

# The Journal Club of Condensed Matter Physics



Physikalisches Institut  
Raum 3.014

This Week:



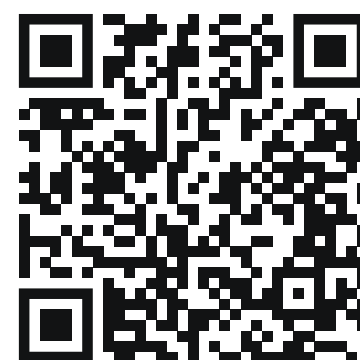
**Speaker:**

Dr Franco Lisandrini (AG Kollath)

## Majorana edge-modes in a spinful particle conserving model

### Abstract:

Topologically protected edge states, such as Majorana edge modes, have attracted a lot of attention over the past. The interest in Majorana modes is motivated by curiosity to observe and understand these fundamental quasi-particles, but also by the key role such modes play in several quantum information protocols. One important model which covers Majorana zero modes was proposed by Kitaev in 2001. It consists of a single chain of spinless fermions where the number of fermions in the system is not conserved. In spinless systems, people found that ground states supporting Majorana edge modes are present also in particle-number conserving settings. In this talk we will show the presence of Majorana edge modes in an interacting fermionic ladder with spin in a number conserved setting. The main result of the present work is that the topological phase is robust for a finite region in the parameter space in the presence of interactions.



Web: <https://sagnikiiser.github.io/CondMat-Bonn>

Thursday, 2-3 PM  
01.12.2022