

Heavy Fermions and Topological Kondo insulators

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Heavy Fermion materials are the perfect research workhorse for exploring the emergent properties of materials at the brink of magnetic instability[1]. In this two lecture course, I will provide a brief introduction to the physics of heavy fermion materials, discussing the basic models and the approximate mean-field treatments of these systems. The second lecture will focus on the effects of strong spin-orbit coupling and topological aspects of heavy fermions, introducing topological Kondo insulators[2].

References:

[1] Piers Coleman, Heavy Fermions: electrons at the edge of magnetism, Handbook of Magnetism and Advanced Magnetic Materials, 2007. arXiv:cond-mat/0612006

[2] Maxim Dzero, Jing Xia, Victor Galitski, Piers Coleman, Topological Kondo Insulators, Annual Reviews of Condensed Matter Physics, Vol 7 (2016). arXiv:1506.05635.