

SFB – Colloquium

Speaker: **Dr. Manuel Houzet**
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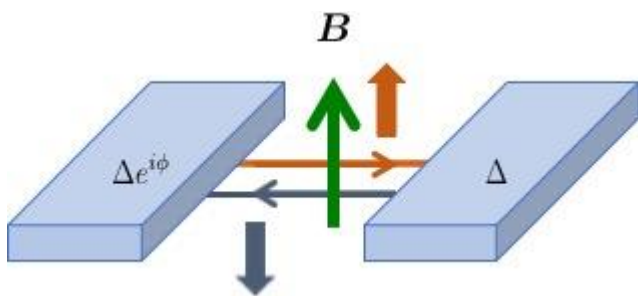


Date: Tuesday, 08 February 2022, 14:15,
online via Zoom

Topic: Anomalous and diode Josephson effects through
a quantum spin-Hall insulator

Abstract:

We study a Josephson junction formed by connecting two superconductors through the helical edge states of a quantum spin-Hall insulator. This setup is perhaps the simplest one to realize the anomalous and diode Josephson effects. Namely, in the presence of a suitably oriented magnetic field, it displays a nonzero supercurrent in the absence of a superconducting phase difference between the leads, as well as a difference of the critical currents at opposite bias. Here we discuss how the fermion-parity anomaly, inherent to the topological character of the considered junction, manifests in these effects.



Schematic setup of a superconductor/quantum spin-Hall insulator/superconductor junction.

Host: Prof. Dr. Christoph Strunk