Stuttgarter Physikalisches Kolloquium

Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme*
Fachbereich Physik, Universität Stuttgart

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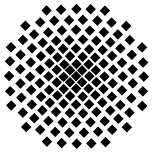

Dienstag, 24. Januar 2012 | **17.15 Uhr** | **Hörsaal 2 D5**

Stuttgarter Max-Planck-Institute, Heisenbergstraße 1, 70569 Stuttgart-Büsnau

Thermodynamic and vector field studies of nematic phase formation near a quantum critical point in $Sr_3Ru_2O_7$

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Abstract

The layered perovskite metal $Sr_3Ru_2O_7$ has generated interest because of the discovery of nematic-like electrical transport properties at low temperatures. The unusual properties have many similarities with those observed in high purity 2D electron gases in high magnetic fields. In $Sr_3Ru_2O_7$, they are seen in the vicinity of a magnetically tuned quantum critical point. They appear to be the result of the formation of a new phase, which can be observed only in the highest purity single crystals, with mean free paths of several thousand angstroms. In recent years, my group has concentrated on understanding this phase and determining its boundaries using thermodynamic probes. In this talk I will review the physics that we believe underlies our observations, and then report on experiments that are currently in progress using a newly commissioned triple axis vector magnet.

*ehemals Max-Planck-Institut für Metallforschung