

SFB 608

Einladung zum Kolloquium

Ort: Universität zu Köln
II. Physikalisches Institut
Seminarraum 201

Zeit: 11. Juni, 2008, 14:30 Uhr

Sprecher: J. Fink
Bessy Berlin & IFW Dresden

Thema: Many-body properties of solids
studied by high-energy spectroscopy

The understanding of correlation effects and other many-body properties in solids is of vital interest for the understanding of the macroscopic properties such as the resistivity, magnetism, or superconductivity. This dressing of the charge carriers is normally described by the complex self-energy function which is related to the effective mass enhancement and the scattering rate. Due to the strongly increased energy and momentum resolution, angle-resolved photoemission (ARPES) has developed to *the* method to study the self-energy. In this contribution I will review recent very high resolution ARPES studies on particular solids: firstly I will present recent studies on the dressing of charge carriers by anisotropic electron-phonon coupling in intercalated graphite; secondly I will review our systematic studies on the coupling of charge carriers to magnetic excitations in high- T_c superconductors. These investigations will be complemented by recent electron energy-loss experiments on the interactions of excitons with the antiferromagnetic order in undoped and slightly doped cuprates. Finally I will discuss the relationship between the dressing of the charge carriers and the mechanism of superconductivity in these systems.

Gez. H. Tjeng