



Many-Body Physics, Topology and Geometry

By Siddhartha Sen, Kumar Sankar Gupta



Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta

The book explains concepts and ideas of mathematics and physics that are relevant for advanced students and researchers of condensed matter physics. With this aim, a brief intuitive introduction to many-body theory is given as a powerful qualitative tool for understanding complex systems. The important emergent concept of a quasiparticle is then introduced as a way to reduce a many-body problem to a single particle quantum problem. Examples of quasiparticles in graphene, superconductors, superfluids and in a topological insulator on a superconductor are discussed.

The mathematical idea of self-adjoint extension, which allows short distance information to be included in an effective long distance theory through boundary conditions, is introduced through simple examples and then applied extensively to analyse and predict new physical consequences for graphene.

The mathematical discipline of topology is introduced in an intuitive way and is then combined with the methods of differential geometry to show how the emergence of gapless states can be understood. Practical ways of carrying out topological calculations are described.

 [Download Many-Body Physics, Topology and Geometry ...pdf](#)

 [Read Online Many-Body Physics, Topology and Geometry ...pdf](#)

Many-Body Physics, Topology and Geometry

By Siddhartha Sen, Kumar Sankar Gupta

Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta

The book explains concepts and ideas of mathematics and physics that are relevant for advanced students and researchers of condensed matter physics. With this aim, a brief intuitive introduction to many-body theory is given as a powerful qualitative tool for understanding complex systems. The important emergent concept of a quasiparticle is then introduced as a way to reduce a many-body problem to a single particle quantum problem. Examples of quasiparticles in graphene, superconductors, superfluids and in a topological insulator on a superconductor are discussed.

The mathematical idea of self-adjoint extension, which allows short distance information to be included in an effective long distance theory through boundary conditions, is introduced through simple examples and then applied extensively to analyse and predict new physical consequences for graphene.

The mathematical discipline of topology is introduced in an intuitive way and is then combined with the methods of differential geometry to show how the emergence of gapless states can be understood. Practical ways of carrying out topological calculations are described.

Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta Bibliography

- Sales Rank: #2105221 in eBooks
- Published on: 2015-06-15
- Released on: 2015-06-26
- Format: Kindle eBook

 [Download Many-Body Physics, Topology and Geometry ...pdf](#)

 [Read Online Many-Body Physics, Topology and Geometry ...pdf](#)

Download and Read Free Online Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta

Editorial Review

From the Inside Flap

The book explains concepts and ideas of mathematics and physics that are relevant for advanced students and researchers of condensed matter physics. With this aim, a brief intuitive introduction to many-body theory is given as a powerful qualitative tool for understanding complex systems. The important emergent concept of a quasiparticle is then introduced as a way to reduce a many-body problem to a single particle quantum problem. Examples of quasiparticles in graphene, superconductors, superfluids and in a topological insulator on a superconductor are discussed. The mathematical idea of self-adjoint extension, which allows short distance information to be included in an effective long distance theory through boundary conditions, is introduced through simple examples and then applied extensively to analyse and predict new physical consequences for graphene. The mathematical discipline of topology is introduced in an intuitive way and is then combined with the methods of differential geometry to show how the emergence of gapless states can be understood. Practical ways of carrying out topological calculations are described.

Users Review

From reader reviews:

Frances Williamson:

The book Many-Body Physics, Topology and Geometry has a lot of information on it. So when you read this book you can get a lot of help. The book was written by the very famous author. The writer makes some research ahead of write this book. That book very easy to read you will get the point easily after reading this book.

Molly Cooper:

Precisely why? Because this Many-Body Physics, Topology and Geometry is an unordinary book that the inside of the e-book waiting for you to snap that but latter it will surprise you with the secret the idea inside. Reading this book alongside it was fantastic author who else write the book in such incredible way makes the content within easier to understand, entertaining method but still convey the meaning entirely. So , it is good for you for not hesitating having this anymore or you going to regret it. This excellent book will give you a lot of rewards than the other book get such as help improving your ability and your critical thinking approach. So , still want to hold up having that book? If I ended up you I will go to the reserve store hurriedly.

Todd Jacob:

Beside this specific Many-Body Physics, Topology and Geometry in your phone, it might give you a way to get closer to the new knowledge or data. The information and the knowledge you can got here is fresh through the oven so don't possibly be worry if you feel like an aged people live in narrow community. It is good thing to have Many-Body Physics, Topology and Geometry because this book offers to you readable

information. Do you often have book but you rarely get what it's exactly about. Oh come on, that will not happen if you have this in your hand. The Enjoyable set up here cannot be questionable, similar to treasuring beautiful island. Techniques you still want to miss this? Find this book in addition to read it from right now!

Margaret Gray:

Is it an individual who having spare time then spend it whole day by simply watching television programs or just lying down on the bed? Do you need something new? This Many-Body Physics, Topology and Geometry can be the respond to, oh how comes? A fresh book you know. You are consequently out of date, spending your free time by reading in this completely new era is common not a nerd activity. So what these books have than the others?

**Download and Read Online Many-Body Physics, Topology and
Geometry By Siddhartha Sen, Kumar Sankar Gupta
#JSY0LFG7H2R**

Read Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta for online ebook

Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta books to read online.

Online Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta ebook PDF download

Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta Doc

Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta Mobipocket

Many-Body Physics, Topology and Geometry By Siddhartha Sen, Kumar Sankar Gupta EPub