

Title: Universal transport properties of interacting lattice Dirac systems

Speaker: Vieri Mastropietro

Abstract: In lattice Dirac systems the many-body interaction produces non trivial modifications of physical quantities, like the Fermi velocities in graphene or in Weyl semimetals and the topological phase boundary in the Haldane-Hubbard model. On the contrary, the conductivity shows remarkable universality properties, resulting in an exact cancellation of all the interaction corrections. This can be proved at a non-perturbative level in a number of cases, including the optical conductivity of graphene or the transverse conductivity in the Haldane-Hubbard model. Lattice Ward Identities combined with convergent RG expansions play a crucial role in the analysis.