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

SERVICE DE PHYSIQUE ET DE CHIMIE DES SURFACES ET DES INTERFACES

SEMINAIRE *

Jeudi 14 mai 2009 à 11h00

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

Quasi-one-dimensional metal-induced nanowires on semiconductor surfaces

Prof. Friedhelm Bechstedt

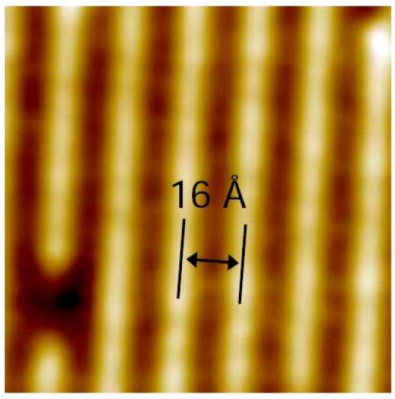
Friedrich-Schiller-Universität Jena, Germany

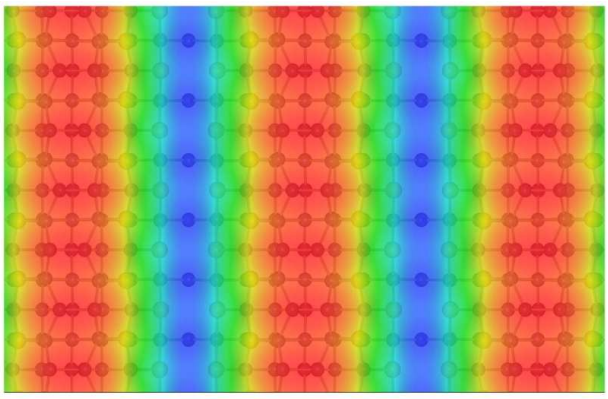
Invité par Patrick Soukiassian

Quasi-one-dimensional (1D) atomic wires on semiconductor substrates are prominent candidates to study novel exotic physics in reduced dimensions such as Luttinger liquid behaviour, spin-charge separation, and formation of charge density waves. However, the interest is also driven by possible future applications.

Submonolayer deposition of indium on Si(111), platinum or gold on Ge(001) results in a self-organized formation of atomic wires. In STM images these wires appear as almost perfect 1D systems at fixed vertical distances reaching lateral extensions of up to one micrometer. Usually their atomic geometry is completely unknown.

These quasi-1D systems are studied theoretically by means of first-principles methods. The results are compared to available experimental data. More in detail, we discuss atomic geometries, driving forces for self-organization, electronic structures including bandstructures, STM images, and scanning tunneling spectroscopy spectra.





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

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