



EINLADUNG zum IFP-SEMINAR

Soft spins and Higgs mode in Ca_2RuO_4

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Host: Jan Kunes
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Seminarraum DC rot 07 (roter Bereich, 7. OG)

Abstract:

Mott insulators containing d4 ions with strong spin-orbit coupling may host an unusual "soft" magnetism due to a mixing of a nonmagnetic $J=0$ ionic groundstate and low-lying magnetic $J=1$ levels. A competition of the exchange and spin-orbit couplings results in a quantum critical point between nonmagnetic Mott insulator and magnetic order. Since the magnetic order is due to a condensation of the virtual $J=1$ levels and hence "soft", the amplitude (Higgs) mode is expected. We will demonstrate that recent neutron and Raman scattering experiments confirm that this scenario applies to Ca_2RuO_4 containing Ru^{4+} d4 ions and directly reveal the amplitude mode.