



DIRECTION DES SCIENCES DE LA MATIERE,
INSTITUT RAYONNEMENT MATIÈRE DE SACLAY
SERVICE DE PHYSIQUE ET DE CHIMIE DES SURFACES ET DES INTERFACES

SEMINAIRE

Lundi 30 Juillet 2012 à 11h00[†]

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

Instability and phase transition of one-dimensional chain structure on the Si(111) surface : Si(111) 4×1-In

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(invité par Fabrice Charra)

In recent years, quasi-one-dimensional chain structures formed on Si(111) surface induced by metal adsorption have attracted considerable attention due to the reduced dimensionality, exhibiting novel phenomena originated from enhanced many-body interactions. One of the exemplary systems that have been extensively studied is a Si(111)4×1 surface induced by 1ML of In. The metallic Si(111)4×1-In surface at room temperature undergoes a structural and electronic phase transition to an insulating 8×2 phase at temperatures below 100-130 K. While the low-temperature phase was originally proposed to be a charge density wave condensate, the driving mechanism and the nature of the phase transition remain unresolved. In this talk, I will present our recent work to unveil the nature of the phase transition of this one-dimensional system and influence of defects/impurities on the phase transition. I will also discuss the use of this surface as a template to fabricate one-dimensional structures.

[†]Attention: Date Inhabituelle

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