

Abstract Submitted to the
3rd Conference on Concepts in Electron Correlation
30 September - 5 October, 2005
Hvar, Croatia

Charge instabilities at the metamagnetic transition of itinerant electron systems

Carsten Honerkamp

*Institute for Theoretical Physics and Astrophysics, Universität Würzburg, Am Hubland,
D-97074 Würzburg, Germany*

We investigate instabilities in the charge channel in the vicinity of (meta)magnetic transitions of itinerant electron systems. Based on a weak-coupling analysis we argue that in a one-band t - t' Hubbard model near the van Hove filling and dominant ferromagnetic fluctuations it is difficult to account for a microscopic mechanism for a d -wave Pomeranchuk deformation of the Fermi surface. A similar deformation has been considered for the metamagnetic transition in $\text{Sr}_3\text{Ru}_2\text{O}_7$. As an alternative we discuss the possibility of charge inhomogeneity on the nanoscale. This extends the analogy of the metamagnetic transition to a liquid-gas transition.

Keywords : Strontium-Ruthenates, itinerant magnetism, Hubbard model