

Speaker: Andrea Richaud

Affiliation: SISSA

Title: Interaction-resistant metals in multicomponent Fermi systems

Abstract: We analyze two different classes of fermionic systems that defy Mott localization showing a metallic ground state at integer filling and very large Coulomb repulsion. The first is a multiorbital Hubbard model with a Hund's coupling, where this physics has been widely studied and the new metallic state is called a Hund's metal, and the second is a $SU(3)$ Hubbard model with a patterned single-particle potential designed to retain important features of the multiorbital Hubbard model in a set-up which can be implemented with $SU(N)$ ultracold atoms. With simple analytical arguments, and by means of the exact numerical diagonalization of the Hamiltonians for a minimal three-site system, we point out the conditions which support the existence of strongly correlated metals, and we highlight how the metal emerges at the boundary between competing correlated insulators.
