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【141】Driven-dissipative engineering: A generalized fitness criterion for the superconducting transition temperature

Thursday 7 September 2023 14:00 (15 minutes)

Floquet engineering has attracted significant interest given the recent developments in experimental techniques such as ultrafast spectroscopy and the potential to enhance the stability of phases of matter such as superconductivity. Here we explore how an external drive and intrinsic dissipation jointly affect superconductivity. Inspired by the fitness criterion for static superconductors, we recognize the distinct effects of external drives on superconductors based on their commutativity or anticommutativity with the superconducting order parameter within the Floquet-Keldish formalism. Our proposal goes beyond standard mechanisms, such as phonon squeezing and dynamical localization. It opens the door for further studies toward driven-dissipative engineering of exotic phases of complex matter in solid-state systems.

Theoretical Work

Theory

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