



PHYSICS AND ASTRONOMY SEMINAR

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“A Holographic Model of the Kondo Effect”

Abstract

The Kondo effect occurs in metals doped with magnetic impurities: in the ground state an electron binds to 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 new model of the single-impurity Kondo effect based on holography, also known as gauge-gravity duality or the Anti-de Sitter/Conformal Field Theory (AdS/CFT) Correspondence, which may serve as a foundation for a new approach to the multiple-impurity system.

Thursday, November 08, 2012

1:00 p.m.

Clearihue Building

Room A207