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**Disordered bosonic systems with power-law hoppings : a numerical study of phases and conductivity**

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In the absence of frustration, interacting bosons in the ground state exist either in the superfluid or insulating phases. Superfluidity corresponds to frictionless flow of the matter field, and in optical conductivity is revealed through a distinct δ-functional peak at zero frequency with the amplitude known as the Drude weight. This characteristic low-frequency feature is instead absent in insulating phases, defined by zero static optical conductivity. Here we study a model of disordered, one dimensional, , hard-core bosons with dipolar-type hopping, decaying as a power-law of the inter-particle distance as , which is equivalent to XY spin-models already realized in several different experimental setups with cold atoms and ions. We provide numerical evidences, by means of path integral Monte Carlo method and numeric analytic continuation, for the existence of an unexpected conducting phase in the ground state. Despite featuring an algebraic decay of off-diagonal correlations, this phase is found to have zero superfluid density and a finite optical conductivity at zero frequency. The latter is followed by a broad, anti-Drude, peak at a finite frequency of the order of the nearest-neighbor hopping energy. These results do not fit the description of any known quantum phase and strongly suggest the existence of a novel conducting state of bosonic matter in the ground state.