



JOINT CCQCN -CCTP SEMINAR

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2nd Floor Seminar Room

A Holographic Model of the Kondo Effect

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Abstract

The Kondo effect occurs in metals doped with magnetic impurities: in the ground state the electrons form a screening cloud around each impurity, leading to dramatic changes in the thermodynamic and transport properties of the metal. Although the single-impurity Kondo effect is considered a solved problem, many questions remain, especially about the fate of the Kondo effect in the presence of multiple impurities. In particular, for a sufficiently dense concentration of impurities, a competition between the Kondo effect and inter-impurity interactions can lead to quantum criticality and non-Fermi liquid behavior, which remains poorly understood. In this talk I will present a model of the single-impurity Kondo effect based on holography, also known as gauge-gravity duality or the AdS/CFT correspondence, which may serve as a foundation for a new approach to the multiple-impurity system.

