

Abstract Submitted  
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**A symmetry-protected many-body Aharonov-Bohm effect** LUIZ SANTOS, Perimeter Institute for Theoretical Physics, JUVEN WANG, Massachusetts Institute of Technology and Perimeter Institute for Theoretical Physics — It is known as a purely quantum effect that a magnetic flux affects the real physics of a particle, such as the energy spectrum, even if the flux does not interfere with the particle's path - the Aharonov-Bohm effect. We examine an Aharonov-Bohm effect on a many-body wavefunction. Specifically, we study this many-body effect on the gapless edge states of a two dimensional bulk gapped phase protected by a global symmetry - the symmetry-protected topological (SPT) states. The many-body analogue of spectral shifts, the twisted wavefunction and the twisted boundary realization are identified in this SPT state. An explicit lattice construction of SPT edge states is derived, and a challenge of gauging its non-onsite symmetry is overcome. Agreement is found in the twisted spectrum between a numerical lattice calculation and a conformal field theory prediction. Talk based on arXiv:1310.8291

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