# Research Infrastructures - Laboratories and Equipment at the University of Cyprus

**Department of Chemistry**

**Common Equipment of the Department of Chemistry:**

* Nuclear Magnetic Resonance Spectrometer (300 MHz NMR)
* Nuclear Magnetic Resonance Spectrometer (500 MHz NMR)
* Single crystal X-ray Diffractometer
* Powder X-ray Diffractometer
* Mass Spectrometry (MALDI TOF-TOF)
* N2 Liquefier
* Gas Chromatography
* Liquid Chromatography
* Conductivity meter
* Refractometer
* Atomic Absorption Spectrometer
* Flame photometer
* Ultraviolet/Visible Absorption Spectrometer (UV / Vis)
* Infrared Spectrometer (IR)
* Polarimeter
* Electrochemistry System

**Specialized Research Equipment:**

**(1) Porous Solid Laboratory (Prof. Charis Theocharis)**

**Equipment:**

* Laboratory equipment for porous solids synthesis
* FTIR spectrometer
* Thermogravimetric analyser
* Freeze drying apparatus
* Nitrogen adsorption apparatus

## (2) Laboratory of Instrumental Methods of Analysis (Associate Prof. Constantina Kapnissi- Christodoulou)

## Equipment:

* Capillary Electrophoresis System
* High Performance Liquid Chromatography System
* Capillary Electrophoresis coupled to Mass Spectrometry

## (3) Laboratory of Organic Synthesis (Prof. Panagiotis Koutentis)

**Equipment:**

* DSC TA Q1000 with auto sampler and high pressure cell
* TGA TA Q500 with HI- RES software
* Princeton Applied Research Potentiostat/Galvanostat 263A
* Princeton Applied Research 303A Static Mercury Drop Electrode
* Princeton Applied Research Micro-cell K0264 Kit
* Shimadzu Q2010 GCMS with Direct Inlet Probe
* Shimidazu FTIR-NIR Prestige-21 with Pike Miracle Ge ATR Accessory
* CEM Discover Microwave Reactor
* Perkin-Elmer Lambda-25 UV/vis Spectrophotometer
* PolyTherm-A, Wagner & Munz, Kofler-Hotstage Microscope
* Quartz Photochemical Reactor
* Parr Shaker Hydrogenator
* Parr Hasteloy Bomb Reactors (500, 100 and 25 ml capacity)
* Buchi Kugerohl Distillation Ovens
* 3-Stage Horizontal Zone Furnace
* 1-Stage Horizontal Zone Furnace

## (4) Laboratory of Supramolecular and Fullerene Chemistry (Associate Prof. Nikos Chronakis)

## Equipment:

* Laboratory equipment for organic synthesis
* Circular Dichroism Spectrometer
* HPLC

## (5) Laboratory of Organic Synthesis (Lecturer Savvas Georgiades)

**Equipment:**

* Laboratory equipment for organic synthesis
* High-performance preparative scale liquid chromatography

## (6) Laboratory of Organic Chemistry Laboratory (Assoc. Professor Athanassios Nicolaides)

**Equipment:**

* Vacuum line setup
* Hydrogenation apparatus
* Glove-box

Gas chromatograph

* PQS workstations
* Gaussian
* ADF

## (7) Laboratory of Inorganic Synthesis (Prof. Anastasios Keramidas)

* Laboratory equipment for inorganic synthesis
* Visible / Ultraviolet Absorption Spectrometer (UV / Vis)
* Time resolved fluorescence photometer
* CHN elemental analyzer

## (8) Metal Cluster Chemistry Laboratory (Professor Anastasios Tassiopoulos)

## Equipment:

* Laboratory equipment for inorganic synthesis
* Infrared spectrometer including a near-IR kit
* Visible / Ultraviolet / Near Infrared Spectrometer (UV / Vis / NIR) equipped with an integrating sphere attachment for solid state studies
* Thermogravimetric analyzer

## (9) Polymer Synthesis and Characterization Laboratory (Prof. Costas S. Patrickios)

## Equipment:

* Laboratory equipment for polymer synthesis
* Spectrometers for Dynamic and Static Light Scattering
* Atomic Force Microscope
* Size Exclusion Chromatographs
* Dynamic Mechanical Analyzer
* Instron (Instron Mechanical Testing Machine)
* Differential Scanning Calorimeter DSC
* UV / Visible Spectrometer

## (10) Physical Chemistry of Colloids and Interfaces (PCCI) Laboratory (Prof. Epameinondas Leontides)

## Equipment:

* Two Langmuir-Blodgett systems
* Brewster-angle microscope
* Polarization modulation (PM) infrared reflection-absorption spectrometer
* Static fluorescence spectrophotometer. UV-vis spectrophotometer
* High end rheometer
* Isothermal titration calorimeter
* Ion chromatograph
* Quartz crystal microbalance
* Polarization microscope with heating plate
* Layer-by-layer deposition instrument
* Ultrapure water supply system
* Balances with 2 and 4 digit accuracies
* Multiscop (an instrument combining ellipsometry with surface plasmon resonance spectroscopy)
* Photoelectrochemical water-splitting system, with potensiostat and solar simulator
* Spray drier
* High temperature gas furnace
* Conductivity and pH meters, selective electrodes
* Gas flow panel
* Electrospinning system

## (11) Laboratory of Molecular Spectroscopy (Associate Prof. Sophia Charalambous-Hayes)

## Equipment:

* Raman resonance spectrophotometer (Nd:YAG lasers, 405 and 473 diode lasers, 632 nm HeNe laser, ¾ m spectrometer, UV- and Near-IR enhanced LN2 CCD detectors)
* Fluorescence spectrophotometer with gated CCD camera for time resolved fluorescence analysis

## (12) Heterogeneous Catalysis Laboratory (Professor Angelos M Efstathiou)

**Equipment:**

* Transient Gas Flow Systems allowing step or pulse gas switches at the inlet of the catalytic micro-reactor connected to Mass Spectrometer for the recording of gas-phase dynamic responses.
* Gas Flow Systems and reactors for catalytic measurements under steady-state reaction conditions.
* Infrared Fourier Transform Spectrometer coupled with in situ DRIFTS cell
* Mass Spectrometers
* UV-vis spectrometer coupled with Diffuse Reflectance cell (DRS)
* Equipment (ASAP 2000) for the measurement of several textural parameters of porous materials
* Powder X-ray diffraction environmental cell used under gas flow in the 25-900oC range.

## (13) Laboratory of RadioAnalytical Chemistry (Prof. Ioannis Paschalidis)

## Equipment:

* Alpha-Beta Counter
* Proportional Counter
* Alpha Spectrometers
* UV-Vis Spectrometer
* FTIR Spectrometer
* Fluoresence Spectrometer
* Electrodeposition Units

**(14) Biophysical and Bioanalytical Chemistry Laboratory (Assist. Prof. Eftychia Pinakoulaki)**

**Equipment:**

* Experimental Setup for Raman Spectroscopy (640 mm focal length Czerny- Turner monochromator equipped with CCD detector, 325 nm HeCd laser, 442 nm HeCd laser, 405 nm diode laser & pulsed (ns) Nd:YAG laser (1064 nm, 532 nm, 355 nm, 266 nm)).
* Experimental Setups for Time-resolved Step-Scan FTIR Spectroscopy (2 Step-Scan FTIR Spectrometers, pulsed (ns) Nd:YAG laser, Digital delay Generator, Amplifier, Oscilloscope)
* High Performance Liquid Chromatography (UHPLC) System.
* UV/Vis spectrometer
* Other equipment: centrifuge, vacuum lines, Soxhlet and solid phase extraction.