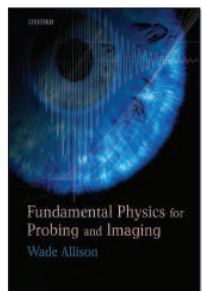


Fundamental Physics for Probing and Imaging



Wade Allison, University of Oxford

'All of us (whether students or professionals, academics or clinicians) need to engage with the fundamentals of our subject and medical physicists can do so with this book. For most of us, the going will be tough but the effort worthwhile.'

Scope

2006 | 352 pages | 139 line drawings and 32 halftones

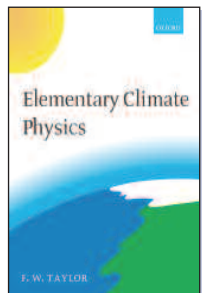
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F. W. Taylor, University of Oxford

 suitable as a student text



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Bulletin of the American Meteorological Society

2005 | 232 pages | numerous line drawings | black and white illustrations | mathematical examples and tables

978-0-19-856734-9, PAPERBACK £27.50/\$70.00

978-0-19-856733-2, HARDBACK £69.50/\$94.50

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de Lange: *Solved Problems in Classical Mechanics*, on page **18** in *Theoretical & Statistical Physics*

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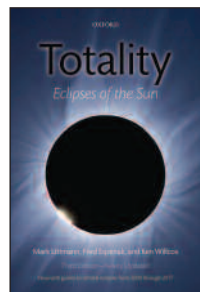
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Kathryn Chung, *Bluesci*

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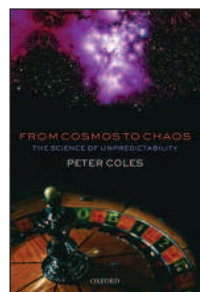
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It is aimed essentially at non-specialist readers, but even those who are familiar with its contents will enjoy the stimulating presentation.'

Nature

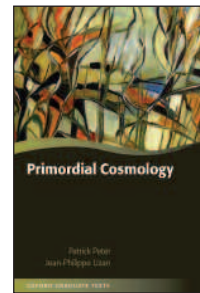
This book looks at the role of probability in modern science. Focussing on this aspect of the latest discoveries helps the reader get behind the hype, and understanding the uncertain status of things that are often presented as certainties. The book covers recent exciting developments in physics, such as superstrings and dark energy, but also draws lessons for everyday life. Written by an insider, and using non-technical language, it is an attempt to explain how science really works.

August 2010 | 224 pages | 20 b/w line & halftone illustrations

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Primordial Cosmology



Patrick Peter and **Jean-Philippe Uzan**, both at the Institut d'Astrophysique de Paris

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Joseph Silk, *University of Oxford*

Primordial Cosmology provides an extensive survey of all the physics necessary to understand the current developments in the field of fundamental cosmology, as well as an overview of the observational data and methods. It will help students to get into research by providing definitions, main techniques and ideas discussed today.

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Foundations of Modern Cosmology

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SECOND EDITION

John F. Hawley and **Katherine A. Holcomb**, University of Virginia, USA

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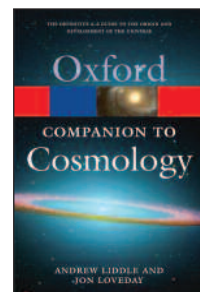
2005 | 568 pages | numerous line drawings | halftones and mathematical examples

978-0-19-853096-1, HARDBACK £56.50

NEW IN PAPERBACK

The Oxford Companion to Cosmology

 suitable as a student text



Andrew Liddle and **Jon Loveday**, both at the University of Sussex

The Oxford Companion to Cosmology includes over 350 in-depth entries, extensively cross-referenced, describing the modern view of cosmology, including both theoretical ideas and the various types of observational evidence.

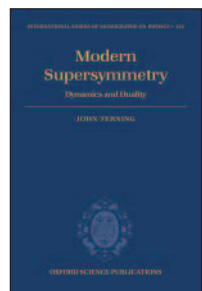
It is highly illustrated with diagrams and half tones throughout, and includes entry-level web links.

Oxford Paperback Reference

2009 | 368 pages | 175 b&w integrated halftones and diagrams

978-0-19-956084-4, PAPERBACK £11.99/\$24.99

Modern Supersymmetry
Dynamics and Duality



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Zentralblatt Math

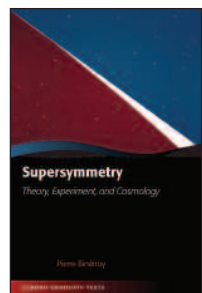
International Series of Monographs on Physics No. 132

2005 | 336 pages | 1 colour plate | 62 figures

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Theory, Experiment, and Cosmology



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Physics Today

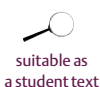
Oxford Graduate Texts

2006 | 536 pages | 75 line drawings and 5 halftones

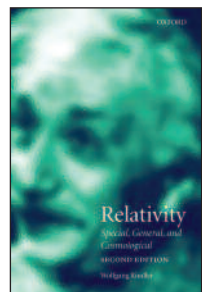
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2006 | 448 pages | 126 line drawings

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978-0-19-856731-8, HARDBACK £77.50/\$140.00

Cosmology

Steven Weinberg, University of Texas at Austin



suitable as a student text

'A stimulating source of intellectual excitement. While the relevant technical aspects of the presentation can only be fully appreciated after a careful reading, a clear message emerges with vigour after the first reading: atomic physics, nuclear physics, field theory, high-energy physics and general relativity all come together in the description of our universe. In other words, *Cosmology* provides a vivid example of the basic unity of physics, which is something to bear in mind during the decades to come.'

CERN Courier

'A technical tour de force for the intrepid graduate student, Weinberg's book will greatly appeal to particle physicists tooling up in cosmology and be an indispensable source for the practitioner.'

Physics Today

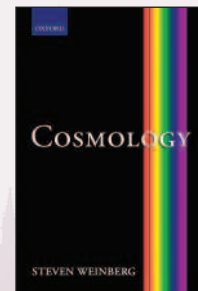
'Steven Weinberg's *Cosmology* is a thorough, graduate-level introduction to the field, which incorporates the frenzied developments since his 1972 classic, *Gravitation and Cosmology*. This is sure to be another hit.'

New Scientist

This is a uniquely comprehensive and detailed treatment of the theoretical and observational foundations of modern cosmology, by a Nobel Laureate in Physics. It gives up-to-date and self contained accounts of the theories and observations that have made the past few decades a golden age of cosmology.

2008 | 616 pages | 27 line drawings

978-0-19-852682-7, HARDBACK £48.50/\$90.00



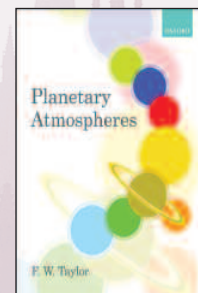
Planetary Atmospheres

F.W. Taylor, University of Oxford

This book covers the basic physics of planetary atmospheres in a single text for students or anyone interested in this area of science. The approach is the same as in the author's *Elementary Climate Physics*: an overview, followed by more detailed discussion of key topics arranged by physical phenomenon and not planet by planet as usually found in this field. There is an emphasis on acquiring and interpreting measurements, and the basic physics of instruments and models, with key definitions and some historical background in footnotes and in the glossary at the end of the book.

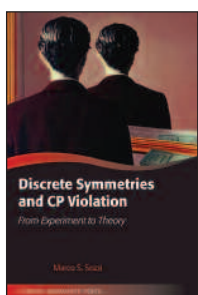
August 2010 | 280 pages | 135 b/w line and halftone illustrations

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'With 550 pages subdivided into 11 chapters plus a coda, six appendices, nearly 600 references (about a quarter of them dated after the year 2000) and 28 experiments described in detail, it turns out to be not only a source book for courses in physics, but also an excellent companion in the search for symmetry.'

CERN Courier

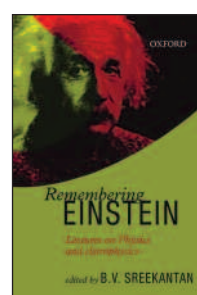
Oxford Graduate Texts

2008 | 568 pages

978-0-19-929666-8, HARDBACK £57.50

Remembering Einstein

Lectures on Physics and Astrophysics



B.V.S. Sreekantan, National Institute of Advance Studies, Bangalore

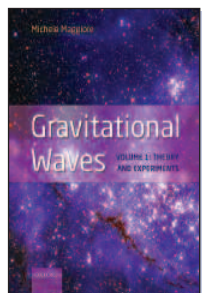
Commemorating the centenary of Einstein's Relativity Principle, this book includes nine lectures on physics and astrophysics by prominent scientists and researchers.

July 2010 | 164 pages | 18 black & white halftone and line illustrations | OUP India

978-0-19-806449-7, HARDBACK £17.99/\$35.00

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Volume 1: Theory and Experiments



Michele Maggiore, University of Geneva

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General Relativity and Gravitation

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Mechanisms of Atmospheric Oxidation of the Oxygenates

Jack G. Calvert, National Center for Atmospheric Research, **Abdelwahid Mellouki**, Institut de Combustion, Aérothermique, Réactivité, et Environnement, **John Orlando**, National Center for Atmospheric Research, **Michael Pilling**, University of Leeds, and **Timothy Wallington**, Ford Motor Company

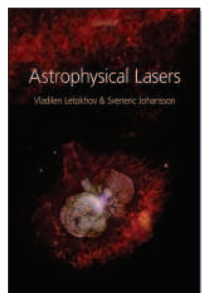
Prepared by an international team of eminent atmospheric scientists, *Mechanisms of Atmospheric Oxidation of the Oxygenates* is an authoritative source of information on the role of oxygenates in the chemistry of the atmosphere.

May 2011 | 1328 pages | 462 illustrations | OUP USA

978-0-19-976707-6, HARDBACK £210.00/\$350.00

Astrophysical Lasers

Vladilen Letokhov, Institute of Spectroscopy, Troitsk, Russia, and **Svenneric Johansson**, Institute of Astronomy, Lund University, Sweden



Progress in observational astronomy, particularly with ground-based huge telescopes and the space-based Hubble Space Telescope, has led to recent discoveries of space lasers in the optical range. These operate in gas condensations in the vicinity of the mysterious star Eta Carinae (one of the most luminous and massive stars of our

Galaxy). This book consistently describes the elements of laser science, astrophysical plasmas, modern astronomical observation techniques, and the fundamentals and properties of astrophysical lasers. It will also be useful for a wider audience interested in modern developments of natural sciences and technology.

2008 | 272 pages | 107 b+w line drawings | 1 b+w halftone 4 colour plates

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and offers us a meticulously researched account of the nature, properties and applications of the often overlooked entities in the fantastic antiworld around us.'

Chemistry World

Frank Close explores the strange mirror world of antimatter, revealing that the reality is even more fascinating than the sci-fi stories suggest. Explaining the science behind one of physics' most extraordinary discoveries, he shows how, through understanding antimatter, we can shed light on some of the deepest mysteries of the universe.

January 2010 | 176 pages | 10 b&w line drawings

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'As an award-winning writer, Close tells this detective story with great style.'

Robert Matthews, *BBC Focus*

Neutrinos are as near to nothing as anything we know, and so elusive that they are almost invisible.

Frank Close tells the story of the neutrino, explaining their growing significance, and looking at how neutrino astronomy is at the threshold of enabling us to look into distant galaxies and to finding echoes of the Big Bang.

October 2010 | 192 pages | 11 black and white illustrations

978-0-19-957459-9, HARDBACK £9.99/\$18.95

Fundamentals of Neutrino Physics and Astrophysics

Carlo Giunti, INFN (Istituto Nazionale di Fisica Nucleare), and **Chung W. Kim**, Johns Hopkins University and Korea Institute for Advanced Study

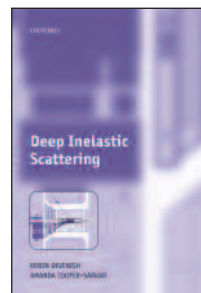
Our Universe is made of a dozen fundamental building blocks. Among these, neutrinos are the most mysterious—but they are the second most abundant particles in the Universe. This book provides detailed discussions of how to describe neutrinos, their basic properties, and the roles they play in nature.

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978-0-19-850871-7, HARDBACK £55.00/\$85.00

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Robin Devenish and **Amanda Cooper-Sarkar**, both at the University of Oxford

This book provides an up-to-date, self-contained account of deep inelastic scattering in high-energy physics, intended for graduate students and physicists new to the subject. It covers the classic results which led to the quark-parton model of

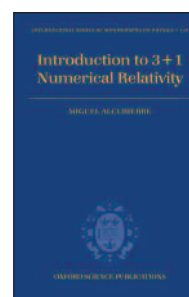
hadrons and the establishment of quantum chromodynamics as the theory of the strong nuclear force, in addition to new vistas in the subject opened up by the electron-proton collider HERA.

April 2011 | 416 pages | numerous line drawings

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Mathematical Reviews

International Series of Monographs on Physics No. 140

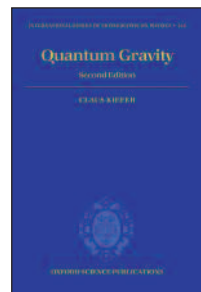
2008 | 464 pages | 68 line drawings

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Claus Kiefer, University of Cologne, Germany



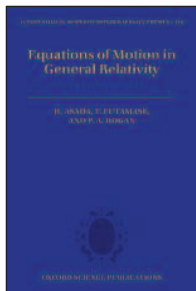
Quantum theory and Einstein's theory of relativity are at the centre of modern theoretical physics, yet the consistent unification of both theories is still elusive. This book offers an up-to-date introduction into the attempts to construct a unified theory of 'quantum gravity'.

International Series of Monographs on Physics No. 136

2007 | 376 pages | 30 line drawings

978-0-19-921252-1, HARDBACK £72.50/\$150.00

Equations of Motion in General Relativity



Hideki Asada, Hirosoaki University, Japan, **Toshifumi Futamase**, Tohoku University, Japan, and **Peter Hogan**, University College Dublin, Ireland

Einstein's theory of general relativity describes the gravitational field of a system of stars and predicts their paths by providing the 'equations of motion' of

each star. Extracting these equations from his field equations is a highly technical procedure described in this book. Observable quantities can then be calculated to test the theory.

International Series of Monographs on Physics No. 148

December 2010 | 168 pages | 7b&w line illustrations

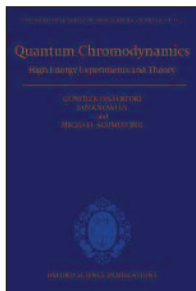
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High Energy Experiments and Theory



Günther Dissertori, ETH Zürich, **Ian G. Knowles**, University of Edinburgh, and **Michael Schmelling**, Max-Planck-Institute for Nuclear Physics, Heidelberg, and Technische Universität Dortmund

This book provides an introduction to Quantum Chromodynamics (QCD), the theory of strong interactions.

It covers in full detail both the theoretical foundations and the experimental tests of the theory. Although the experimental chapters focus on recent measurements, the subject is placed into historical perspective by also summarizing the steps which lead to the formulation of QCD. The text is intended for graduate and postgraduate students as well as researchers, and includes numerous problems and solutions.

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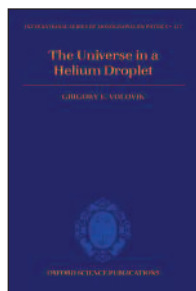
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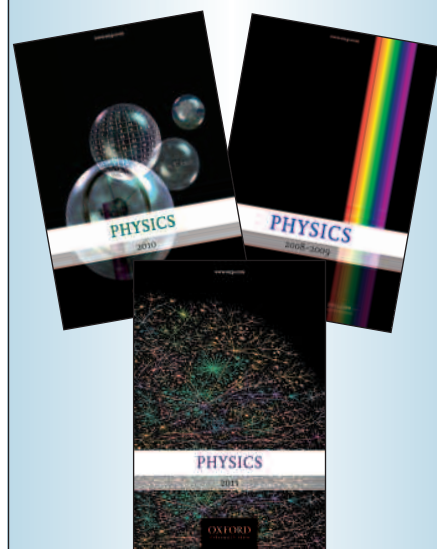
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