

The UCLA Molecular Instrumentation Center

The UCLA Molecular Instrumentation Center (MIC) is a state-of-the-art campus-wide facility dedicated to enabling the use of modern instrumentation in molecular characterizations (www.mic.ucla.edu). The MIC is housed within and managed through the Department of Chemistry and Biochemistry. The professional staff consists of eight Ph.D. level staff members and two graduate student assistants. The staff is responsible for operating, maintaining, and upgrading the equipment, training users, and providing consultation for the application of modern instrumentation to a large variety of disciplines. The following equipment is part of the UCLA Molecular Instrumentation Center:

Magnetic Resonance:

- Bruker AV600 broad band FT NMR Spectrometer – all nuclei
- Bruker AV500 broad band FT NMR Spectrometer – with cryoprobe optimized for ^{13}C sensitivity
- Bruker DRX500 broad band FT NMR Spectrometer – all nuclei
- Bruker AV400 broad band FT NMR Spectrometer with autosampler – all nuclei
- Bruker AV300 broad band FT NMR Spectrometer with autosampler – all nuclei
- Bruker AV600 broad band FT NMR Spectrometer for Solid-State samples

Mass Spectrometry:

- Thermo Instruments Exactive Plus with IonSense ID-CUBE DART source
- Thermo Instruments Q-Exactive Plus Hybrid Quadrupole-Orbitrap with nano-flow and capillary flow Dionex Ultimate HPLC's
- Thermo LTQ Orbitrap XL Mass Spectrometer with Eksigent NanoLC-2D HPLC
- Applied Biosystems-MDS Sciex 4000 Q Trap with Autosampler
- Agilent 6890-5975 GC-MS with Autosampler
- Waters LCT Premier with ACQUITY LC and autosampler
- Bruker 15T Solarix FT Mass Spec with Dionex LC and Advion Triversa chip-based ESI source
- Bruker Ultraflex MALDI TOF/TOF
- Gel Electrophoresis System consisting of:
 - Amersham TE62 Transfer Unit
 - Bio-Rad Protean Isoelectric Focusing Cell
 - Bio-Rad Criterion Dodeca Electrophoresis Cell
 - Bio-Rad Criterion Electrophoresis Cell
 - Bio-Rad Protean II xi Electrophoresis Cell
 - Bio-Rad Protean Plus Dodeca Electrophoresis Cell
 - Bio-Rad Fx Fluorescence Imager
 - Bio-Rad GS-800 Densitometer
- Thermo Scientific Sorvall Legend RT+ Centrifuge
- Laminar flow hood for keratin-free work
- Nonlinear Dynamics Progenesis SameSpots 2-D Analysis Software
- Mascot Search Engine for protein identification from MS data
- Scaffold Software for validating, organizing, interpreting & comparing MS database search results from one or more search engines
- PEAKS software for *de novo* sequencing and characterization of mutations and post-translational modifications of proteins/peptides
- Proteome Discoverer to identify and quantify proteins in complex biological samples
- Thermo Protein Deconvolution software

Materials Characterization:

- Kratos X-ray photoelectron spectroscopy (XPS) Axis Ultra DLD with ultraviolet photoelectron spectroscopy (UPS) and Auger electron spectroscopy (AES)

- Quantum Design Magnetic Properties Measurement System (SQUID)
- Zeiss Optical Microscope (reflectance optics, CCD camera)
- JEOL Scanning Electron Microscope (SEM) with Energy Dispersive Spectroscopy (EDS)
- Perkin Elmer Diamond Differential Scanning Calorimeter (DSC)
- Perkin Elmer Diamond Thermogravimetric/ Differential Thermal Analyzer (TG/DTA)
- First Ten Angstroms Contact Angle Goniometer
- Coulter Beckman Static Light Scattering Particle Analyzer – LS13 320
- Coulter Beckman Dynamic Light Scattering Analyzer – N4 Plus
- Shimadzu UV/Vis/NIR Spectrophotometer (transmission, specular reflectance, diffuse reflectance)
- Agilent 8453 UV/Vis spectrophotometer
- Jasco 420 FTIR Spectrophotometer
- Gel Permeation Chromatograph (GPC); Shimadzu HPLC with Wyatt multi-angle light scattering (18-angle MALS) and refractive index (RI) detectors.
- Rudolph Polarimeter
- Veeco Multimode Atomic Force Microscope (AFM)
- Ocean Optics Fluorimeter
- PAR 263A Potentiostat/Galvanostat (x2)
- CH Instruments Potentiostat/Galvanostat
- Keithley 2400 Sourcemeters
- Keithley 2000 Multimeters
- Agilent LCR meter
- Anatech Sputterer; Au, Pt, and Ag
- Ancillary materials synthesis & characterization equipment: tube furnaces, spin coater, centrifuges, vacuum oven, uv/ozone cleaner, probe sonicator, sonicator bath, shaker, and balances.

X-ray Diffraction:

- Bruker DUO Apex II CCD- single crystal X-ray Diffractometer (Quazar multilayer Microfocus Cu and Triumph Monochromator Mo-X-ray sources)
- Bruker D8 Discover Powder X-ray Diffractometer (9-sample stage - mirror optics – Vantec-1 Detector)
- Panalytical X'Pert Pro Powder X-ray Diffractometer (Bragg-Brentano and Parallel Beam optics - High Temperature Stage)
- Zeiss Stereo Discovery V12 Microscope

Date of last update: 2/16/2016