SFB 608

Einladung zum Kolloquium

Ort: Universität zu Köln
II. Physikalisches Institut
Seminarraum 201

Zeit: 20. Juni 2007, 14:30 Uhr

Sprecher: G. Stewart
University of Florida, USA

Thema: Two Quantum Critical Points in *One* System: A Testing Ground for Theory

Abstract: " Recently (J. S. Kim, et al., Phys. Rev. B 74, 165112 (2006)) we reported two quantum critical points in $Ce(Ru_{1-x}Rh_x)_2Si_2$. The critical point at x=0.4, based on a fit of the low temperature specific heat to the theory of Moriza, is characterized by weakly coupled spin fluctuations while the critical point at x=0.6, based on the logT temperature dependence of the specific heat divided by temperature, is characterized by strongly coupled fluctuations. At present, to our knowledge, no theory exists for the magnetoresistance at a strongly coupled quantum critical point (QCP), while there is a theory (see Rosch Phys. Rev. B 62, 4945 (2000)) for a weakly coupled QCP. Thus, we see $Ce(Ru_{1-x}Rh_2)_2Si_2$ as an opportunity to provide input to theorists to build a theory for the magnetoresistance at a strongly coupled QCP, with data on ρ(H) in the same system on both types of QCPs. After an overview of quantum critical systems and the previous results on $Ce(Ru_{1-x}Rhx)_2Si_2$ the differences and similarities in the rho(H) data at x=0.4 and 0.6 will be discussed."

Gez. A. Rosch