



## SEMINAIRE ISMO

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### **Properties of NTCDA/metal interfaces studied by photoemission and STM**

In the recent years remarkable interest has been paid in studying properties of organic molecules on metal surfaces. In particular, the planar conjugated molecules with delocalized  $\pi$ -like electron system on noble metals have attracted much attention since they show large scale structures with a high degree of order and a well-defined crystalline orientation. Here, I will present photoemission and STM investigations on the behavior of NTCDA in contact with (111)-oriented Ag, Au, and Cu surfaces. In the sub-monolayer regime, NTCDA grows flat on Ag(111) and is covalently bound (chemisorbed) to the substrate via the conjugated  $\pi$ - electron system of the naphthalene core. However, on Au(111) the interaction is rather weak and can even be treated as a physisorption process. Core level and valence band data on NTCDA/Cu(111) suggest a significant charge transfer and strong bonding at the interface.

More interesting, the coupling between conduction states and localized states within the molecular layer can lead to the formation of Kondo-like resonance feature at the Fermi level, as in the case of NTCDA/Ag(111). This strong coupling is sensitively modified after chemical treatment of the Ag(111) substrate which permits, for example, to define the exact HOMO energy of the NTCDA molecule. I will discuss here the crucial role of the metal electronic structure in the bonding of the organic molecules to the surface. On the other hand, the interface properties are strongly influenced by the molecule properties. Comparison with others molecules, namely PTCDA and pentacene, will be also discussed.

**Mardi 17 septembre 2013 à 11h**

**Bât. 351 - 2<sup>ème</sup> étage**

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