



## **SEMINAIRE ISMO**

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### **Electronic structure, dynamics and spectroscopy of quantum well states in overlayers**

Thin metallic overlayers or extended nanoislands are one of the simplest nanostructures that can be grown epitaxially in metallic and semi-conductor substrates. In this case the interfaces formed by the substrate and the vacuum can lead to the formation of a rich variety of (partially) confined states. These can be, among others: quantum well states (QWS), quantum well resonances (QWR), or hybridized quantum well/image states (QWS/IS) depending on the character of the confining potential barriers at a given energetic region.

Apart from the important static properties, such as the atomistic and electronic structure of metallic nanostructures, excited states play an important role in surface reactivity. Experimental spectroscopy techniques themselves used to characterize the properties of nanostructures at surfaces, such as scanning tunneling microscopy or photoemission techniques, involve excitation of the underlying electronic system and/or modification of electron confinement barriers. Thus it is worth understanding the dynamics of the electron in metallic nanostructures.

In my talk, after giving a general overview on the topic, I will present part of the current research on electronic structure, dynamics and spectroscopy of confined states in metallic overlayers. The example of Pb overlayers, supported on Cu(111), will be discussed.

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**Mardi 15 janvier 2013 à 11h**

**Bât. 351 – 2<sup>ème</sup> étage**

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