

SFB 608

Einladung zum Kolloquium

- Ort:** Universität zu Köln
II. Physikalisches Institut, Seminarraum 201
- Zeit:** 27. September, 2006 at 14:30 Uhr
- Sprecher:** Dr. E. Pavarini
FZ Jülich
- Thema:** Strongly correlated materials: progress toward a realistic description

Strong electron-electron repulsion is believed to be the key ingredient for the understanding of high-temperature superconducting cuprates, colossal magnetoresistance managanites, transition metal oxides and many other novel materials with exotic properties. In this seminar I will discuss recent progress in the development of a realistic theory of strongly correlated materials. As a striking example I will present the Mott metal-insulator transition in a family of transition metal oxides, the 3dn GdFeO₃-type perovskites (AMO₃, with A=Sr,Ca,La,Ti and M=Ti,V). The interplay of chemistry, structural distortions, Coulomb repulsion and filling will be analyzed, and their influence on the Mott transition will be clarified. Calculations of low energy optical spectra will be presented. Finally, we will show that low temperature magnetic phases can be correctly predicted but they are very sensitive to details.

Gez. Prof. H. Tjeng