

DIRECTION DES SCIENCES DE LA MATIERE,  
INSTITUT RAYONNEMENT MATIÈRE DE SACLAY

SERVICE DE PHYSIQUE ET DE CHIMIE DES SURFACES ET DES INTERFACES

# SEMINAIRE \*

Vendredi 25 juin 2010 à 11h00

Bâtiment 466, salle 111 - CEA Saclay, 91191, Gif sur Yvette

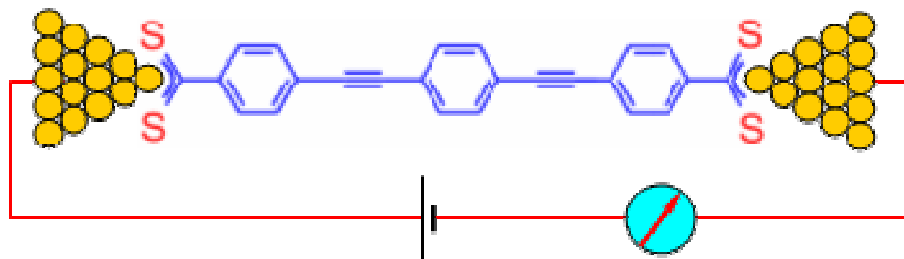
## Single Molecule Charge Transfer and Localization at Interfaces

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*Invité par Ahmed Hamraoui*

Charge transfer through and between molecules is central to many important processes in nature. In particular, studying the conductivity of single molecules can contribute to a better understanding of charge transfer through molecules, and also help develop better molecular wires and other building blocks of molecular electronics, light harvesting devices, etc. We will discuss the results of a number of different experiments designed to understand these processes at the single molecule level. We measure the conductivity of molecules using the STM break-junction method that utilizes repeatedly formed circuits where one or a few molecules are trapped between two electrodes, at least one of which has nanoscale dimensions. The statistical analysis of thousands of measurements yields the conductance of single molecules. Of particular interest is the role of the molecule-electrode contact, which we have investigated using specially designed linker groups, in conjugated organic oligomers, as well as the conductivity of Peptide Nucleic Acids (PNA). Experiments to probe charge transfer between molecules is made possible because STM can distinguish between oxidized and reduced porphyrin species on electrodes so that two-dimensional charge diffusion can be observed at the molecular level under electrochemical conditions.



**\* SERA PRECEDE D'UNE PAUSE-CAFE A PARTIR DE 10H30**

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