

EINLADUNG

zum Vortrag von

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über

Spin fluctuation theory for high- T_c cuprates: a status report

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Dienstag, 15. Jänner 2008, um 17.30 Uhr

Ort: Großer Hörsaal der Experimentalphysik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Abstract:

After 20 years of intense research, there still does not exist a consensus on the underlying mechanism for high- T_c superconductivity in the cuprates. One of the possible candidates for Cooper-pairing in the high- T_c cuprates is the exchange of spin fluctuations; such a mechanism would lead to characteristic fingerprints in the elementary excitations. In this talk I will discuss our recent theoretical work on the kink feature and resonance peak and their possible interpretations due to spin fluctuations and phonons. We have employed and extended the FLEX algorithm which allows to study the influence of phonons and also the doping dependence. Although the phase diagram of hole- and electron-doped cuprates reveal some similarities, both effects are mainly present in hole-doped cuprates, but not well pronounced in electron-doped ones. The kink feature and resonance peak are also related to tunneling experiments and measurements of the optical conductivity and shed important light on the essential ingredients a theory for Cooper-pairing in the cuprates must contain.