



SEMINAIRE ISMO

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Cold ion spectroscopy resolved by ion mobility: A new way to study larger biomolecules

We present the development of a new instrument for the structural characterization of biological molecules in the gas-phase. This instrument combines ion mobility with cold ion spectroscopy, thereby enabling the acquisition of UV/Vis and IR spectra for isolated species of a selected average cross-section.

Spectroscopy of cold, isolated peptides provides detailed structural information where each conformer can be studied and directly compared with accurate theoretical calculations. The technique presently used, which is based on IR/UV spectroscopy, works well for small peptides. However for larger peptides, the large number of conformers that coexist inside our ion trap results in electronic spectra that are generally broad and unresolved, preventing us from measuring IR spectra of individual conformers.

One way to reduce the number of conformers is to select them by non-spectroscopic means before they enter the trap. For this reason we have built a new photofragment spectrometer that combines drift-tube ion mobility spectrometry with cold ion spectroscopy. Indeed the drift tube allows the possibility to resolve conformers, and this should result in a significant simplification of the spectroscopy of large systems. Our design combines a multi-segment drift tube with a cooled, planar ion trap that is directly coupled to a time-of-flight mass spectrometer.

Construction of the instrument is now complete and preliminary results have been obtained for several small peptides. I will present during my talk a description of this new equipment and the preliminary results obtained.

Mardi 8 avril 2014 à 11h
Bât. 210 – Amphi 1 (2^{ème} étage)
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