MAR15-2014-020414

Abstract for an Invited Paper
for the MAR15 Meeting of
the American Physical Society

**Locality in quenched systems with long-range interactions**

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For more than a decade, ultracold atomic and molecular systems have been exploited tosimulatecanonical models of strongly correlated materials. However, the extremely low (often sub nano-kelvin) temperatures required to realize the most interesting equilibrium behaviors of such models have proven extremely difficult to achieve. When these ultracold systems are driven far-from equilibrium, however, very small temperatures get traded in for very long time-scales, which enable the observation of dynamic phenomena that were never even envisioned in the context of real materials. In this talk, I will describe some recent experimental and theoretical explorations of non-equilibrium dynamics in quenched AMO systems, and will discuss some of the interesting questions that arise naturally from their remarkable tunability. In particular, I will describe recent efforts to understand the fate of locality — i.e. constraints on the propagation of information/entanglement — as interactions become increasingly long-ranged.