

A. Ashtekar, Pennsylvania State University Institute for Gravitation and the Cosmos, University Park, PA, USA; **V. Petkov**, Concordia University Liberal Arts College, Montreal, QC, Canada (Eds)

Springer Handbook of Spacetime

The Springer Handbook of Space time brings together the theories of space time and their implications for our understanding of the universe and the quantum world. Unlike any existing book, the handbook will contain in a single volume detailed chapters, which address the physics, the mathematics, the experimental evidence, and the cosmological implications of the profound idea that gravity is not a force but is caused by the curvature of space time, as well as chapters on the efforts to create a theory of quantum gravity.

Features

► Authored by leading experts from around the world ► Brings together all the major - and sometimes competing - ideas and their implications ► Addresses the physics, mathematics and experimental evidence relevant to the various proposals ► Presents the background to current attempts to create a theory of quantum gravity ► Carefully structured, refereed and edited to assure optimal accessibility, accuracy and ease of understanding

Contents

Introduction to Spacetime Structure.- Foundational Issues.- Spacetime Structure and Mathematics.- Confronting Relativity Theories with Observations.- General Relativity and the Universe.- Spacetime Beyond Einstein.

Fields of interest

Classical and Quantum Gravitation, Relativity Theory; Astronomy, Astrophysics and Cosmology; Mathematical Applications in the Physical Sciences

Target groups

Professional/practitioner

Product category

Handbook

Due March 2014

2014. C, 1100 p. 130 illus. Hardcover

► approx. *€ (D) 373,43 | € (A) 383,90 | sFr 465,00

► approx. € 349,00 | £314.50

ISBN 978-3-642-41991-1



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Due December 2013

2014. XVI, 152 p. 72 illus., 11 in color. (Springer Theses) Hardcover

► *€ (D) 106,99 | € (A) 109,99 | sFr 133,50

► € 99,99 | £90.00

ISBN 978-3-319-03256-6

M. Bachtis, University of Wisconsin-Madison, Madison, WI, USA

Heavy Neutral Particle Decays to Tau Pairs

Detected with CMS in Proton Collisions at $\sqrt{s} = 7\text{TeV}$

The work presented in this thesis spans a wide range of experimental particle physics subjects, starting from level-1 trigger electronics to the final results of the search for Higgs boson decay and to tau lepton pairs. The thesis describes an innovative reconstruction algorithm for tau decays and details how it was instrumental in providing a measurement of Z decay to tau lepton pairs. The reliability of the analysis is fully established by this measurement before the Higgs boson decay to tau lepton pairs is considered. The work described here continues to serve as a model for analysing CMS Higgs to tau leptons measurements.

Features

► Nominated by CERN as an outstanding PhD thesis ► Guides the reader step by step through how complicated physics analyses are performed at the LHC ► Describes novel experimental techniques implemented at the LHC ► Recipient of the CMS prize for the best thesis of 2012

Contents

The Standard Model of Particle Physics.- Supersymmetry and the MSSM.- Experimental Setup.- Event Simulation.- Event Reconstruction.- Hadronic Tau Identification and Trigger.- Selection of Tau Pairs.- Measurement of $Z \rightarrow \tau\tau$, Production.- Search for Higgs Bosons.- Synopsis.- Calorimeter Trigger Upgrade for Higher Luminosities.

Fields of interest

Elementary Particles, Quantum Field Theory; Measurement Science and Instrumentation

Target groups

Research

Product category

Monograph

A. Baracca, Università di Firenze Dipto. Fisica, Sesto Fiorentino, Italy; **J. Renn**, MPI for the History of Science and TOPOI Excellence Cluster, Berlin, Germany; **H. Wendt**, Max Planck Institute for the History of Science, Berlin, Germany (Eds)

The History of Physics in Cuba

Contents

Preface; Jürgen Renn and Helge Wendt.- About the Contributors.- A Short Introduction to this Volume; Angelo Baracca, Jürgen Renn and Helge Wendt.- Introduction: The Cuban "Exception"- The Development of an Advanced Scientific System in an Underdeveloped Country; Angelo Baracca.- A Short Critical Bibliographic Guide; Duccio Basosi.- Part 1: Historical Surveys.- 1. The Teaching of Physics in Cuba from Colonial Times to 1959; José Altschuler and Angelo Baracca.- 2 Mathematics and Physics in Cuba before 1959: A Personal Recollection; José Altschuler.- 3 A Comprehensive Study of the Development of Physics in Cuba from 1959; Angelo Baracca, Víctor Fajer and Carlos Rodríguez Castellanos.- 4 Accomplishments in Cuban Physics (up to 1995); Carlos R. Handy and Carlos Trallero-Giner.- 5 Physics at the University of Oriente; Luis M. Méndez Pérez and Carlos A. Cabal Mirabal.- 6 The Training of Physics Teachers in Cuba: A Historical Approach; Diego de Jesús Alamino Ortega.- 7 Higher Education and Socio-Economic Development in Cuba: High Rewards of a Risky High-Tech Strategy; Israelis Pérez Ones and Jorge Núñez Jover.- Part 2: Reflections from the Inside.- 8 The Rise and Development of Physics in Cuba: An Interview with Hugo Pérez Rojas; Angelo Baracca.- 9 An Interview with Professor Melquíades de Dios Leyva, December 2008; Olimpia Arias de Fuentes.- 10 Experimental Semiconductor Physics: The Will to Contribute to the Country's Economic Development; Elena Vigil Santos. [...]

Fields of interest

History and Philosophical Foundations of Physics; History of Science; Regional/Spatial Science

Target groups

Research

Product category

Contributed volume

Due January 2014

2014. Approx. 460 p. (Boston Studies in the Philosophy and History of Science, Volume 304) Hardcover

► *€ (D) 139,09 | € (A) 142,99 | sFr 173,50

► € 129,99 | £117.00

ISBN 978-94-017-8040-7



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P.-Y. Chen, China Medical University, Taichung, Taiwan

The Application of Biofluid Mechanics

Boundary Effects on Phoretic Motions of Colloidal Spheres

“The Application of Biofluid Mechanics: Boundary Effects on Phoretic Motions of Colloidal Spheres” focuses on the phoretic motion behavior of various micron- to nanometer-size particles. The content of this book is divided into two parts: one on the concentration gradient-driven diffusiophoresis and osmophoresis, and one on thermocapillary motion and thermophoretic motion driven by temperature gradient.

Features

► Focuses on the phoretic motion behavior of various micron- to nanometer-size particles ► Discusses four kinds of phoretic motions and their applications in biofluid mechanics, i.e. diffusiophoresis, osmophoresis, thermocapillary motion and thermophoretic motion ► Provides a variety of computer programming source codes compiled using Fortran

Contents

Introduction.- Diffusiophoresis of Spherical Colloidal Particles Parallel to the Plane Walls.- Penetration Motion of the Spherical Vesicle Particle Parallel to Plane Walls.- Thermocapillary Motion of Pheral Droplets Parallel to Plane Walls.- Thermophoresis Motion of Spherical Aerosol Particles Parallel to Plane Walls.- General Discussions and Conclusions.

Fields of interest

Biophysics and Biological Physics; Biomedical Engineering; Electrophoresis

Target groups

Research

Product category

Brief

Due January 2014

Original Chinese edition published by Ho-Chi Book Publishing Co., Taipei, 2010

2014. VII, 127 p. 22 illus. With online files/update. (SpringerBriefs in Physics) Softcover
 ► *€ (D) 53,49 | € (A) 54,99 | sFr 67,00
 ► € 49,99 | £44.99
 ISBN 978-3-642-44951-2

G. D'Agostino, ENEA - Italian National Agency for New Technology, Energy and Sustainable Economic Development, Rome, Italy; A. Scala, CNR-ISC Uos “La Sapienza”, Rome, Italy (Eds)

Networks of Networks: the last Frontier of Complexity

Features

► Contributions from leaders in the field of Network Science ► Encapsulates developments in this emerging field in a clear manner ► Interdisciplinary fields are represented

Contents

Part I Theoretical Approaches.- Network of Interdependent Networks: Overview of Theory and Applications (18 April 2013) .- Avalanches in Multiplex and Interdependent Networks.- Multiple Networks.- Modeling Interconnected Networks as Random Graphs: Connectivity and Systemic Risk.- Thresholds and Complex Dynamics of Interdependent Cascading Infrastructure Systems.- Part II Applications.- Characterizing Relevant Network Structure with Reliability Polynomials.- Spatial Effects: Transport on Interdependent Networks.- Electrical Networks – An Introduction.- Smart Grid as Multi-Layer Interacting System for Complex Decision Makings.- Network Physiology: Mapping Interactions between Networks of Physiologic Networks.- Part III Phenomenological Models.- Federated Modelling and Simulation for Critical Infrastructure Protection.- Multisystem Simulation: Analysis of Critical Infrastructures for Disaster Response.- Addressing Interdependencies of Complex Technical Networks.- Financial Networks.- Spatial-Temporal Quantification of Interdependencies Across Infrastructure Networks.- Index.

Fields of interest

Complex Networks; Complexity; Complex Systems

Target groups

Research

Product category

Collected works

Due January 2014

2014. XIV, 345 p. 147 illus., 126 in color. (Understanding Complex Systems) Hardcover
 ► *€ (D) 139,09 | € (A) 142,99 | sFr 173,50
 ► € 129,99 | £117.00
 ISBN 978-3-319-03517-8

J. Dilling, TRIUMF ISAC, Vancouver, BC, Canada; R. Krücken, University of British Columbia, Vancouver, BC, Canada; L. Merminga, TRIUMF, Vancouver, BC, Canada (Eds)

TRIUMF Isotope Separator and Accelerator

A Laboratory Portrait of ISAC

The TRIUMF Isotope Separator and Accelerator (ISAC) facility uses the isotope separation on-line (ISOL) technique to produce rare-isotope beams (RIB). The ISOL system consists of a primary production beam, a target/ion source, a mass separator, and beam transport system. The rare isotopes produced during the interaction of the proton beam with the target nucleus are stopped in the bulk of the target material. They diffuse inside the target material matrix to the surface of the grain and then effuse to the ion source where they are ionized to form an ion beam that can be separated by mass and then guided to the experimental facilities. Previously published in the journal *Hyperfine Interactions*.

Features

► Provides a concise overview of the ISAC facility ► Covers all aspects of ISAC ► Written by experts in the field

Contents

ISAC overview.- The TRIUMF 500 MeV cyclotron: the driver accelerator.- ISAC targets.- Rare isotope beams at ISAC—target & ion source systems.- Off line ion source terminal.- Charge state breeding of radioactive isotopes for ISAC.- ISAC LEBT.- The ISAC post-accelerator.- High energy beam lines.- The experimental facilities at ISAC. [...]

Fields of interest

Particle and Nuclear Physics; Particle Acceleration and Detection, Beam Physics; Characterization and Evaluation of Materials

Target groups

Research

Product category

Monograph

Due February 2014

Only available in print

2014. 200 p. 100 illus. Hardcover
 ► approx. *€ (D) 149,75 | € (A) 153,94 | sFr 186,50
 ► approx. € 139,95 | £126.00
 ISBN 978-94-007-7962-4



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Encyclopedia of Color Science and Technology

Editor-in-chief: **R. Luo**, School of Design University of Leeds, Leeds, UK

Contents

Introduction.- Accessibility and Color.- Art Conservation and Color.- Capturing Color.- The Chemistry of Color.- Color and Architecture.- Color and Computer Graphics.- Color and Culture.- Color and Education.- Color Appearance Correlates.- Color Crosscuts.- Color Design.- Color Differences.- Color Harmony.- Color Imaging.- Colorimetry and Color Spaces.- Color Management.- Color Palettes.- Data Visualization and Color.- The Description of Color.- Displaying Color.- Encoding Color.- History of Color.- Industrial Color.- The Measurement of Color.- Organizing Color.- The Perception of Color.- The Physics of Color.- Printing Color.- Processing Color.- Quality of Color.

Fields of interest

Optics, Optoelectronics, Plasmonics and Optical Devices; Signal, Image and Speech Processing; Industrial Chemistry/Chemical Engineering

Target groups

Research

Product category

Encyclop(a)edia

**SPRINGER
REFERENCE**

Due April 2015

Print

2015. 3000 p. 2000 illus. in color.

► *€ (D) 1284,00 | € (A) 1320,00 | sFr 1720,50

► € 1200,00 | £1080.00

ISBN 978-1-4419-8070-0



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eReference

2015.

►**€ (D) 1428,00 | € (A) 1440,00 | sFr 1808,00

► € 1200,00 | £1080.00

ISBN 978-1-4419-8071-7



9 781441 980717



Print + eReference

2015. 3000 p. 2000 illus. in color.

► *€ (D) 1605,00 | € (A) 1650,00 | sFr 2150,50

► € 1500,00 | £1350.00

ISBN 978-1-4419-8072-4



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J. Haas, Astronomical Institute, Prague, Czech Republic

Symmetries and Dynamics of Star Clusters

In this PhD thesis, which has been nominated for publication in this series by the Astronomical Institute of Charles University, Prague, the author investigates the orbital evolution of an initially thin stellar disc around a supermassive black hole, considering various perturbative sources of gravity. His results, obtained by both direct numerical N-body modelling and by standard perturbation methods, offer a viable theoretical explanation for the observed configuration of young stars in the Galactic centre. This makes a significant contribution to a topic of great interest in contemporary astrophysics.

Features

► Nominated by the Astronomical Institute of Charles University of Prague as an outstanding Ph.D. thesis 2012 ► Presents a viable theoretical explanation for the observed configuration of young stars in the Galactic centre ► Topic of great interest in contemporary astrophysics

Contents

Foreword.- Prerequisites.- Disc embedded in spherical cluster.- Coupling of near-Keplerian orbits.- Sagittarius A*.- Conclusions.

Fields of interest

Astrophysics and Astroparticles; Theoretical, Mathematical and Computational Physics

Target groups

Research

Product category

Monograph

Due March 2014

2014. 95 p. 41 illus. (Springer Theses) Hardcover

► approx. *€ (D) 85,59 | € (A) 87,99 | sFr 106,50

► approx. € 79,99 | £72.00

ISBN 978-3-319-03649-6



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Landolt-Börnstein: Numerical Data and Functional Relationships in Science and Technology - New Series

Editor-in-chief: **W. Martienssen**

Condensed Matter

Part 2

V. Gupta, University of Jaipur, Jaipur, India;
M. D. Lechner, Universität Osnabrück Inst. Physikalische Chemie, Osnabrück, Germany (Eds)

P31-NMR data, Part 2

Nuclear Magnetic Resonance (NMR) is based on the fact that certain nuclei exhibit a magnetic moment, orient by a magnetic field, and absorb characteristic frequencies in the radiofrequency part of the spectrum. The spectral lines of the nuclei are highly influenced by the chemical environment i.e. the structure and interaction of the molecules. NMR is now the leading technique and a powerful tool for the investigation of the structure and interaction of molecules. The present Landolt-Börnstein vol.III/35 "Nuclear Magnetic Resonance (NMR) Data" is therefore of major interest to all scientists and engineers who intend to use NMR to study the structure and the binding of molecules. Vol. III/40H is divided into three subvolumes, all of them describing NMR-data about 31P.

Feature

► Standard reference book with selected and easily retrievable data from the fields of physics and chemistry collected by acknowledged international scientists

Fields of interest

Spectroscopy and Microscopy; Chemistry/Food Science, general; Spectroscopy/Spectrometry

Target groups

Research

Product category

Reference work

Due April 2014

2014. Approx. 370 p. / Condensed Matter, Part 2) Hardcover

► approx. *€ (D) 3445,40 | € (A) 3542,00 |

sFr 4286,50

► approx. € 3220,00 | £2898.00

ISBN 978-3-642-41612-5



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Landolt-Börnstein: Numerical Data and Functional Relationships in Science and Technology - New Series

Editor-in-chief: W. Martienssen

Physical Chemistry

Subvolume 12D

F. Predel, Max-Planck-Inst. f. Metallforschung, Stuttgart, Germany

K-O ... Y-Zr

Volume 12: Phase Equilibria, Crystallographic and Thermodynamic Data of Binary Alloys, Subvol. D

Volume 12 of group IV presents phase diagrams, crystallographic and thermodynamic data of binary alloy systems. The subvolume D contains systems from H-Z. Volume 12 forms a supplement to volume 5.

Features

► Standard reference book with selected and easily retrievable data from the fields of physics and chemistry collected by acknowledged international scientists ► Also available online in www.springermaterials.com

Fields of interest

Physics, general; Physical Chemistry; Thermodynamics

Target groups

Research

Product category

Reference work

Due March 2014

2014. 220 p. Hardcover

► approx. *€ (D) 4055,30 | € (A) 4169,00 | sFr 5045,50

► approx. € 3790,00 | £3411.00

ISBN 978-3-642-24976-1



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N. N. Mansour, NASA Ames Research Center, Moffett Field, CA, USA; A. G. Kosovichev, Stanford University, Stanford, CA, USA; R. Komm, National Solar Observatory, Tucson, AZ, USA; D. Longcope, Montana State University, Bozeman, MT, USA (Eds)

Solar Dynamics and Magnetism from the Interior to the Atmosphere

Features

► Discusses recent advances and new problems in the exploration of the Sun's interior structure, solar dynamics and dynamo, mechanisms of sunspot and active regions formation, sources of solar irradiance variations and links between the subsurface dynamics, flaring and CME activity ► Develops a synergy of investigations of the solar interior by helioseismology, surface magnetism and the atmospheric dynamics, by using both state-of-the-art observations and numerical simulations ► Describes recent high-resolution observations from the ground and space, as well as realistic supercomputer simulations, which have led to a substantial progress in our understanding of the solar dynamics and magnetism from the interior to the atmosphere

Contents

Local and Global Helioseismology.- Sources of Solar Shape and Irradiance Variations.- Large-Scale Dynamics, Magnetism and Dynamo.- Emerging Magnetic Flux and Subsurface Dynamics.- Formation, Structure and Evolution of Sunspots and Active Regions.- Magnetic Topology and Dynamics of the Solar Atmosphere.

Field of interest

Extraterrestrial Physics, Space Sciences

Target groups

Research

Product category

Monograph

Due January 2014

Originally published in Solar Physics, Vol. 287/1-2, 2013

Only available in print

2014. VIII, 447 p. 235 illus., 145 in color. Hardcover

► approx. *€ (D) 139,09 | € (A) 142,99 | sFr 177,00

► approx. € 129,99 | £119.50

ISBN 978-1-4899-8004-5



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G. Matloff, C. Bangs, Brooklyn, NY, USA; L. Johnson, Madison, AL, USA

Resources from Space for a Struggling Earth

Can our Earthly Paradise Be Regained?

This second edition updates the scenario presented in the first edition of "Paradise Regained" for the re-greening of Earth. The first portion of the book describes what our planet was like before the advent of modern civilization. This is followed by a summary of the effects of civilization on the planet.

Features

► Provides information on the planning of space initiatives to help humankind deal with the large environmental issues of the day ► Presents new information on the topic of the resource crisis and asteroid mining ► Demonstrates that with rational planning, humans can tap the riches of the Solar System

Contents

Introduction: Welcome to the Present.- Space Utilization – A Moral Imperative.- Fire – Formation of the Earth and the Solar System.- Earth Before Man – Utopia or Nightmare?.- The Environmental Dilemma – Progress or Collapse?.- Exploding Population.- Climate Change.- Vanishing Life.- Diminishing Energy.- Humans Before the Industrial Age – A Desirable Ecological Goal?.- Part III Paradise Regained.- Raw Materials from Space.- Power from the Sun.- Environmental Monitoring from Space.- Protecting Earth.- Mitigating Global Warming Using Planetary Engineering.- Mitigating Global Warming Using Space-Based Approaches.- Setting the Solar System.- Paradise Regained – An Optimistic Future.

Fields of interest

Extraterrestrial Physics, Space Sciences; Popular Science in Astronomy; Aerospace Technology and Astronautics

Target groups

Popular/general

Product category

Popular science

Due September 2014

2nd ed. 2014. 250 p. 100 illus., 50 in color. Softcover

► approx. *€ (D) 28,84 | € (A) 29,65 | sFr 34,50

► approx. € 26,95 | £23.99

ISBN 978-1-4614-9425-6



9 781461 494256



D. Rickles, University of Sydney Unit for History & Philosophy of, Sydney, NSW, Australia

A Brief History of String Theory: From Dual Models to M-Theory

During its forty year lifespan, string theory has always had the power to divide, being called both a 'theory of everything' and a 'theory of nothing'. Critics have even questioned whether it qualifies as a scientific theory at all. This book adopts an objective stance, standing back from the question of the truth or falsity of string theory and instead focusing on how it came to be and how it came to occupy its present position in physics.

Features

► First monograph devoted to the history of superstring theory ► Objective presentation of a controversial area of physics enabling readers to see through the divisive hype and hysteria forming the 'String Wars' ► Interweaves conceptual issues with the wider historical development ► Reveals string theory's historically close connections with other areas of physics ► Self-contained approach brings string theory within the grasp of non-specialists

Contents

History and Mythology.- Part I: The (Very) Early Years: 1959-1973.- Particle Physics in the Sixties.- The Veneziano Model.- The Hadronic String.- Supersymmetric Strings and Field Theoretic Limits.- Part II: A Decade of Darkness: 1974-1984.- An Early Demise? Theoretical Exaptation in String Theory.- Turning Point(s).- Part III: String Theory Becomes Super: 1985-1995.- Superstring Theory and the Real World.- A 'Second Superstring Revolution' and the Future of String Theory.

Fields of interest

Quantum Field Theories, String Theory; Philosophy of Science; History and Philosophical Foundations of Physics

Target groups

Upper undergraduate

Product category

Monograph

C. Scheidenberger, Gesellschaft für Schwerionenforschung GmbH, Darmstadt, Germany; M. Pfützner, University of Warsaw, Warsaw, Poland (Eds)

The Euroschool on Exotic Beams, Vol. IV

This is the fourth volume in a series of Lecture Notes based on the highly successful Euro Summer School on Exotic Beams. The aim of these notes is to provide a thorough introduction to radioactive ion-beam physics at the level of graduate students and young postdocs starting out in the field. Each volume covers a range of topics from nuclear theory to experiment and applications. Vol I has been published as LNP 651, Vol II has been published as LNP 700, and Vol. III has been published as LNP 764.

Features

► Edited and authored by leading researchers in the field ► Tutorial style, based on course-tested material ► Suitable both as text for self-study and reference volume

Contents

Clustering in Light Nuclei: From the Stable to the Exotic.- A Pedestrian Approach to the Theory of Transfer Reactions: Applications to Weekly-bound and Unbound Exotic Nuclei.- Effective Field Theories of Loosely Bound Nuclei.- Direct Reactions at Relativistic Energies: A New Insight Into the Single-particle Structure of Exotic Nuclei.- Nuclear Charge Radii of Light Elements and Recent Developments in Collinear Laser Spectroscopy.- The Nuclear Energy Density Functional Formalism.

Fields of interest

Nuclear Physics, Heavy Ions, Hadrons; Particle Acceleration and Detection, Beam Physics; Measurement Science and Instrumentation

Target groups

Graduate

Product category

Monograph

W. v. Waldenfels, Himmelfort, Germany

A Measure Theoretical Approach to Quantum Stochastic Processes

This monograph takes as starting point that abstract quantum stochastic processes can be understood as a quantum field theory in one space and in one time coordinate. As a result it is appropriate to represent operators as power series of creation and annihilation operators in normal-ordered form, which can be achieved using classical measure theory. Considering in detail four basic examples (e.g. a two-level atom coupled to a heat bath of oscillators), in each case the Hamiltonian of the associated one-parameter strongly continuous group is determined and the spectral decomposition is explicitly calculated in the form of generalized eigen-vectors. Advanced topics include the theory of the Hudson-Parthasarathy equation and the amplified oscillator problem. To that end, a chapter on white noise calculus has also been included.

Features

► Authored by a leading researcher in the field ► Self-contained presentation of the subject matter ► Examines a number of worked examples in detail

Contents

Weyl Algebras.- Continuous Sets of Creation and Annihilation Operators.- One-Parameter Groups.- Four Explicitly Calculable One-Excitation Processes.- White Noise Calculus.- Circled Integrals.- White Noise Integration.- The Hudson-Parthasarathy Differential Equation.- The Amplified Oscillator.- Approximation by Coloured Noise.- Index.

Fields of interest

Quantum Physics; Mathematical Physics; Mathematical Methods in Physics

Target groups

Research

Product category

Monograph

Due February 2014

2014. Approx. 250 p. 20 illus. (The Frontiers Collection) Hardcover

► approx. * € (D) 53,49 | € (A) 54,99 | sFr 67,00

► approx. € 49,99 | £44.99

ISBN 978-3-642-45127-0



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Due February 2014

2014. 400 p. (Lecture Notes in Physics, Volume 879) Softcover

► * € (D) 74,89 | € (A) 76,99 | sFr 93,50

► € 69,99 | £62.99

ISBN 978-3-642-45140-9



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Due January 2014

2014. XVIII, 218 p. (Lecture Notes in Physics, Volume 878) Softcover

► * € (D) 48,14 | € (A) 49,49 | sFr 60,00

► € 44,99 | £40.99

ISBN 978-3-642-45081-5



9 783642 450815



M. Zuber, Massachusetts Institute of Technology, Cambridge, MA, USA; C. Russell, University of California Los Angeles, Los Angeles, CA, USA (Eds)

GRAIL: Mapping the Moon's Interior

In September 2011, the GRAIL mission launched two unmanned spacecraft to the Moon, which entered into lunar orbit on December 31, 2011 and January 1, 2012. They orbited the Moon until December 17, 2012, when they impacted the surface near the Moon's north pole.

Features

► Describes the design of The Gravity Recovery and Interior Laboratory (GRAIL) mission to the Moon, which has provided the highest resolution and most accurate gravity model of the Moon ► Describes the technology used to design a gravity mission to a planetary body employing a dual spacecraft self-tracking system ► Discusses the most important lunar science questions about the lunar crust and interior that can only be answered with high-accuracy, high-resolution gravity data

Contents

Gravity Recovery and Interior Laboratory (GRAIL): Mapping the Lunar Interior from Crust to Core.- The Scientific Measurement System of the Gravity Recovery and Interior Laboratory (GRAIL) Mission.- The Lunar Gravity Ranging System for the Gravity Recovery and Interior Laboratory (GRAIL) Mission.

Fields of interest

Extraterrestrial Physics, Space Sciences; Planetology

Target groups

Research

Product category

Monograph

Due January 2014

Spin-off from Space Science Reviews journal, Vol. 178/1, 2013

Only available in print

2014. Ill, 74 p. 36 illus. in color. Hardcover

► approx. * € (D) 106,99 | € (A) 109,99 | sFr 127,50

► approx. € 99,99 | £86.50

ISBN 978-1-4614-9583-3



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