Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **2766** Type: **Invited Speaker / Conférencier(ère) invité(e)**

Strange metallic transport in the doped Hubbard model

Wednesday 5 June 2019 14:15 (30 minutes)

Strange or bad metallic transport, defined by its incompatibility with conventional quasiparticle pictures, is a theme common to strongly correlated materials and ubiquitous in many high temperature superconductors. The Hubbard model represents a minimal starting point for modeling strongly correlated systems. Here we demonstrate strange metallic transport in the doped two-dimensional Hubbard model using determinantal quantum Monte Carlo calculations. Over a wide range of doping, we observe resistivities exceeding the Mott-Ioffe-Regel limit with linear temperature dependence. The temperatures of our calculations extend to as low as 1/40 the non-interacting bandwidth, placing our findings in the degenerate regime relevant to experimental observations of strange metallicity. Our results provide a foundation for connecting theories of strange metals to models of strongly correlated materials.

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Session Classification: W2-7 Condensed Matter Theory I (DCMMP) | Théorie de la matière condensée I (DPMCM)

Track Classification: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)