



TRR 80 Sonderseminar

Am Dienstag, den 14. Januar um 16:00 Uhr

spricht

Prof. Dr. Walter Pötz

Karl-Franzens-Universität Graz

über das Thema

***Numerical treatment of the time-dependent Dirac equation:
Application to topological insulator surface states***

The experimental confirmation of topologically protected surface states intrinsically displaying a helical single flavor Dirac fermion dispersion, as well as its manipulation via magnetic fields, have motivated us to a theoretical study of the dynamics of Dirac fermions in ferromagnetic textures. We first present a newly developed numerical schemes which conserve the number of cones (flavors) when putting the Dirac equation on a lattice in, respectively, (1+1)D, (2+1)D and (3+1)D. Simple ferromagnetic 2d textures and associated Dirac fermion states are discussed. The single-cone (2+1)D scheme is used to explore the dynamics of Dirac fermions in elementary ferromagnetic textures leading to the realization of Dirac fermion one-way beam splitters and quantum interferometers.

Gäste sind herzlich willkommen.

Der Vortrag findet im Seminarraum S-288 / Institut für Physik, Universität Augsburg statt.

Gastgeber: Jun.-Prof. Dr. Liviu Chioncel
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