

JEUDI 18 AVRIL À 14H

MAISON D'HÔTES DU GANIL

“

Mass spectrometry at the limits of biological objects: viruses, bacteria and amyloid fibers

”

Sylvain **MACLOT**

CIMAP

Bioparticles consisting of self-organized biomolecular assemblies are ubiquitous in nature. Viruses are a good example of this and are the most abundant and robust biological entities on Earth.

New electrostatic traps (Benner trap) based on charged detection mass spectrometry (CDMS) have recently been set up to carry out fragmentation experiments on selected ions with masses up to several GigaDalton [1]. One of this setup has been developed in the SpectroBio group of iLM at University of Lyon 1, allow coupling with a laser and performing infrared multiphoton dissociation, monitoring fragmentation and determining the activation energy of unimolecular dissociation of bioparticles and whole DNAs [2,3,4].

The goals are to develop both an analytical chemistry approach to characterize bioparticles by mass spectrometry, and to push the limits of photo-fragmentation induced by laser irradiation on intact viruses or other bioparticles (bacteria or amyloid fibers) to develop new structural characterization tools.

I will present what I was doing on my last postdoc at iLM on the development of a new setup and how to use it to characterize viruses and other mesoscopic systems in the gas phase using CDMS technique.

References:

- [1] T. Doussineau et al., Rapid Commun. Mass Spectrom. 25 617 (2011)
- [2] R. Antoine et al., Phys. Rev. A 87 013435 (2013)
- [3] T. Doussineau et al., J. Phys. Chem. Lett. 3 2141 (2012)
- [4] T. Doussineau et al., J. Am. Soc. Mass Spectrom. 26 7 (2015)

SÉMINAIRE

