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Non-linear Sigma Model of Kondo Lattice in Antiferromagnetic Regime TZEN ONG, Stanford University, B. A. JONES, IBM Almaden Research Center — We analyze the antiferromagnetic transition in heavy fermion compounds in two dimensions, which we study using the Kondo-Heisenberg model. The system is assumed to be in the antiferromagnetic regime, with a Heisenberg coupling (J_H) that is larger than the Kondo coupling (J_K). The Heisenberg terms are mapped onto a non-linear sigma model, and the fermions are then formally integrated out to obtain an effective theory for the Neel field. We then study the evolution of the Heisenberg and Kondo couplings under perturbative RG, and calculate the critical exponents at the phase transition. Preliminary results indicate the possibility of a quantum phase transition from an AFM to a helical phase with anisotropy in the time-like direction .

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