SFB/TRR 21 - Seminar

15. Februar 2011, Stuttgart

Lara Benfatto

(CNR Institute for Complex Systems, Rome, Italy)

Interband interactions and optical sum rule in pnictides

The occurrence of superconductivity in pnictides renewed in the last year the interest in the physics of multiband superconductors. However, what makes the case of pnictides very peculiar is the fact that interactions have mainly an interband character, as due to exchange of spin fluctuations between hole and electron pockets. These two characteristics make the theoretical description of pnictides much more involved than what is usually believed, forcing us to revise our standard paradigms for correlated electron systems. In this talk I will review some of our recent results based on a multiband model with retarded interactions treated within Eliashberg theory. I will focus in particular on the relation between the Fermi-surface shrinking observed in de Haas van Alphen experiments and the optical sum rule, showing that the charge conservation in these systems occurs via a subtle balance between coherent and incoherent processes, with profound (and measurable)consequences on the optical properties.

15. Februar 2011, 13:00 Uhr

Universität Stuttgart, NWZII, Raum 3.531
Pfaffenwaldring 57, 70569 Stuttgart

CO.CO.MAT