

**Dr. Fernando Dominguez**

TU Braunschweig

**Transport through valley chiral networks in minimally twisted bilayer graphene**

**Mittwoch, 9. August 2023**

🕒 11:00 Uhr

Appelstraße 2, Raum 268

Our work focuses on minimally twisted bilayer graphene, where the presence of an interlayer voltage gives rise to a triangular network of topologically protected chiral channels. In this scenario, we construct a scattering model based solely on symmetry arguments that captures the essence of the network regime. We find that the network model can be tuned between two limits where electrons in the network propagate either along one-dimensional chiral zigzag paths or localize in closed orbits. Our theory demonstrates for the first time the intimate connection between the presence of chiral zigzag states and Aharonov-Bohm oscillations of the current that are robust against finite temperature effects. Furthermore, we calculate the conductance in a four-terminal setup and find the splitting of Aharonov-Bohm resonances when an in-plane electric field is applied. See further details in [1-3]

