(High field) Transport properties of strongly correlated metals

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Abstract. Transport properties is often the first things to be measured but the last to be understood. Here, I will describe how the transport properties can be a powerful probe of strongly correlated metals. After a brief introduction on the different transport coefficients and on the experimental techniques, the behaviour of the low temperature resistivity of correlated metals will be discussed, in particular the hallmarks of Fermi liquid behaviour and quantum critical point. Another part will be devoted to measurements in high magnetic fields. For instance, it allows for probing quantum oscillations that yield a measure of the Fermi surface area in momentum space. The use of magnetic fields to reveal the underlying ground state of high T_c superconductor will be summarized.

Suggested introductory readings (textbook, review or articles)

1. A.A. Abrikosov, *Fundamentals of the theory of metals* (North Holland, 1988)
2. D. Shoenberg, *Magnetic Oscillations in Metals* (Cambridge Univ. Press, 1984)
3. N. Hussey, J. Phys.: Condens. Matter **20** 123201 (2008)
4. S.E. Sebastian and C. Proust. *Annual Review of Condens. Matter Physics* **6**, 411 (2015)