SFB 608

Einladung zum Sonderkolloquium

Ort: Universität zu Köln
II. Physikalisches Institut
Seminarraum 201

Zeit: Dienstag, den 2. September 2003, 15 Uhr c.t.

Sprecher: Dr. S. Nakatsuji
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Thema: Heavy Mass Fermi Liquid and its orbital and spin correlation in the Mott transition system $Ca_{2-x}Sr_xRuO_4$.

A diversity of orbital related phenomena has attracted considerable interest in transition metal oxides. The single layered ruthenate $Ca_{2-x}Sr_xRuO_4$ is a rare example of a Mott transition system that exhibits a rich and unusual "orbital dependent" ground state, connecting two opposite ground states: the orbital ordered Mott insulator Ca_2RuO_4 and the orbital degenerate spin-triplet superconductor Sr_2RuO_4. Our recent study reveals a systematic evolution of a nearly ferromagnetic heavy-mass Fermi liquid that most likely arises due to the van Hove singularity of d_{xy} band, an active band for the spin-triplet superconductivity. We also discuss a possible orbital ordering of d_{yz} and d_{zx} orbitals that stabilizes an antiferromagnetically correlated metal in the vicinity of the Mott transition.

Gez. Prof. M. Braden