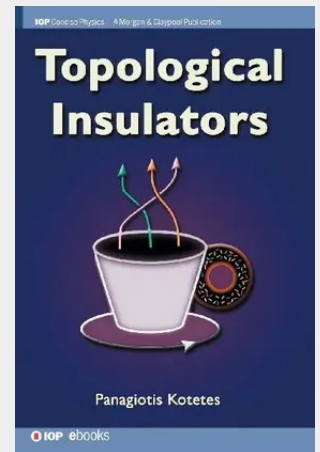


Topological Insulators

This book provides an introduction to topological matter with a focus on insulating bulk systems. A number of prerequisite concepts and tools are first laid out, including the notion of symmetry transformations, the band theory of semiconductors and aspects of electronic transport. The main part of the book discusses realistic models for both time-reversal-preserving and -violating topological insulators, as well as their characteristic responses to external perturbations. Special emphasis is given to the study of the anomalous electric, thermal, and thermoelectric transport properties, the theory of orbital magnetisation, and the polar Kerr effect. The topological models studied throughout this book become unified and generalised by means of the tenfold topological-classification framework and the respective systematic construction of topological invariants. This approach is further extended to topological superconductors and topological semimetals. This book covers a wide range of topics and aims at the transparent presentation of the technical aspects involved. For this purpose, homework problems are also provided in dedicated Hands-on sections. Given its structure and the required background level of the reader, this book is particularly recommended for graduate students or researchers who are new to the field.

This book provides an introduction to topological matter with a focus on insulating bulk systems. A number of prerequisite concepts and tools are first laid out, including the notion of symmetry transformations, the band theory of semiconductors and aspects of electronic transport. The main part of the book discusses realistic models for both time-reversal-preserving and -violating topological insulators, as well as their characteristic responses to external perturbations. Special emphasis is given to the study of the anomalous electric, thermal, and thermoelectric transport properties, the theory of orbital magnetisation, and the polar Kerr effect. The topological models studied throughout this book become unified and generalised by means of the tenfold topological-classification framework and the respective systematic construction of topological invariants. This approach is further extended to topological superconductors and topological semimetals. This book covers a wide range of topics and aims at the transparent presentation of the technical aspects involved. For this purpose, homework problems are also provided in dedicated Hands-on sections. Given its structure and the required background level of the reader, this book is particularly recommended for graduate students or researchers who are new to the field.



112,20 €

112,20 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781643276540

Medium: Buch

ISBN: 978-1-64327-654-0

Verlag: IOP Concise Physics

Erscheinungstermin: 24.04.2019

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2019

Produktform: Gebunden

Gewicht: 610 g

Seiten: 215

Format (B x H): 183 x 260 mm

