

Driven-Dissipative Regimes of Bosonic Hubbard Models

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Abstract:

Quantum many-body systems are often explored in thermal equilibrium or their ground states. In many realisations they are however exposed to dissipation caused by experimental imperfections. Non-equilibrium regimes where driving mechanisms dynamically balance this dissipation and lead to the emergence of stationary states have therefore received increasing attention recently.

In this talk, I will discuss such driven-dissipative regimes for bosonic Hubbard models. I will start by explaining how these emerge for micro-wave excitations in networks of superconducting circuits and then discuss some interesting phases, such as persistent correlated currents and photon solids. Time permitting I will finish by sketching an approach to efficiently describe this class of systems.