

### **topological insulators dirac equation pdf**

A series of solutions near the boundary in the modified Dirac equation are obtained, which is characteristic of topological insulator. From the solutions of the bound states and the  $Z_2$  index we establish a relation between the Dirac equation and topological insulators.

### **[1009.5502] Topological insulator and the Dirac equation**

PDF | We present a general description of topological insulators from the point of view of Dirac equations.

### **(PDF) Topological insulator and the Dirac equation**

We present a general description of topological insulators from the point of view of Dirac equations. The  $Z_2$  index for the Dirac equation is always zero, and thus the Dirac equation is topologically trivial. After the quadratic term in momentum is introduced to correct the mass term  $m$  or the band gap of the Dirac equation, i.e.,  $m \rightarrow m + \beta p^2$ , the  $Z_2$

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Gives an up-to-date overview of the studies in the hot field of topological insulators Presents a unified description of topological insulators, superconductors and Weyl semimetals from one to three dimensions based on the modified Dirac equation Serves as a starting point for newcomers or students ...

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This book, Topological insulators, presents a unified description of topological insulators from one to three dimensions based on the modified Dirac equation. A series of solutions of the bound states near the boundary are derived, and the existing conditions of these solutions are described.

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the Dirac equation is a key to the door of topological insulators. It is a line that could thread all relevant topological phases from one to three dimensions and from

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ences: all across its research frontier, from graphene to high  $T_c$  superconductors to the topological insulators and beyond, various electronic systems exhibit properties which can be well described by the Dirac equation.

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Topological insulators/Isolants topologiques. ... The Dirac equation describes massive fermions , , ... condensed matter and cold atom systems allow the interesting possibility of modifying the topological properties of Dirac insulators by applying time-dependent perturbations to the system.

### **Introduction to Dirac materials and topological insulators**

Dynamic manipulation of such interaction is elusive because it requires varying the material composition on the atomic level. In turn, recent studies on topological insulators (TIs) have revealed the coexistence of a

strong phonon resonance and topologically protected Dirac plasmon, both in the terahertz (THz) frequency range.

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### **Shun-Qing Shen: Topological Insulators (PDF) - ebook**

Starting from the Dirac equation.- Minimal lattice model for topological insulator.- Topological invariants.- Topological phases in one dimension.- Quantum anomalous Hall effect and Quantum spin Hall effect.- Three-dimensional topological insulators.- Impurities and defects in topological insulators.- Topological superconductors and superfluids.-

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Topological Insulators Dirac Equation in Condensed Matter. Authors: ... To reflect research advances in topological insulators, several parts of the book have been updated for the second edition, including: Spin-Triplet Superconductors, Superconductivity in Doped Topological Insulators, Detection of Majorana Fermions and so on. ... He proposed ...

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