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Seminaires du LPTM , Universite de Cergy Pontoise

Jeudi 13 Décembre 2018, 14 :00
LPTM, 4.13 St Martin II
Domaines : cond-mat

Titre : *Competition of gaps and unconventional high-energy Cooper pairing in cuprates : a Cluster Dynamical Mean Field Theory Perspective*

Orateur : **Marcello Civelli (LPS Université Paris Sud-Paris Saclay)**

Résumé : *A most striking feature of high-Tc cuprate superconductors is the persistence of a gap above the superconducting transition temperature Tc, where an unconventional metallic phase, known as the pseudogap, sets in. The pseudogap is not well understood yet and it is generally believed to be at the roots of the high Tc superconducting mechanism. By exploiting cluster dynamical mean field theory results on the two dimensional Hubbard Model, we show that the pseudogap and the superconducting gap compete for the same electrons, producing an unconventional form of the superconducting pairing that involves electrons in high energy states. We show that these findings leave visible fingerprints in the Raman response, which displays a characteristic peak-dip feature. The good agreement between theoretical and experimental results reveal an unprecedented relationship between the pseudogap and superconducting gap, which eventually boosts up the Tc.*