

CMP Seminar
Michigan State University

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Metallic Quantum Ferromagnets

I will give an overview of the quantum phase transition in metallic ferromagnets, discussing both theoretical and experimental aspects. In clean systems the quantum transition is generically first order, or discontinuous, due to the coupling between fermionic soft modes and the magnetic order parameter. At sufficiently high temperatures the classical transition is observed, which is second order, or continuous. This leads to an interesting phase diagram with a tricritical point. There is excellent agreement between theory and experiment. Quenched disorder suppresses the first-order transition and, for sufficiently strong disorder, leads to a second-order transition even at zero temperature. Strong disorder can also lead to additional complications, such as quantum Griffiths-phase effects.

Monday, September 19, 2016
4:10 p.m.
BPS 1400
Prof. Mark Dykman - Host