

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

Optical and transport properties of paramagnetic heavy Fermions

David Logan

Oxford University, PTCL, South Parks Road, Oxford OX1 3QZ, UK

To what extent does the ‘simple’ periodic Anderson model capture the properties of real heavy fermion metals/Kondo insulators? Within the framework of Dynamical Mean-Field Theory, we consider a local moment approach to the Anderson lattice, and investigate resultant optical and d.c. transport properties in the paramagnetic phase. Exploiting scaling where possible, explicit comparison to experiment is made for four representative materials: the strongly correlated systems SmB_6 , CeB_6 and $CeAl_3$, and the intermediate valence material $YbAl_3$ (as well as, briefly, YbB_{12}). Surprisingly good agreement between theory and experiment is found, some reasons for which will be considered.

Keywords : optics and transport, heavy fermions, Kondo insulators