

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

SERVICE DE PHYSIQUE ET DE CHIMIE DES SURFACES ET DES INTERFACES

SEMINAIRE *

Mardi 27 mai 2008 à 11h00

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

Atom-manipulation and self-assembly on metal surfaces

Prof. A Kara

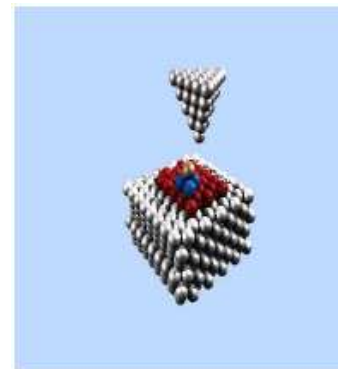
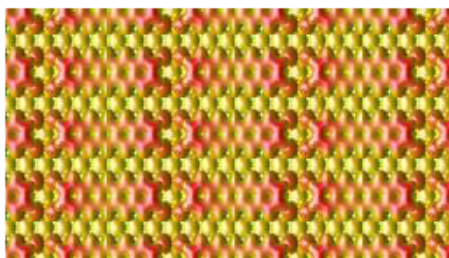
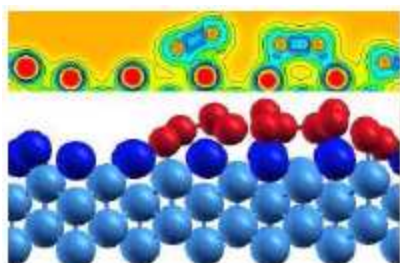
Department of Physics, University of Central Florida, Orlando, FL32816

Invité par Patrick Soukiassian

Résumé : In a first part of my talk, I will show how we simulate atomic manipulation on metal surfaces using STM/AFM tips. When a STM/AFM tip approaches to a metal surface, it perturbs locally the energy landscape. As a consequence, the energetics and dynamics of adsorbed species are altered. I will present results on how a tip induces changes during lateral and vertical manipulation of atoms on flat, stepped and kinked surfaces. I will also present our recent results how to "pluck" an atom from a mound; as well as preliminary results on mechanisms involved in 2D islands manipulation.

In a second part of my paper, I will present results on a recent study of the atomic and electronic structure of Si nanowires on Ag(110) and pentacene on Cu and Ag (110). Silicon forms very long (>100nm) nanowires on Ag(110), with a definite width of about 4 times the lattice constant of Ag. Using density functional theory, we have studied several configurations and compared our results with available experimental data. I will show detailed results for 2 configurations containing 30 and 36 Si atoms per unit cell respectively.

Finally, I will present my preliminary results on the adsorption of a pentacene film on Cu and Ag(110) where the adsorption type (chemisorption/physisorption) is ill defined. I will show how the molecule structure is altered upon adsorption and what electronic changes it induces.



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

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