SEMINAIRE DE LA MATIERE CONDENSEE

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Superconductivity by Exchange of Electronic Fluctuations

Vendredi 13 septembre 2013 à 10h30
Salle de conférence 15 – Bâtiment 563

ATTENTION JOUR INHABITUEL

I will review the necessary requirements for S, P and D-wave supercon-ductivity and the conditions on Antiferromagnetic Fluctuations that deter-mine the transitions temperature for D-wave Pairing. The recently measured spin-uctuation spectrum near the Antiferromagnetic quantum-critical point in$CeCu_2Si_2$ is used to calculate T_c and the temperature dependence and the co-e_cient of resistivity to substantiate the conclusions. Similar calculations show that the measured spin-uctuation spectrum in the Cuprate high temperature superconductors cannot be responsible for their superconductivity or normal state anomalies. The phase diagram of the Cuprates is reviewed pointing out the region of quantum-critical uctuations and the order necessary in under-doped Cuprates to generate them. The theory of such an order, its quantum-critical uctuations and the coupling of such uctuations to fermions to generate the normal state anomalies and D-wave will be briey described. The deduction of the uctuation spectrum from inversion of Angle-Resolved Photoemission is also demonstrated.

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