



## SEMINAIRE ISMO

**Yannick J. Dappe**

*Service de Physique de l'Etat Condensé (UMR 3680 CNRS-CEA Saclay)*

### **Graphene as a promising electrode for molecular electronics : role of the symmetry breaking on the attenuation factor**

Single molecular junctions constitute elementary units in Molecular Electronics. In that respect, understanding electronic transport phenomena in those systems remains an important challenge. Electronic transport properties in molecular junctions are related to many factors such as molecular length, contact binding properties, and electronic level alignment between molecule and electrodes. In this frame, the use of graphene electrodes to form new type of asymmetric junctions sheds new light on the electronic transport properties in these systems, in particular with respect to the attenuation of the electric current in molecules.

In this seminar, after a brief introduction on electronic transport in molecular junctions, I will present some of my recent works on the study of attenuation factors in hybrid metal - organic molecule - graphene junctions, by discussing in particular some aspects of symmetry breaking induced by the use of a graphene electrode. Hence, I will show that this effect is related to the asymmetry of the coupling between the two extremities of the junction, namely covalent or van der Waals bonding. As a result, a lower electric attenuation is observed with respect to standard molecular junction based on metallic electrodes.

**Mardi 28 mai 2019 à 11 h**  
**Amphithéâtre du bât 520 (3<sup>ème</sup> étage)**  
**Université Paris-Sud - 91405 ORSAY Cedex**