Heavy Neutral Particle Decays to Tau Pairs

Detected with CMS in Proton Collisions at $\sqrt{s} = 7$ 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 lepton measurements.

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

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

Target groups
Professional/practitioner

Discount group
Professional Non-Medical

Heavy Neutral Particle Decays to Tau Pairs

Detected with CMS in Proton Collisions at $\sqrt{s} = 7$ 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 lepton measurements.

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

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

Target groups
Professional/practitioner

Discount group
Professional Non-Medical
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
- 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 Pherical Droplets Parallel to Plane Walls.- Thermophoretis 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

Discount group
Professional Non-Medical

Due January 2014


► $54.99
ISBN 978-3-642-44951-2


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

Fields of interest
Complex Networks; Complexity; Complex Systems

Target groups
Research

Discount group
Professional Non-Medical

Due January 2014

Only available in print

2014. XIV, 345 p. 147 Illus., 126 in color. (Understanding Complex Systems) Hardcover
► $179.00
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

Discount group
Professional Non-Medical

Due February 2014

Only available in print

2014. 200 p. 100 Illus. Hardcover
► approx. $189.00
ISBN 978-94-007-7962-4
Encyclopedia of Color Science and Technology
Editor-in-chief: R. Luo, School of Design University of Leeds, Leeds, UK

Contents

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

Target groups
Research
Discount group
Professional Non-Medical

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.

Features
- 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
Discount group
Short Discount

Print + eReference
- approx. $4349.00
ISBN 978-3-642-41612-5
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 on www.springermaterials.com

**Fields of interest**
Physics, general; Physical Chemistry; Thermodynamics

**Target groups**
Research

**Discount group**
Professional Non-Medical

---

**Due March 2014**

2014. 220 p. / Physical Chemistry, Subvolume 12D
Hardcover
≈ approx. $5119.00
ISBN 978-3-642-24976-1

---

**Due August 2014**

2nd ed. 2014. 250 p. 100 illus., 50 in color. Softcover
≈ approx. $34.95
ISBN 978-1-4614-9425-6
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

Contents

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

Target groups
Upper undergraduate

Discount group
Professional Non-Medical

The Euroschool on Exotic Beams, Vol. IV

This is the forth 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

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

Target groups
Graduate

Discount group
Professional Non-Medical

Due February 2014
2014. Approx. 250 p. 20 illus. (The Frontiers Collection) Hardcover
$69.99
ISBN 978-3-642-45127-0

Due February 2014
2014. 400 p. (Lecture Notes in Physics, Volume 879) Softcover
$89.99
ISBN 978-3-642-45140-9

Due January 2014
2014. XVIII, 218 p. (Lecture Notes in Physics, Volume 878) Softcover
$59.99
ISBN 978-3-642-45081-5
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

Fields of interest
Extraterrestrial Physics, Space Sciences; Planetology

Target groups
Research

Discount group
Professional Non-Medical

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

Only available in print

2014. III, 74 p. 36 illus. in color. Hardcover
► approx. $129.00