



# Quantum Hall Effects: Field Theoretical Approach and Related Topics

*Zyun F. Ezawa*

Download now

[Click here](#) if your download doesn't start automatically

# Quantum Hall Effects: Field Theoretical Approach and Related Topics

*Zyun F. Ezawa*

## **Quantum Hall Effects: Field Theoretical Approach and Related Topics** Zyun F. Ezawa

The quantum Hall effect (QHE) is one of the most fascinating and beautiful phenomena in all branches of physics. Tremendous theoretical and experimental developments are still being made in this sphere. In the original edition of this book, composite bosons, composite fermions and fractional charged excitations (anyons) were among the distinguished ideas presented. This new edition includes many novel ideas according to recent progress. Fantastic phenomena associated with the interlayer phase coherence and  $SU(4)$  quantum Hall ferromagnets in the bilayer system are extensively reviewed. The microscopic theory of the QHE is formulated based on noncommutative geometry, the underlying mathematical structure. Quasiparticles are described as noncommutative solitons. The coverage also includes the recent development of the unconventional QHE in graphene (a single atomic layer graphite), where the electron dynamics can be treated as relativistic Dirac fermions and even the supersymmetric quantum mechanics plays a key role. An instructive and comprehensive overview of the QHE, this book is also suitable as an introduction to quantum field theory with vivid applications. Only a knowledge of quantum mechanics is assumed.

### **Contents:**

- Quantum Field Theory: Canonical Quantization, Spontaneous Symmetry Breaking;
- Electromagnetic Field;
- Dirac Field;
- Topological Solitons;
- Anyons;
- Monolayer Quantum Hall Systems: Landau Quantization;
- Quasiparticles and Activation Energy;
- Composite Bosons and Semiclassical Analysis;
- Quantum Hall Ferromagnets;
- Spin Textures;
- Hierarchy of Fractional QH States;
- Edge Effects;
- Quantum Hall Effects in Graphene;
- Bilayer Quantum Hall Systems:  $SU(2)$  Pseudospin Structure;
- Interlayer Coherence;
- $SU(4)$  Quantum Hall Ferromagnets;
- Bilayer Quantum-Hall Junction;
- Microscopic Theory: Noncommutative Geometry;
- Landau Level Projection;
- Noncommutative Solitons;
- Exchange Interactions and Effective Theory;
- and other papers.

 [Download Quantum Hall Effects: Field Theoretical Approach ...pdf](#)

 [Read Online Quantum Hall Effects: Field Theoretical Approac ...pdf](#)

## **Download and Read Free Online Quantum Hall Effects: Field Theoretical Approach and Related Topics Zyun F. Ezawa**

---

### **From reader reviews:**

#### **Douglas Gibson:**

The knowledge that you get from Quantum Hall Effects: Field Theoretical Approach and Related Topics is the more deep you looking the information that hide within the words the more you get thinking about reading it. It doesn't mean that this book is hard to recognise but Quantum Hall Effects: Field Theoretical Approach and Related Topics giving you enjoyment feeling of reading. The author conveys their point in a number of way that can be understood by means of anyone who read that because the author of this e-book is well-known enough. This kind of book also makes your vocabulary increase well. So it is easy to understand then can go along, both in printed or e-book style are available. We recommend you for having that Quantum Hall Effects: Field Theoretical Approach and Related Topics instantly.

#### **Edward Baca:**

The reserve untitled Quantum Hall Effects: Field Theoretical Approach and Related Topics is the book that recommended to you to read. You can see the quality of the guide content that will be shown to a person. The language that author use to explained their ideas are easily to understand. The article writer was did a lot of exploration when write the book, therefore the information that they share for you is absolutely accurate. You also might get the e-book of Quantum Hall Effects: Field Theoretical Approach and Related Topics from the publisher to make you a lot more enjoy free time.

#### **Jacqueline Kellett:**

Many people spending their time period by playing outside using friends, fun activity with family or just watching TV the whole day. You can have new activity to invest your whole day by examining a book. Ugh, do you think reading a book can actually hard because you have to accept the book everywhere? It fine you can have the e-book, having everywhere you want in your Cell phone. Like Quantum Hall Effects: Field Theoretical Approach and Related Topics which is getting the e-book version. So , try out this book? Let's observe.

#### **Rhonda Lanham:**

Do you like reading a publication? Confuse to looking for your best book? Or your book had been rare? Why so many issue for the book? But any kind of people feel that they enjoy to get reading. Some people likes reading, not only science book but novel and Quantum Hall Effects: Field Theoretical Approach and Related Topics or even others sources were given understanding for you. After you know how the fantastic a book, you feel desire to read more and more. Science book was created for teacher or even students especially. Those guides are helping them to bring their knowledge. In various other case, beside science e-book, any other book likes Quantum Hall Effects: Field Theoretical Approach and Related Topics to make your spare time considerably more colorful. Many types of book like this.

**Download and Read Online Quantum Hall Effects: Field  
Theoretical Approach and Related Topics Zyun F. Ezawa  
#42CR60A13HQ**

## **Read Quantum Hall Effects: Field Theoretical Approach and Related Topics by Zyun F. Ezawa for online ebook**

Quantum Hall Effects: Field Theoretical Approach and Related Topics by Zyun F. Ezawa 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 Quantum Hall Effects: Field Theoretical Approach and Related Topics by Zyun F. Ezawa books to read online.

### **Online Quantum Hall Effects: Field Theoretical Approach and Related Topics by Zyun F. Ezawa ebook PDF download**

#### **Quantum Hall Effects: Field Theoretical Approach and Related Topics by Zyun F. Ezawa Doc**

Quantum Hall Effects: Field Theoretical Approach and Related Topics by Zyun F. Ezawa Mobipocket

Quantum Hall Effects: Field Theoretical Approach and Related Topics by Zyun F. Ezawa EPub