



Institut de Minéralogie et de Physique des Milieux Condensés
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SÉMINAIRE

Lundi 14 juin, 10h30

*Salle de conférence, Bâtiment 15
Campus Boucicaut, 140 rue de Lourmel, 75015 Paris*

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SINGLE-PARTICLE PROPERTIES OF IRON-BASED SUPERCONDUCTORS FROM AN LDA+DMFT PERSPECTIVE

The discovery of high-temperature superconductivity in iron-based compounds triggered an enormous amount of research in condensed matter physics. Not even two years after their discovery, scientists have already collected a huge amount of experimental data. A very intriguing property of these new compounds is the high flexibility concerning elemental substitutions, leading to several families of superconductors, termed '1111', '122', '11', and so on, depending on their chemical composition. This talk will be devoted to the analysis of the single-particle properties of prominent iron-based superconductors using a combination of density-functional theory with the Dynamical Mean-Field Theory, which enables us to understand also these more complex materials at a first-principle level. We will show that there are significant differences in the electronic properties, when going from more weakly correlated members as LaFeAsO, to more correlated ones like FeSe. For reasonable Coulomb parameters, the properties range from Fermi-liquid like to incoherent bad-metal like.

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