

## Major instrumentation, Department of Chemistry & Biochemistry - August 18, 2021

### Category

### Instrument

#### 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  
Lamba Bio+ UV/Vis Spectrophotometers (SN 3104)  
Oriel Instruments Nitrogen Laser

Shimadzu UV-1601 UV-Vis Spectrophotometer (SN A10753782123)  
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 DPX-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 Monochromator, 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 assessories

Cary 50 UV/Vis upgrade for temperature controll and autosampler

Thermo Spectronic 200 (3)

Bruker AVANCE NEO 600 NMR console  
JASCO J-1500 Dichroism Spectropolarimeter  
Bruker INVENIO-R FTIR Spectrometer

## 2. Laser Lab

Power Technologies Lasers  
New Wave Nd/YAG, 90 mJ, 2-3 $\mu$ J 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 Mat

Antatech Sputter Coaters  
Quintel Expo 4K6 Mask Aligner  
J. A. Woollam Variable Angle Spectroscopic Ellipsometer  
Magnetic susceptibility balance  
Laurell Wafer Spin Procesor

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

ESA Inc, Coulochem III Electrochemical Detector  
Dionex ICS-3000 Ion Chromatograph  
Wyatt Minidawn Treos Light scattering detector  
SRI 310C GC with TCD detector  
SRI 310C GC with TCD detector  
Biotage SP1 High Performance Flash Chromatograph  
ThermoFisher ICS-5000 Ion Chromatograph  
Agilent PL-GPC 50 Plus Integrated GPC System with UV detector and autosampler  
SRI 310C GC with TCD detector  
SRI 310C GC with TCD detector (3)  
SRI 310C GC with TCD detector (2)  
SRI 310C GC with TCD detector (3)  
Dionex 4500 Ion Chromatograph (joint with Geology)  
LKB Fast Protein Liquid Chromatograph  
BioRad Fraction Collector  
Agilent 1290 INFINITY II HPLC  
Agilent 1290 INFINITY II HPLC w/ Fluorescence Detector  
Agilent 1260 INFINITY II 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 Cenrifuge; Centrivap  
VWR Chromatography Refrigerator  
Freezer -20

ThermoScientific Lab rotater  
ThermoScientific Vari-Mix Platform Rocker