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Topological phase transitions in extended Kitaev model with time independent and periodically driven chemical potential

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Abstract

Driven out-of-equilibrium systems exhibit richer topological phases compared to time-independent counterparts. In particular, when the time dependence is periodic, systems manifest topological phases that have not been observed in equilibrium systems. In this paper, we examine topological phase transitions in the extended Kitaev model with the periodically time-dependent chemical potential. First, we analyze the phase diagram of the system in equilibrium case, and then we show that driving the system with a periodically time-dependent chemical potential affects its topological phases and the energy spectrum of the model, thereby altering its phase diagram.

Keywords: Periodical out-of-equilibrium systems, Topological phases, Kitaev model

For full article, refer to the Persian section