

# Anisotropy And Symmetry Snu

This volume provides a snapshot of the state of the art of oculomotor and vestibular research, focusing on the bridge between laboratory and clinical research and the interdisciplinary relationships among ophthalmology, neurology, and otology.

This publication contains three special lectures, six keynote addresses and sixty-eight technical papers presented at the symposium. The wide variety of topics covered are grouped in the proceedings according to subject.

From superstring theory to models with extra dimensions to dark matter and dark energy, a range of theoretically stimulating ideas have evolved for physics beyond the standard model. These developments have spawned a new area of physics that centers on the interplay between particle physics and cosmology—astroparticle physics. Providing the necessary theoretical background, *Particle and Astroparticle Physics* clearly presents the many recent advances that have occurred in these fields. Divided into five parts, the book begins with discussions on group and field theories. The second part summarizes the standard model of particle physics and includes some extensions to the model, such as neutrino masses and CP violation. The next section focuses on grand unified theories and supersymmetry. The book then discusses the general theory of relativity, higher dimensional theories of gravity, and superstring theory. It also introduces various novel ideas and models with extra dimensions and low-scale gravity. The last part of the book deals with astroparticle physics. After an introduction to cosmology, it covers several specialized topics, including baryogenesis, dark matter, dark energy, and

brane cosmology. With numerous equations and detailed references, this lucid book explores the new physics beyond the standard model, showing that particle and astroparticle physics will together reveal unique insights in the next era of physics.

Rock Stress '03

Particle and Astroparticle Physics

Bulletin of the Korean Chemical Society

Dynamics of Fluctuating Interfaces and Related Phenomena

Semiconductors

Dimensionality and Symmetry

Recent developments in inverse problems, multi-scale analysis and effective medium theory reveal that these fields share several fundamental concepts. This book is the proceedings of the research conference, ``Workshop in Seoul: Inverse Problems, Multi-Scale Analysis and Homogenization,`` held at Seoul National University, June 22-24, 2005. It highlights the benefits of sharing ideas among these areas, of merging the expertise of scientists working there, and of directing interest towards challenging issues such as imaging nanoscience and biological imaging. Contributions are written by prominent experts and are of interest to researchers and graduate students interested in partial

differential equations and applications.

In 1912 Victor Franz Hess made the revolutionary discovery that ionizing radiation is incident upon the Earth from outer space. He showed with ground-based and balloon-borne detectors that the intensity of the radiation did not change significantly between day and night. Consequently, the sun could not be regarded as the sources of this radiation and the question of its origin remained unanswered. Today, almost one hundred years later the question of the origin of the cosmic radiation still remains a mystery. Hess' discovery has given an enormous impetus to large areas of science, in particular to physics, and has played a major role in the formation of our current understanding of universal evolution. For example, the development of new fields of research such as elementary particle physics, modern astrophysics and cosmology are direct consequences of this discovery. Over the years the field of cosmic ray research has evolved in various directions: Firstly, the field of

particle physics that was initiated by the discovery of many so-called elementary particles in the cosmic radiation. There is a strong trend from the accelerator physics community to reenter the field of cosmic ray physics, now under the name of astroparticle physics. Secondly, an important branch of cosmic ray physics that has rapidly evolved in conjunction with space exploration concerns the low energy portion of the cosmic ray spectrum. Thirdly, the branch of research that is concerned with the origin, acceleration and propagation of the cosmic radiation represents a great challenge for astrophysics, astronomy and cosmology. Presently very popular fields of research have rapidly evolved, such as high-energy gamma ray and neutrino astronomy. In addition, high-energy neutrino astronomy may soon initiate as a likely spin-off neutrino tomography of the Earth and thus open a unique new branch of geophysical research of the interior of the Earth. Finally, of considerable interest are the biological and medical aspects of the cosmic radiation because of it

ionizing character and the inevitable irradiation to which we are exposed. This book is a reference manual for researchers and students of cosmic ray physics and associated fields and phenomena. It is not intended to be a tutorial. However, the book contains an adequate amount of background materials that its content should be useful to a broad community of scientists and professionals. The present book contains chiefly a data collection in compact form that covers the cosmic radiation in the vicinity of the Earth, in the Earth's atmosphere, at sea level and underground. Included are predominantly experimental but also theoretical data. In addition the book contains related data, definitions and important relations. The aim of this book is to offer the reader in a single volume a readily available comprehensive set of data that will save him the need of frequent time consuming literature searches.

Rock Mechanics and Rock Engineering: From the Past to the Future contains the contributions presented at EUROCK2016, the 2016 International

Symposium of the International Society for Rock Mechanics (ISRM 2016, Ürgüp, Cappadocia Region, Turkey, 29-31 August 2016). The contributions cover almost all aspects of rock mechanics and rock engineering from theories to engineering practices, emphasizing the future direction of rock engineering technologies. The 204 accepted papers and eight keynote papers, are grouped into several main sections: -

- Fundamental rock mechanics - Rock properties and experimental rock mechanics
- Analytical and numerical methods in rock engineering
- Stability of slopes in civil and mining engineering
- Design methodologies and analysis
- Rock dynamics, rock mechanics and rock engineering at historical sites and monuments
- Underground excavations in civil and mining engineering
- Coupled processes in rock mass for underground storage and waste disposal
- Rock mass characterization
- Petroleum geomechanics
- Carbon dioxide sequestration
- Instrumentation-monitoring in rock engineering and back analysis
- Risk management, and - the

2016 Rocha Medal Lecture and the 2016 Franklin Lecture Rock Mechanics and Rock Engineering: From the Past to the Future will be of interest to researchers and professionals involved in the various branches of rock mechanics and rock engineering. EUROCK 2016, organized by the Turkish National Society for Rock Mechanics, is a continuation of the successful series of ISRM symposia in Europe, which began in 1992 in Chester, UK.

Metal Nanocrystals

In Honor of David S. See

Proceedings of the 6th Asia-Pacific Symposium on Engineering Plasticity and Its Applications (AEPA2002) : 2-6 December 2002, Sydney, Australia

Contribution to Magnetic Anisotropy from Cations in Low Symmetry Crystalline Fields

Crystalline Fields

Analysis and Design of Structures Made of Plastically Anisotropic Materials

Rock Mechanics and Rock Engineering: From the Past to the Future

Using the well-honed tools of nanotechnology, this book presents breakthrough results in soft matter research, benefitting from the synergies between the chemistry, physics, biology, materials science, and engineering

communities. The team of international authors delves beyond mere structure-making and places the emphasis firmly on imparting functionality to soft nanomaterials with a focus on devices and applications. Alongside reviewing the current level of knowledge, they also put forward novel ideas to foster research and development in such expanding fields as nanobiotechnology and nanomedicine. As such, the book covers DNA-induced nanoparticle assembly, nanostructured substrates for circulating tumor cell capturing, and organic nano field effect transistors, as well as advanced dynamic gels and self-healing electronic nanodevices. With its interdisciplinary approach this book gives readers a complete picture of nanotechnology with soft matter. The proceedings summarise the oral and poster presentations of the Winterschool on the above topic. The event was the sixth in a series aimed at describing and discussing recent advances in the understanding of the electronic properties of novel materials. The topic of the meeting, fullerenes and related materials, was chosen as a sequel to that of the previous year in an effort to keep abreast of this new and rapidly evolving field of research. For the duration of the week, world experts from the fields of physics, chemistry and materials science were gathered together to present their current research as well as to participate in the many lively discussions which evolved from the presentations. As such, the proceedings constitute a definitive description of the state of the art of fullerene research. This book explores topics that are central to the field of spacecraft attitude determination and control. The

authors provide rigorous theoretical derivations of significant algorithms accompanied by a generous amount of qualitative discussions of the subject matter. The book documents the development of the important concepts and methods in a manner accessible to practicing engineers, graduate-level engineering students and applied mathematicians. It includes detailed examples from actual mission designs to help ease the transition from theory to practice and also provides prototype algorithms that are readily available on the author's website. Subject matter includes both theoretical derivations and practical implementation of spacecraft attitude determination and control systems. It provides detailed derivations for attitude kinematics and dynamics and provides detailed description of the most widely used attitude parameterization, the quaternion. This title also provides a thorough treatise of attitude dynamics including Jacobian elliptical functions. It is the first known book to provide detailed derivations and explanations of state attitude determination and gives readers real-world examples from actual working spacecraft missions. The subject matter is chosen to fill the void of existing textbooks and treatises, especially in state and dynamics attitude determination. MATLAB code of all examples will be provided through an external website.

Organic Field Effect Transistors

Cosmic Rays at Earth

Physical Review

Progress In Fullerene Research - Proceedings Of The International Winterschool On Electronic Properties Of

Novel Materials

Applied Spectroscopy

Statistical physics, plasmas, fluids, and related interdisciplinary topics. E

Plastic anisotropy is a common property of many metallic materials. This property affects the analysis and design of structures and metal forming processes. The present edited collection of papers concerns analytic and numerical methods of structural and metal forming analysis and design using material models for anisotropic materials. Some qualitative features of rigid plastic solutions in anisotropic plasticity are investigated. Both rate-independent and rate-dependent constitutive equations are considered. The effect of plastic anisotropy on the distribution of residual stresses and strains is shown. Some papers deal with thermo-mechanical problems.

"Roughening dynamics of various interface problems has been an attractive topic recently. The subject is related to many interdisciplinary branches in nonequilibrium statistical physics such as crystal growth, vortex dynamics, fractals and chaos, and self-organized critical phenomena. This volume includes pedagogical reviews of the scaling concepts in fluctuating surfaces, current theories on epitaxial growth phenomena and interface dynamics in disordered media, and many other related topics. Thus it serves as a valuable reference for both graduate students and researchers in statistical physics and materials science."--Publisher's website.

These proceedings comprise 139 papers presented at the 6th Asia-Pacific Symposium on Engineering Plasticity and Its Applications (AEPA2002), held from

the 2nd to the 6th of December 2002 at the University of Sydney, Australia. They will bring the reader up-to-date with the latest research effort on a broad range of fronts in engineering plasticity; at scales ranging from nano- to macro-. The specific subjects, discussed here in detail, include constitutive modeling, damage and fracture mechanisms, dynamics and rate-dependent behaviors, energy absorption, fatigue and cyclic loading, forming, machining, micro-characterization, nano-mechanics, phase transformations, polymer and composite behaviors, strength, deformation, structural stability and superplasticity. This book is an essential reference for those working in the field.

Nanogenerators in Korea

Proceedings of the Fourth CTP Workshop on Statistical Physics : Seoul National University, Seoul, Korea, 27-31 January 1997

Soviet Physics, Solid State

High Energy Physics Index

Topology in Magnetism

Physikalische Berichte

This annual SUSY conference has become the world's largest international meeting devoted to new ideas in high energy physics. The main subject of the conference is theoretical and phenomenological aspects of supersymmetric theories, and dark matter and dark energy, and other cosmological connections. New, interesting results from various experimental groups are increasingly presented at the conference as well. With roughly 200 plenary and parallel presentations, SUSY08 will likely deliver energy and enthusiasm of both theorists and experimentalists who are searching the frontier of

high energy physics.

This book presents both experimental and theoretical aspects of topology in magnetism. It first discusses how the topology in real space is relevant for a variety of magnetic spin structures, including domain walls, vortices, skyrmions, and dynamic excitations, and then focuses on the phenomena that are driven by distinct topology in reciprocal momentum space, such as anomalous and spin Hall effects, topological insulators, and Weyl semimetals. Lastly, it examines how topology influences dynamic phenomena and excitations (such as spin waves, magnons, localized dynamic solitons, and Majorana fermions). The book also shows how these developments promise to lead the transformative revolution of information technology.

McCoy presents the advances made in statistical mechanics over the last 50 years, including mathematical theorems on order and phase transitions, numerical and series computations of phase diagrams and solutions for important solvable models such as Ising and 8 vortex.

Physics Briefs

Foundations of Solid State Physics

Soft Matter Nanotechnology

The Journal of the Korean Physical Society

Regular papers & short notes. Part 1

ERDA Energy Research Abstracts

Advances in Nanotechnology Research and Application: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about

Nanotechnology. The editors have built *Advances in Nanotechnology Research and Application: 2011 Edition* on the vast information databases of ScholarlyNews.™ You can expect the information about Nanotechnology in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of *Advances in Nanotechnology Research and Application: 2011 Edition* has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

Our society depends heavily on metals. They are ubiquitous construction materials, critical interconnects in integrated circuits, common coinage materials, and more. Excitingly, new uses for metals are emerging with the advent of nanoscience, as metal crystals with nanoscale dimensions can display new and tunable properties. The optical and photothermal properties of metal nanocrystals have led to cancer diagnosis and treatment platforms now in clinical trials, while, at the same time, the ability to tune the surface features of metal nanocrystals are giving rise to designer catalysts that enable more sustainable use of precious resources. These are just two examples of how metal nanocrystals are addressing important social needs. Readers will have: Varied levels of familiarity with the topic of metal nanocrystals A background in chemistry, physics, biology, any number of engineering fields, or even an interdisciplinary framework. Considering

this diversity of familiarity and backgrounds, as authors we put high emphasis on structure-property correlation and the emergent applications that arise from such fundamental understanding. We were inspired to contribute this book in response to the common refrain from students that this topic or research area “looks so cool” or “seems exciting” but is quickly followed up with hesitations about whether or not they are capable of research in the field because they “lack the appropriate background”.

Volume 51 of *Reviews in Mineralogy and Geochemistry* highlights some of the frontiers in the study of plastic deformation of minerals and rocks. This book reviews large-strain shear deformation and deformation experiments under ultrahigh pressures; the issues of deformation of crustal rocks and the upper mantle; the interplay of partial melting and deformation; the new results of ultrahigh pressure deformation of deep mantle minerals; the stability of deformation under deep mantle conditions with special reference to phase transformations and their relationship to the origin of intermediate depth and deep-focus earthquakes; a detailed description of fracture mechanisms of ice; of experimental and theoretical studies on seismic wave attenuation; the relationship between crystal preferred orientation and macroscopic anisotropy; recent progress in poly-crystal plasticity to model the development of anisotropic fabrics both at the microscopic and macroscopic scale; a thorough review of seismic anisotropy of the upper mantle covering the vast regions of geodynamic interests and the theoretical aspects of shear localization. All chapters contain extensive reference lists to guide readers to the more specialized literature. This volume was written for a workshop, in December 2002 in

Emeryville, California.

Japanese Journal of Applied Physics

From Structure to Function

Plastic Deformation of Minerals and Rocks

Conference on Inverse Scattering--Theory and Application

Meteorological and Geostrophysical Abstracts

Advanced Statistical Mechanics

Fossil fuels led the 21st century industrial revolution but caused some critical problems such as exhaustion of resources and global warming. Also, current power plants require too much high cost and long time for establishment and facilities to provide electricity. Thus, developing new power production systems with environmental friendliness and low-cost is critical global needs. There are some emerging energy harvesting technologies such as thermoelectric, piezoelectric, and triboelectric nanogenerators, which have great advantages on eco-friendly low-cost materials, simple fabrication, and various operating sources. Since the introduction of various energy harvesting technologies, many novel designs and applications as power suppliers and physical sensors in the world have been demonstrated based on their unique advantages. In this Special Issue, we would like to address and share basic approaches, new designs, and industrial applications related to thermoelectric, piezoelectric, and triboelectric devices which are on-going in Korea. With this Special Issue, we aim to promote fundamental understanding and to find novel ways to achieve industrial product manufacturing for energy

harvesters.

Electronic Phase Transitions deals with topics, which are presently at the forefront of scientific research in modern solid-state theory. Anderson localization, which has fundamental implications in many areas of solid-state physics as well as spin glasses, with its influence on quite different research activities such as neural networks, are two examples that are reviewed in this book. The ab initio statistical mechanics of structural phase transitions is another prime example, where the interplay and connection of two unrelated disciplines of solid-state theory - first principle electronic structure calculations and critical phenomena - has given rise to impressive new insights. Clearly, there is more and more need for accurate, stable numerical simulations of models of interacting electrons, presently discussed with great vigor in connection with high-T<sub>c</sub> superconductors where the superconducting transition is close to a magnetic transition, i.e. an antiferromagnetic spin structure. These topics and others are discussed and reviewed by leading experts in the field.

An essential guide to solid state physics through the lens of dimensionality and symmetry Foundations of Solid State Physics introduces the essential topics of solid state physics as taught globally with a focus on understanding the properties of solids from the viewpoint of dimensionality and symmetry. Written in a conversational manner and designed to be accessible, the book contains a minimal amount of mathematics. The authors?noted

experts on the topic?offer an insightful review of the basic topics, such as the static and dynamic lattice in real space, the reciprocal lattice, electrons in solids, and transport in materials and devices. The book also includes more advanced topics: the quasi-particle concept (phonons, solitons, polarons, excitons), strong electron-electron correlation, light-matter interactions, and spin systems. The authors' approach makes it possible to gain a clear understanding of conducting polymers, carbon nanotubes, nanowires, two-dimensional chalcogenides, perovskites and organic crystals in terms of their expressed dimension, topological connectedness, and quantum confinement. This important guide: -Offers an understanding of a variety of technology-relevant solid-state materials in terms of their dimension, topology and quantum confinement -Contains end-of-chapter problems with different degrees of difficulty to enhance understanding -Treats all classical topics of solid state physics courses - plus the physics of low-dimensional systems Written for students in physics, material sciences, and chemistry, lecturers, and other academics, Foundations of Solid State Physics explores the basic and advanced topics of solid state physics with a unique focus on dimensionality and symmetry. Inverse Problems, Multi-scale Analysis and Effective Medium Theory Engineering Plasticity from Macroscale to Nanoscale Clinical and Basic Oculomotor Research Metals Abstracts

Supersymmetry and the Unification of Fundamental  
Interactions  
Proceedings of the Second International Symposium on  
Rock Stress, Kumamoto, Japan, 4-6 November 2003