



SEMINAIRE ISMO

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Nitrogen doped graphene and its interaction with molecules : a scanning tunneling microscopy study

Tailoring the properties of graphene is of fundamental interest to uncover new functionalities and open new opportunities for graphene based devices. In this context, substitutional doping and molecular functionalization have focused tremendous efforts. Nitrogen doping obtained by replacing some carbon atoms by nitrogen atoms appears to be particularly interesting because it allows to perform an electronic n-doping of graphene with minor structural perturbation. The study of nitrogen doped graphene by scanning tunneling microscopy (STM) has allowed to reveal the electronic effect induced by the insertion of nitrogen atoms that turns out to be more complex than a rigid band model. This chemical doping can also modify the interaction of graphene with organic molecules that can be useful for sensing or catalysis. Model systems consisting in porphyrin or TCNQ molecules on pristine and doped graphene have been investigated by STM. The local spectroscopy allows to measure the resonances arising from the molecular states and to reveal the electronic coupling between molecules and graphene. Local charge transfer and electric field effect have been evidenced and will be discussed. These studies intend to provide more understanding on the effect of chemical doping on the properties of graphene.

Mardi 5 février 2019 à 11 h
Amphithéâtre du bât 520 (3^{ème} étage)
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