Einladung zum Kolloquium

SFB 608

Ort: Universität zu Köln
II. Physikalisches Institut, Seminarraum 201

Zeit: Mittwoch, 12.11.03, 15 Uhr c.t.

Sprecher: Dr. Didier Jaccard,
University of Geneva, DPMC, 24 Quai Ernest-Ansermet,
CH1211 Geneva 4, Switzerland

Thema: Unconventional superconductivity and normal state properties of ε-iron at high pressure.

Abstract:

Following the discovery of superconductivity in ε-iron, subsequent experiments hinted at non-Fermi liquid behaviour of the normal phase and sensitive dependence of the superconducting state on disorder, both signatures of unconventional pairing. We report further resistive measurements under pressure of samples of iron from multiple sources. The normal state resistivity of ε-iron varied as \( \rho_0 + A \cdot T^{5/3} \) at low temperature over the entire superconducting pressure domain. The superconductivity could be destroyed by mechanical work, and was restored by annealing, demonstrating sensitivity to the residual resistivity \( \rho_0 \). There is a strong correlation between the \( \rho_0 \) and A coefficients and the superconducting critical temperature \( T_c \).

Gez. Prof. M. Abd-Elmeguid