

SFB 608

Einladung zum Kolloquium

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

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

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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 ρ_0 . There is a strong correlation between the ρ_0 and A coefficients and the superconducting critical temperature T_c .