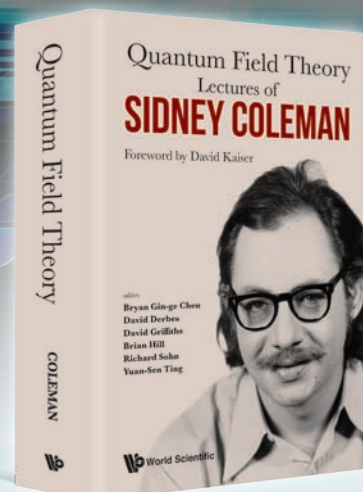
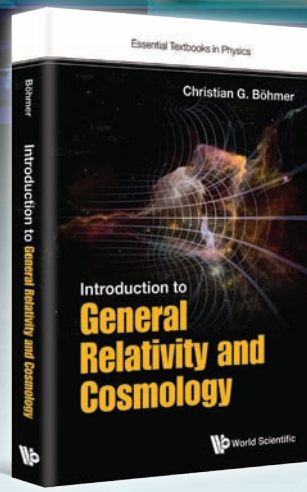
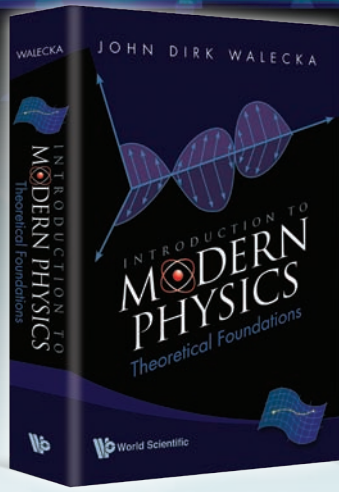
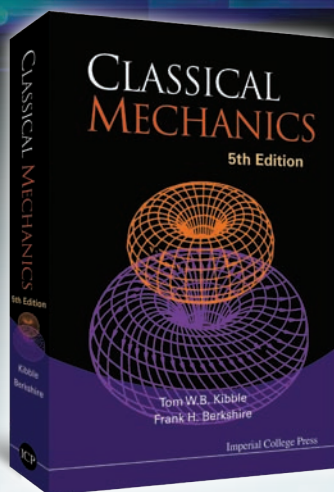


New & Classic **TEXTBOOKS** for **Physics Undergraduates**



Classical Mechanics (5th Edition)

by **Tom W B Kibble & Frank H Berkshire** (*Imperial College London, UK*)

This is the fifth edition of a well-established textbook. It is intended to provide a thorough coverage of the fundamental principles and techniques of classical mechanics, an old subject that is at the base of all of physics, but in which there has also in recent years been rapid development. It emphasizes the basic principles, and aims to progress rapidly to the point of being able to handle physically and mathematically interesting problems, without getting bogged down in excessive formalism. Lagrangian methods are introduced at a relatively early stage, to get students to appreciate their use in simple contexts. Later chapters use Lagrangian and Hamiltonian methods extensively, but in a way that aims to be accessible to undergraduates, while including modern developments at the appropriate level of detail. The subject has been developed considerably recently while retaining a truly central role for all students of physics and applied mathematics.

500pp	Jun 2004	
978-1-86094-424-6	US\$86	£71
978-1-86094-435-2(pbk)	US\$86	£71

Introduction to Modern Physics

Theoretical Foundations

by **John Dirk Walecka** (*College of William and Mary, USA*)

"The author is obviously well versed in both teaching and writing about the topics covered, and the presentation is mostly clear and concise ... the text is complemented and expanded by numerous well-chosen exercises."

Physics Today

This book, aimed at the very best students, presents the foundations and frontiers of today's physics. It focuses on the following topics: quantum mechanics; applications in atomic, nuclear, particle, and condensed-matter physics; special relativity; relativistic quantum mechanics, including the Dirac equation and Feynman diagrams; quantum fields; and general relativity. The aim is to cover these topics in sufficient depth such that things "make sense" to students and they can achieve an elementary working knowledge of them. Many problems are included, a great number of which take dedicated readers just as far as they want to go in modern physics. Although the book is designed so that one can, in principle, read and follow the text without doing any of the problems, the reader is urged to attempt as many of them as possible. Several appendices help bring the reader up to speed on any additional required mathematics.

496pp	Jul 2008	
978-981-281-224-7	US\$128	£106
978-981-281-225-4(pbk)	US\$73	£61

Essential Textbooks in Physics

Introduction to General Relativity and Cosmology

by **Christian G Böhmer** (*University College London, UK*)

Introduction to General Relativity and Cosmology gives undergraduate students an overview of the fundamental ideas behind the geometric theory of gravitation and spacetime. Through pointers on how to modify and generalise Einstein's theory to enhance understanding, it provides a link between standard textbook content and current research in the field.

Chapters present complicated material practically and concisely, initially dealing with the mathematical foundations of the theory of relativity, in particular differential geometry. This is followed by a discussion of the Einstein field equations and their various properties. Also given is analysis of the important Schwarzschild solutions, followed by application of general relativity to cosmology. Questions with fully worked answers are provided at the end of each chapter to aid comprehension and guide learning. This pared down textbook is specifically designed for new students looking for a workable, simple presentation of some of the key theories in modern physics and mathematics.

288pp	Dec 2016	
978-1-78634-117-4	US\$70	£58
978-1-78634-118-1(pbk)	US\$38	£32

Harvard Lectures

Lectures of Sidney Coleman on Quantum Field Theory

Foreword by **David Kaiser**

edited by **Bryan Gin-gie Chen** (*Leiden University, Netherlands*), **David Derbes** (*University of Chicago, USA*), **David Griffiths** (*Reed College, USA*), **Brian Hill** (*Saint Mary's College of California, USA*), **Richard Sohn** (*Kronos, Inc., Lowell, USA*) & **Yuan-Sen Ting** (*Harvard*)

"Sidney Coleman's Field Theory lectures at Harvard were a staple of every particle physicist Harvard graduate student's education ... the ideas — like all good physics concepts — have survived the decades beautifully. In a labor of love and educational devotion, a team of former students and TAs teamed up with professors and experts to share his legacy in perpetuity."

Lisa Randall, **Harvard**

"Sidney Coleman was the master teacher of quantum field theory. All of us who knew him became his students and disciples. Sidney's legendary course remains fresh and bracing, because he chose his topics with a sure feel for the essential, and treated them with elegant economy."

Frank Wilczek, **Nobel Laureate in Physics 2004**

1000pp	Dec 2018	
978-981-4632-53-9	US\$168	£150
978-981-4635-50-9(pbk)	US\$88	£75

Quantum Mechanics

Application-Driven Quantum and Statistical Physics

A Short Course for Future Scientists and Engineers

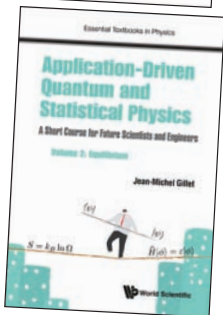
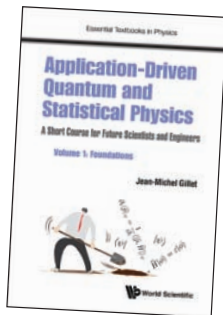
Volume 1: Foundations
Volume 2: Equilibriums

By: **Jean-Michel Gillet** (*CentraleSupélec, Paris-Saclay University, France*)

This pedagogical approach relies heavily on scientific or technological applications from a wide range of fields. For every new concept introduced, an application is given to connect the theoretical results to a real-life situation. Each volume features in-text exercises and detailed solutions, with easy-to-understand applications.

Volume 1:
300pp Nov 2018
978-1-78634-554-7 US\$98 £86
978-1-78634-690-2(pbk) US\$45 £35

Volume 2:
336pp Dec 2018
978-1-78634-557-8 US\$98 £86
978-1-78634-703-9(pbk) US\$45 £40



Principles of Quantum Computation and Information

A Comprehensive Textbook

By (author): **Giuliano Benenti** (*Università degli Studi dell'Insubria, Italy*), **Giulio Casati** (*Università degli Studi dell'Insubria, Italy*), **Davide Rossini** (*Università di Pisa, Italy*) & **Giuliano Strini** (*Università di Milano, Italy*)

"Thorough introductions to classical computation and irreversibility, and a primer of quantum theory, lead into the heart of this impressive and substantial book. All the topics — quantum algorithms, quantum error correction, adiabatic quantum computing and decoherence are just a few — are explained carefully and in detail. Particularly attractive are the connections between the conceptual structures and mathematical formalisms, and the different experimental protocols for bringing them to practice. A more wide-ranging, comprehensive, and definite text is hard to imagine."

Michael Berry
University of Bristol, UK



650pp Feb 2019
978-981-3237-22-3 US\$158 £139

Time-Dependent Quantum Mechanics of Two-Level Systems

by **James P Lavine** (*Georgetown University, USA*)

The book builds upon an undergraduate course in quantum mechanics and is useful for readers interested in magnetic resonance and quantum optics. In addition, this book is ideal for self-study by students or researchers starting on two-level systems. The detailed derivations and plots should ease readers into the study of two-level systems in a wide variety of settings.

256pp Nov 2018
978-981-3272-58-3 US\$98 £85

Introductory Quantum Physics and Relativity (2nd Edition)

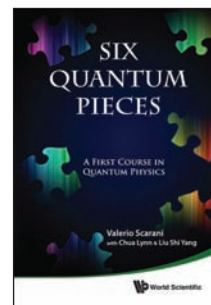
by **Jacob Dunningham** (*University of Sussex, UK*) & **Vlatko Vedral** (*Oxford*)

308pp May 2018
978-981-3228-64-1 US\$98 £86
978-981-3230-04-0(pbk) US\$48 £42

Six Quantum Pieces

A First Course in Quantum Physics

by **Valerio Scarani** (*National University of Singapore, Singapore*), **Lynn Chua** (*NUS High School of Mathematics and Science, Singapore*) & **Shi Yang Liu** (*NUS High School of Mathematics and Science, Singapore*)



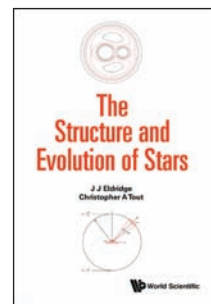
Quantum physics is known to be challenging for two reasons: it describes counter-intuitive phenomena and employs rather advanced mathematics. The description of "traditional" quantum phenomena (the structure of atoms and molecules, the properties of solids, the zoology of sub-atomic particles) does indeed involve the whole formalism. However, some other striking phenomena, somehow the most "typically quantum" ones, can be described using only high school mathematical skills. This approach exploits this fact, thus making it possible for a beginner to tackle mind-boggling experiments like teleportation and the violation of Bell's inequalities, and practice notions like superposition, entanglement and decoherence.

160pp Sep 2010
978-981-4327-53-4 US\$51 £42
978-981-4327-54-1(pbk) US\$25 £21

Astronomy / Astrophysics / Relativity

The Structure and Evolution of Stars

by **J J Eldridge** (*University of Auckland, New Zealand*) & **Christopher A Tout** (*University of Cambridge, UK*)

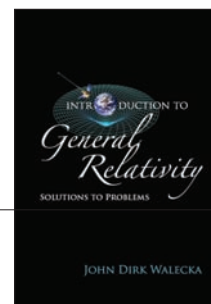


The structure of a star can be described mathematically by differential equations derived from the principles of hydrodynamics, electromagnetic theory, thermodynamics, quantum mechanics, atomic and nuclear physics. The basic equations of a spherical star are derived in detail at an accessible level. This book tracks the evolution of stars from their main-sequence evolution through the exhaustion of various nuclear fuels to the end points of evolution and also introduces the topic of interacting binary stars.

360pp Feb 2019
978-1-78326-579-4 US\$98 £85

Introduction to General Relativity Solutions to Problems

by **John Dirk Walecka** (*College of William and Mary, USA*)

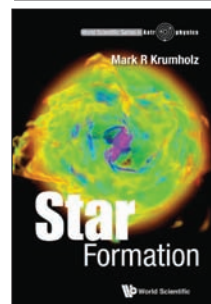


216pp Aug 2017
978-981-3227-69-9(pbk) US\$48 £42

World Scientific Series in Astrophysics

Star Formation

by **Mark R Krumholz** (*Australian National University, Australia*)



"Krumholz has a strong writing style, didactic to be sure, but also fairly conversational within the limits of the material. While hardly casual reading, this text would be a good resource for a stellar astrophysicist, or any individual seeking to become one."

CHOICE

528pp Jun 2017
978-981-3142-02-2 US\$128 £113
978-981-3142-03-9(pbk) US\$88 £77

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Accelerator Physics
(4th Edition)

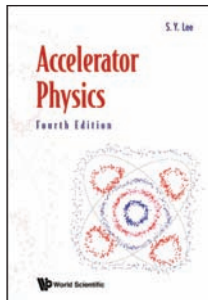
by Lee Shyh-Yuan (Indiana University, USA)

Reviews of the previous editions:
"The large number of formulas and the excellent table of contents and index make the book a very useful addition to the library of a scientist or engineer already in the field."

Physics Today

568pp
978-981-3274-67-9
978-981-3274-78-5(pbk)

Nov 2018
US\$138 £120
US\$78 £70



Concepts in Particle Physics

A Concise Introduction to the Standard Model
by V Parameswaran Nair (City College of the City University of New York, USA)

328pp
978-981-3227-55-2

Jan 2018
US\$98 £86

Supersymmetric Quantum Mechanics (2nd Edition)

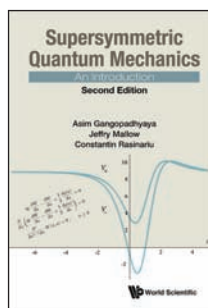
An Introduction
by Asim Gangopadhyaya, Jeffry Mallow & Constantin Rasinariu (Loyola University Chicago, USA)

Reviews of the First Edition:
"This work is appropriate for anyone with a solid background in upper-division undergraduate mathematics and physics ... The problems, which are scattered throughout the chapters, were very well chosen."

CHOICE

296pp
978-981-3221-03-1
978-981-3221-04-8(pbk)

Dec 2017
US\$98 £81
US\$48 £40

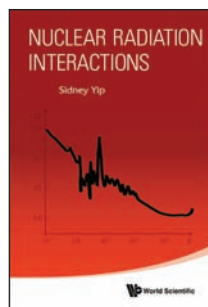


Nuclear Radiation Interactions

by Sidney Yip (MIT)
This book is a treatment on the foundational knowledge of Nuclear Science and Engineering. It is an outgrowth of a first-year graduate-level course which the author has taught over the years in the Department of Nuclear Science and Engineering at MIT.

386pp
978-981-4368-07-0
978-981-3144-53-8(pbk)

Dec 2014
US\$118 £98
US\$58 £48



Principles of Fusion Energy

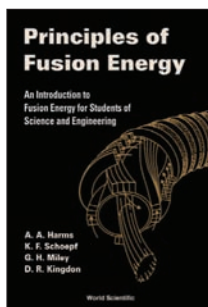
An Introduction to Fusion Energy for Students of Science and Engineering
by A A Harms (McMaster University, Canada), D R Kingdon (McMaster University, Canada), K F Schoepf (University of Innsbruck, Austria) & G H Miley (University of Illinois, Urbana-Champaign, USA)

"This textbook provides a useful summary of the relevant physics and an objective overview of the possible systems that could allow and contain thermonuclear fusion."

CERN Courier

308pp
978-981-02-4335-7
978-981-238-033-3(pbk)

Jun 2000
US\$63 £52
US\$36 £30



The Standard Model and Beyond

by J D Vergados (University of Ioannina, Greece)

452pp
978-981-3228-55-9
978-981-3275-77-5(pbk)

Oct 2017
US\$98 £86
US\$58 £50

Electromagnetism / Optics / Laser

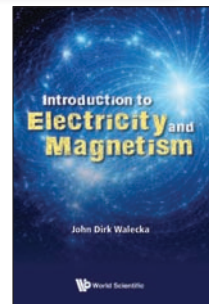
Introduction to Electricity and Magnetism

by John Dirk Walecka (College of William and Mary, USA)

These lectures provide an introduction to a subject that together with classical mechanics, quantum mechanics, and modern physics lies at the heart of today's physics curriculum. This introduction to electricity and magnetism, aimed at the very best students, assumes only a good course in calculus, and familiarity with vectors and Newton's laws; it is otherwise self-contained. Furthermore, these lectures, although relatively concise, take one from Coulomb's law to Maxwell's equations and special relativity in a lucid and logical fashion.

272pp
978-981-3272-06-4
978-981-3273-10-8(pbk)

Oct 2018
US\$88 £75
US\$48 £40



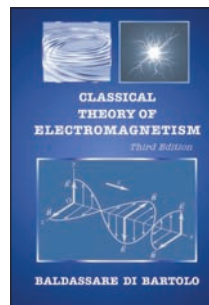
Classical Theory of Electromagnetism (3rd Edition)

by Baldassare Di Bartolo (Boston College, USA)

The text is self-contained and oriented toward the student. It is concise and yet very detailed in mathematical calculations; the equations are explicitly derived, which is of great help to students and allows them to concentrate more on the physics concepts, rather than spending too much time on mathematical derivations.

720pp
978-981-3228-19-1
978-981-3230-03-3(pbk)

Aug 2018
US\$198 £174
US\$98 £86



Lasers for Scientists and Engineers

by L Wilmer Anderson & John B Boffard (University of Wisconsin-Madison, USA)

412pp
978-981-3224-28-5
978-981-3224-29-2(pbk)

Aug 2017
US\$98 £86
US\$58 £50

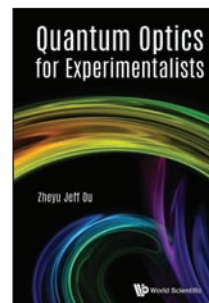
Quantum Optics for Experimentalists

by Zheyu Jeff Ou (Indiana University - Purdue University Indianapolis, USA)

This book on quantum optics is from the point of view of an experimentalist. It approaches the theory of quantum optics with the language of optical modes of classical wave theory, with which experimentalists are most familiar. This approach makes the transition easy from classical optics to quantum optics. The emphasis on the multimode description of an optical system is more realistic than in most quantum optics textbooks. After the theoretical part, the book goes directly to the two most basic experimental techniques in quantum optics and establishes the connection between the experiments and the theory. The applications include some key quantum optics experiments, and a few more current interests that deal with quantum correlation and entanglement, quantum noise in phase measurement and amplification, and quantum state measurement.

432pp
978-981-3220-19-5
978-981-3220-20-1(pbk)

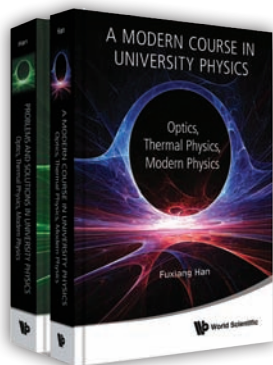
Jul 2017
US\$128 £113
US\$68 £60



A Modern Course in University Physics

Optics, Thermal Physics, Modern Physics by **Fuxiang Han** (*Dalian University of Technology, China*)

This is a calculus-based textbook on general physics. It contains all the major subjects covered in an intermediate or advanced course on general physics. Through coherent and humorous elucidation of physics principles, this book makes learning general physics a fun and interesting activity.



668pp Jun 2017
978-981-3226-18-0 US\$118 £104

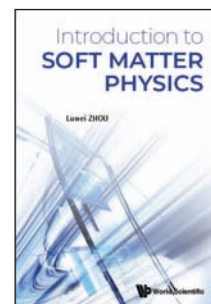
Condensed Matter Physics

Introduction to Soft Matter Physics

by **Luwei Zhou** (*Fudan University, China*)

The subject of soft matter physics is still in its infancy, making it highly exciting and attractive. If you like a challenging subject, you will most certainly fall in love with soft matter physics at first read!

320pp Mar 2019
978-981-3275-09-6 US\$98 £85

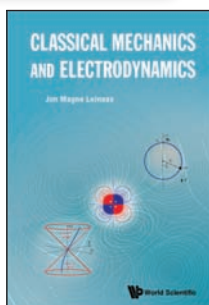


Mathematical Physics

Classical Mechanics and Electrodynamics

by **Jon Magne Leinaas** (*University of Oslo, Norway*)

The text is illustrated with many figures, most of these in color. There are many useful examples and exercises which complement the derivations in the text.



364pp Feb 2019
978-981-3279-36-0 US\$98 £85
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Solution Manual

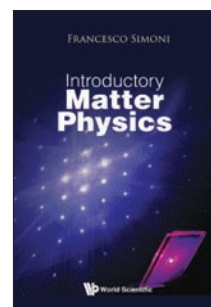
108pp Mar 2019
978-981-120-070-0(pbk) US\$30 £25

Introductory Matter Physics

by **Francesco Simoni** (*Università Politecnica delle Marche, Italy*)

This book is based on the lectures given by the author for over a decade on Matter Physics and Solid State Physics. It focuses on electronic properties to discuss the structure, electrical and optical properties of matter, and is organized into six chapters.

480pp Oct 2018
978-981-3235-71-7 US\$118 £105



Theoretical Alchemy

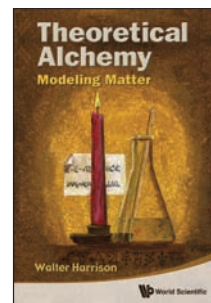
Modeling Matter

by **Walter Harrison** (*Stanford University, USA*)

"Harrison's treatment in the present book is pithy and distinctive, distilling a lifetime of research and reflection in a pointed, engaging discussion in eight chapters and several appendixes. Extensive references and a useful index round out the book. The work is well suited for chemistry and physics students at several levels. Its creative treatment may even engage an interested general reader."

CHOICE

212pp Sep 2010
978-981-4322-13-3 US\$68 £56
978-981-4322-14-0(pbk) US\$28 £23



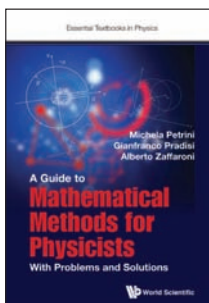
Essential Textbooks in Physics

A Guide to Mathematical Methods for Physicists

With Problems and Solutions

by **Michela Petrini** (*Université Pierre et Marie Curie, France*), **Gianfranco Pradisi** (*University of Rome Tor Vergata, Italy*) & **Alberto Zaffaroni** (*University of Milano-Bicocca, Italy*)

The text is illustrated with many figures, most of these in color. There are many useful examples and exercises which complement the derivations in the text.

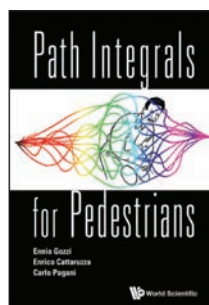


340pp Sep 2017
978-1-78634-343-7 US\$98 £81
978-1-78634-344-4(pbk) US\$48 £40

Path Integrals for Pedestrians

by **Ennio Gozzi** (*University of Trieste, Italy & INFN, Trieste, Italy*), **Enrico Cattaruzza** (*INFN, Trieste, Italy*) & **Carlo Pagani** (*INFN, Trieste, Italy & University of Mainz, Germany*)

"This short book provides a clear, pedagogical and insightful presentation of the subject. An interesting innovation in this book is that the authors provide a clear presentation of the path integral formulation of the Wigner functions, which are fundamental in the study of quantum statistical mechanics; and, for the first time in an elementary book, the work of Koopman and von Neumann on classical and statistical mechanics. It will be difficult to find a better and more compact introduction to this fundamental subject."



CERN Courier

156pp Jan 2016
978-981-4603-92-8 US\$58 £48
978-981-4603-93-5(pbk) US\$34 £28

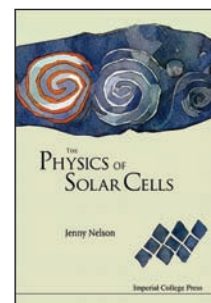
The Physics of Solar Cells

by **Jenny Nelson** (*Imperial College, UK*)

"This book is more encyclopedic, with clear figures and broad scope. It does a good job of clarifying the fundamental issues and is a less advanced text. It is, therefore, probably more approachable and more useful to the general reader."

Physics Today

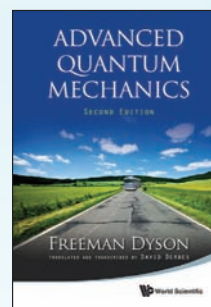
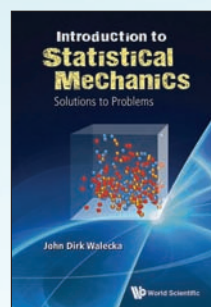
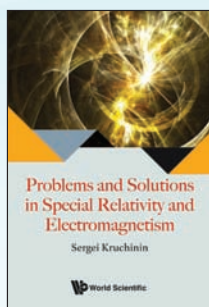
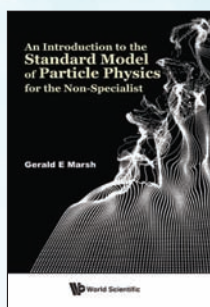
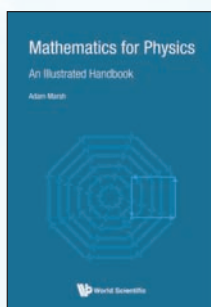
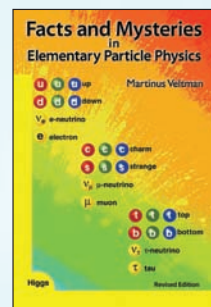
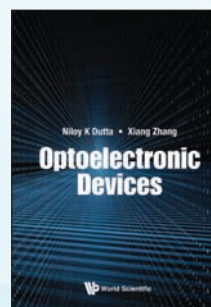
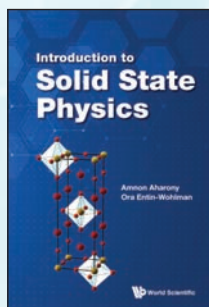
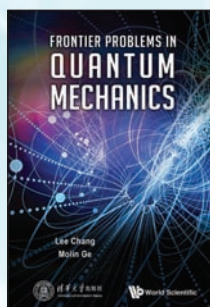
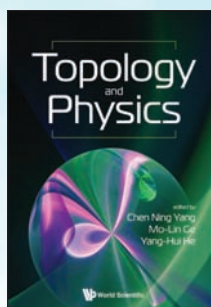
384pp May 2003
978-1-86094-340-9 US\$104 £86
978-1-86094-349-2(pbk) US\$58 £48



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978-981-3278-49-3	US\$88	£75
978-981-3278-50-9(pbk)	US\$36	£30

Frontier Problems in Quantum Mechanics

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1092pp	Oct 2018	
978-981-3146-84-6	US\$198	£164

Introduction to Solid State Physics

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