PHYSIK

THEORETISCH PHYSIKALISCHES KOLLOQUIUM
SONDERTERMIN

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Interacting Hofstadter Interface

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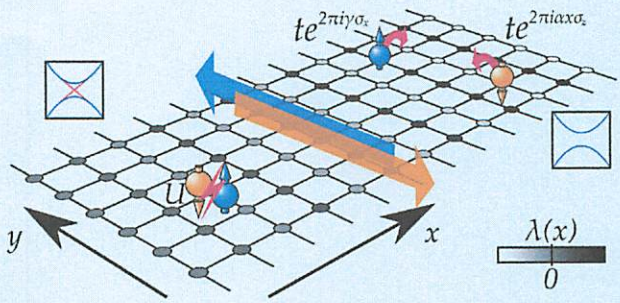
Two-dimensional topological insulators possess conducting edge states at their boundary while being insulating in the bulk. The detection of edge states remains an open question in ultracold atom setups. We propose a configuration to implement a topological interface within the experimentally realizable time-reversal invariant Hofstadter model which gives rise to a topological phase boundary at the center of the system, and investigate the influence of two-body interactions on the interface in a fermionic system [1]. The interface can in principle be probed via the spatially resolved compressibility of the system by using a quantum gas microscope. Furthermore, we distinguish the phases through their Hall response and compute a local spin Chern marker which proves the phase separation of two distinct topological many-body phases. The bulk-boundary correspondence for the interacting system is confirmed by computing the edge state spectra at the interface.

[1] B. Irsigler, J.-H. Zheng, and W. Hofstetter, arXiv:1806.01598



Gäste sind herzlich willkommen.

Die Dozenten der Theoretischen Physik

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