



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

SERVICE DE PHYSIQUE ET DE CHIMIE DES SURFACES ET DES INTERFACES

# SEMINAIRE \*

Jeudi 12 mai 2011 à 11h00

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

## **When Superconductivity Meets Magnetism: $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ as a knob to tune superconductivity in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$**

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The relationship between superconductivity and magnetic order is an important issue for both fundamental and applicative research (spintronics). The recent progress in manufacturing heterostructures provides an opportunity to study the interplay between superconductivity and magnetism. Knowing that the valence electrons in cuprates and even more in manganites are subject to strong magnetic interactions, the charge transfer across the interface accompanied with the magnetization is expected to have a crucial influence in these systems. An interesting question is if we use the charge transfer to control the doping level of cuprates. If so, it can provide an optimal way to dope cuprates without the complication of structural disorders introduced by chemical doping.

To study the interplay between superconductivity and magnetism we are investigating LSMO and YBCO film and a series of n(YBCO)/m(LSMO) bilayers and multilayers (n and m are numbers of YBCO and LSMO unit cells respectively) grown on different substrates. To study YBCO/LSMO interface we are using Angle Resolved Photoemission Spectroscopy (ARPES) (study of electronic structure), Polarized Neutron Reflectometry (PNR) (to reveal the depth profile of the magnetic induction) and Resonant Inelastic X-ray scattering (RIXS) measurements (for resolving the low energy magnetic excitations in with orbital sensitivity).

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

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