscope
Allied TechCut 5
KSV Instruments Langmuir Trough
T200 Theta Optical Tensiometer
Oriel 3" UV Flood Exposure system for optical lithography
Biolin Scientific Mini Trough without dipping well
IG Series Breadboard for Microscope
Stanford Research Systems Melting Point Apparatus
Lindberg 6" Tube Furnace
J. A. Woollam Variable Angle NIR upgrade 1100 NM to 1700 NM
Nikon C1Si Confocal Scanning Microscope (Joint with Biology, Chemistry, and Physics)
Phillips PW1820 Powder Diffractometer with MDI Data Scan software, Jade + data analysis software, with crystallographic data bases: ICDD, PDF, CSD (joint with Geology)
Leica MZ7 Stereo Optical Microscope w/ digital Camera and acquisition system
High Temperature (1200 C) Furnaces (3)
NanoScience Instruments Portable STM
NanoScience Instruments Portable AFM
Rudolph AutoEL IV Ellipsometer
Laurell Spin Deposition System
Zeiss scanning electron microscope (joint with CISAT, Physics, Biology and Geology)
SPM Dimension ICON system
NXQ 4000 Mask Aligner

4. Separations

H-P Model 5890A GC with FID
Agilent Model 6890 GC/5973 MS gas chromatograph/ mass spectrometer
Agilent Model 7890 GC/5977 MS gas chromatograph/ mass spectrometer
Agilent Model 1100 HPLC (FLD and fraction collector)
Agilent Model 1100 HPLC (RID)
Trace GC Ultra with ECD
Thermo Electron Focus GC with FID
Thermo Electron Focus GC with FID
Agilent Model 1200 HPLC
| 5. Nuclear Lab | Canberra Germanium Detector  
|               | Protean Instruments MPC-2000 alpha/beta counter  
|               | Canberra 7401 Alpha Spectrometer  
|               | Princeton Gama -Tech Intrinsic Ge N-Type coaxial detector  
|               | Canberra Intrinsic Germanium Detector  
|               | Canberra DSA-100 Multi channel analyzers  
|               | Canberra DSA-100 Multi channel analyzers  
|               | Perkin Elmer Tri-Carb 2810TR Liquid Scintillation Counter  
|               | Nuclear Data Lead shield for Germanium detector  
|               | Canberra Gamma Spectroscopy system with 4096 channel analyzer, intrinsic Ge detector, lead shield  

| 6. Polymer Analysis | Calorimetry Sciences MC-DSC  
|                     | Nima Technology Dynamic Surface Tensiometer  
|                     | Mettler/Toledo TGA/Mass Spectrometer  
|                     | Mettler/Toledo Differential Scanning Calorimeter  
|                     | Spin Coater Best Tools SC-100  
|                     | TA Instruments, Discovery DSC250 w/ MDSC  

| 7. Computational | Exxact Quantum TXRC6 (5 node cluster)  
|                 | Dell PowerEdge R420 (8 node cluster)  

8. General

Beckman Optima L-90K Ultra Centrifuge
Eppendorf 5804R refrigerated centrifuge
Sanyo Ultracold -80C Freezer
CEM Discover Microwave Synthesis System, Research
MaxTeK Quartz Crystal Microbalance
Beckman J-25 refrigerated centrifuge
M. Braun Glove box
CEM MARS Acid Digestion System
Barnstead Thermolyne Sterilemax sterilizer
Thermo Revco Ultima Plus -86 Degree Chest Freezer
LabConco, CentriVap Benchtop Centrifugal Concentrator
Anton Paar Density Meter
Avanti Centrifuge rotor JLA-16.250
Avanti Centrifuge rotor JLA 9.1000
Accu-Spin Micro-17(2) and M-20 centrifuges
Fisher Isotemp Model 282 Vacuum oven
LabConco, Benchtop Freezone Freeze/Dry system
Thermo Scientific Revco High Performance Chromatography Refrigerator
New Brunswick I26R Shaker and Base
Eppendorf 5804R refrigerated centrifuge
Retsch Mixer Mill
M. Braun Glove box
Precision Incubator
Innovative Techn. Solvent Purification System
Apha Innotech Gel Imaging System
CEM Microwave Synthesis System, MARS
IEC Benchtop Centrifuge, model CL31
UPS units for NMR spectrometers
UPS units for NMR spectrometers
Berghoff Acid Purification Still
LabConco, Biosafety Cabinet
3 UPS units for NMR spectrometers
UPS/Surge protector for PANalytical XRD
Amsco® Lab 250 Small Laboratory Steam Sterilizer, 20 X 20 X 38"
Beckman J-26S refrigerated centrifuge
Powerex Oil-less Compressor, SES-0508 HP
Peak Scientific NM120L Nitrogen Generator
New Brunswick Scientific Benchtop Refrigerated Incubator/Shaker 2 units (I-24R)
BioTage Microwave Reactor System with Biotage Initiator-8 Robot system
Vacuum Atmospheres Glove box
UPS unit Liebart
VWR Centrifuge; Centrivap
VWR Chromatography Refrigerator
Freezer -20