

Großes Physikalisches Kolloquium an der Universität zu Köln

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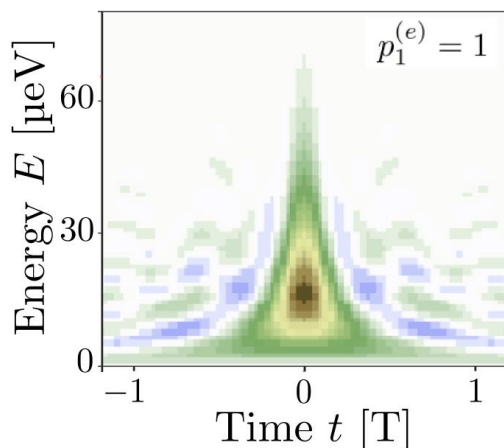


Topological one-dimensional conductors

24.01.2023
16³⁰ Uhr
HS III

In solid-state matter, topological properties of the band structure can enforce the appearance of conducting one-dimensional edge states at the boundaries of the material, while the bulk remains insulating. These states are a fascinating playground to study the physics of one-dimensional quantum coherent conductors. They also provide a support system for ‘topological quantum bits’, robust against local perturbations, and envisioned to solve decoherence problems in the realization of quantum computers.

I will discuss how one can utilize GHz excitations and current correlations to generate, manipulate and study excitations in these systems down to the elementary level of single electrons.



Experimental measurement of the wavefunction of a single electron.