

KIDS TALK

“Finite size corrections to charge transport in topological Thouless pumps and topology transfer from interacting bosons to free fermions”

Speaker: Rui Li, AG Fleischhauer

Abstract: In this talk I will focus on the quantization of adiabatic charge transport in the insulating ground state of finite systems. Topological charge pumps are used in experiments as an indicator of topological order. In the thermodynamic limit, the transport can be related to a topological Berry phase and is thus strictly quantized. This is no longer true for finite systems.

We derive finite-size corrections to the transport for both non-interacting and interacting systems and relate them to analytic properties of the single- and many-body Berry curvature. We find that they depend on the details of experimental realizations of the pumps. While they can be non-negligible even in large systems, a proper choice of the pumping protocol can suppress these corrections. At the end of the talk, I will shortly discuss the ongoing work about the idea of topological excitations and topology transfer (TT) in the extended superlattice Bose-Hubbard model (E-SLBHM) at fractional fillings.

When (!notice the new time!): Friday, December 1st, 2017, **11:45**

Where (!notice the new place!): **Room 46-576**

All undergraduate and graduate students as well as postdocs are welcome and encouraged to join our discussion!

***** COFFEE, TEA AND COOKIES WILL BE SERVED *****

For questions, comments or suggestions: matveeva@physik.uni-kl.de

