

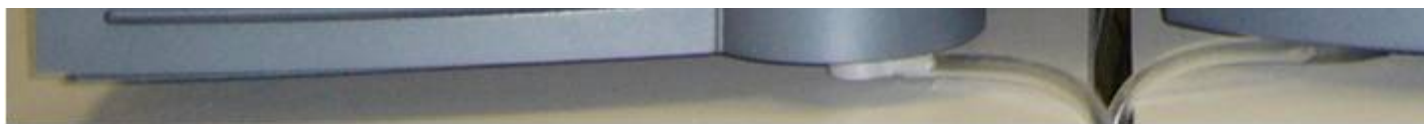


les Sciences - Université de Versailles  
Saint-Quentin-en-Yvelines | CNRS



# MASS SPECTROMETRY





The mass spectrometry service of the Lavoisier Institute, located on the ground floor of the building, has a mass spectrometer coupled to liquid chromatography as well as the equipment necessary for the preparation of samples.

## Missions and tasks performed

This mass spectrometer makes it possible to identify molecules in mixtures by measuring their mass in high resolution (accurately measuring the mono-isotopic mass of ions and deducing their gross formula) and characterizing their chemical structure (analysis of compounds of unknown structure).

The high sensitivity of the mass spectrometer and its coupling with a UPLC system makes possible the analysis and identification of trace substances in mixtures.

## Equipments

The mass spectrometry service of the ILV provides:

Xevo Q-ToF WATERS Time-of-Flight Quadrupole Hybrid Mass Spectrometer coupled with ACQUITY UPLC WATERS Liquid Chromatography System

- \* mass range: from 20 to 100000 Da
- \* accuracy of mass measurement: less than 3 ppm up to  $m/z = 1500$
- \* positive or negative mode
- \* source at atmospheric pressure: ESI, ESCI and ASAP
- \* MS and MS / MS experiments in high resolution
- \* instrument controlled by MassLynx
- \* composed of a binary solvent manager, a sample changer and a column oven
- \* UPLC column of very small particle size which allows a gain of solvent and time of analysis
- \* maximum pressure supported by the system: 15,000 psi - 1034 bar

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This device offers applications in the fields of chemistry, biochemistry, environment, pharmacy, cosmetics ...

Methodologies have been developed to adapt to the diversity of objects to be analyzed; thus, analysis and calibration methods have been created for the study of polyanions and polycations, high molecular weight compounds (polyoxometallates, polyoxothiometallates, dendrimers), plant extracts, associated with specific know-how. on the interpretation of the mass spectra obtained. Other methodologies have been used to enable reaction reaction synthesis and the study of intermediates.

## Users

The Mass spectrometry service of the Lavoisier Institute is open to all research teams of the Lavoisier Institute (UMR 8180) and to the scientific community wishing to carry out analyzes in high resolution mass spectrometry or to be trained to use of the apparatus. He is involved in the Labex CHARMMMAT (Chemistry of Multifunctional Molecular Architectures and Materials) and is a member of the Cosmetic Valley.



## Services

- » mix analysis
- » structural elucidation
- » LC / MS method optimization and results interpretation
- » training in the use of the mass spectrometer
- » personalized benefits
- » obtaining low and high resolution mass spectra (ESI and ESCI)

## Access to the apparatus

The setting up of a scientific project can be established after discussion with the person in charge of the service.

The analyzes will be carried out by the engineer in charge of the service or by the person requesting the analyzes who will be trained to use the device; in this case, an access (after reservation) to the device will be authorized with or without the presence of the engineer in charge.

It is possible to visit the platform by appointment (by email or phone).

THE MASS SPECTROMETRY SERVICE OF THE LAVOISIER  
INSTITUTE IS OPEN TO THE ENTIRE SCIENTIFIC  
COMMUNITY.

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Service manager:  
Aurélie DAMOND