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Fundamentals of Inhomogeneous Fluids - Douglas Henderson 2021-12-17
A monograph examining recent progress in the field of inhomogeneous fluids, focusing on the theoretical - as well as experimental - techniques used. It presents the comprehensive theory of first-order phase transitions, including melting, and contains numerous figures, tables and display equations.;The contributors treat such subjects as: exact sum rules for inhomogenous fluids, explaining density functional and integral equation methods; exact solutions for two-dimensional homogeneous and inhomogeneous plasmas; current advances in the theory of interfacial electrochemistry; wetting experiments and the theory of wetting; freezing, with an emphasis on quantum systems and homogeneous nucleation in liquid-vapour and solid-liquid transitions; self-organizing liquids as well as kinetic phenomena in inhomogeneous fluids, using a modified Enskog theory.;Featuring over 1000 bibliographic citations, this volume is aimed at physical, surface, colloid and surfactant chemists; also physicists, electrochemists and graduate-level students in these disciplines.

Elasticity - Martin H. Sadd 2010-08-04
Although there are several books in print dealing with elasticity, many focus on specialized topics such as mathematical foundations, anisotropic materials, two-dimensional problems, thermoelasticity, non-linear theory, etc. As such they are not appropriate candidates for a general textbook. This book provides a concise and organized presentation and development of general theory of elasticity. This text is an excellent book teaching guide. Contains exercises for student engagement as well as the integration and use of MATLAB Software Provides development of common solution methodologies and a systematic review of analytical solutions useful in applications of

Copyright and Collective Authorship - DANIELA. SIMONE 2022-05-19
Addresses the difficult question of how to determine the authorship, and ownership, of copyright in highly collaborative works.

Chemical Process Safety - Daniel A. Crowl 2001-10-16
Combines academic theory with practical industry experience Updated to include the latest regulations and references Covers hazard identification, risk assessment, and inherent safety Case studies and problem sets enhance learning Long-awaited revision of the industry best seller. This fully revised second edition of Chemical Process Safety: Fundamentals with Applications combines rigorous academic methods with real-life industrial experience to create a unique resource for students and professionals alike. The primary focus on technical fundamentals of chemical process safety provides a solid groundwork for understanding, with full coverage of both prevention and mitigation measures. Subjects include: Toxicology and industrial hygiene Vapor and liquid releases and dispersion modeling Flammability characterization Relief and explosion venting In addition to an overview of government regulations, the book introduces the resources of the AICHE Center for Chemical Process Safety library. Guidelines are offered for hazard identification and risk assessment. The book concludes with case histories drawn directly from the authors' experience in the field. A perfect reference for industry professionals, Chemical Process Safety: Fundamentals with Applications, Second Edition is also ideal for teaching at the graduate and senior undergraduate levels. Each chapter includes 30 problems, and a solutions manual is now available for instructors.

The TRANSMED Atlas. The Mediterranean Region from Crust to Mantle - William Cavazza 2012-12-06

A publication of the Mediterranean Consortium for the 32nd International Geological Congress
Gambling Debt - E. Paul Durrenberger 2014-12-04
Gambling Debt is a game-changing contribution to the discussion of economic crises and neoliberal financial systems and strategies. Iceland's 2008 financial collapse was the first case in a series of meltdowns, a warning of danger in the global order. This full-scale anthropology of financialization and the economic crisis broadly discusses this momentous bubble and burst and places it in theoretical, anthropological, and global historical context through descriptions of the complex developments leading to it and the larger social and cultural implications and consequences. Chapters from anthropologists, sociologists, historians, economists, and key local participants focus on the neoliberal policies—mainly the privatization of banks and fishery resources—that concentrated wealth among a select few, skewed the distribution of capital in a way that Iceland had never experienced before, and plunged the country into a full-scale economic crisis. Gambling Debt significantly raises the level of understanding and debate on the issues relevant to financial crises, painting a portrait of the meltdown from many points of view—from bankers to schoolchildren, from fishers in coastal villages to the urban poor and immigrants, and from artists to philosophers and other intellectuals. This book is for anyone interested in financial troubles and neoliberal politics as well as students and scholars of anthropology, sociology, economics, philosophy, political science, business, and ethics. Publication supported in part by the National Science Foundation.

Error Correction Coding - Todd K. Moon 2005-06-06
An unparalleled learning tool and guide to error correction coding Error correction coding techniques allow the detection and correction of errors occurring during the transmission of data in digital communication systems. These techniques are nearly universally employed in modern communication systems, and are thus an important component of the modern information economy. Error Correction Coding: Mathematical Methods and Algorithms provides a comprehensive introduction to both the theoretical and practical aspects of error correction coding, with a presentation suitable for a wide variety of audiences, including graduate students in electrical engineering, mathematics, or computer science. The pedagogy is arranged so that the mathematical concepts are presented incrementally, followed immediately by applications to coding. A large number of exercises expand and deepen students' understanding. A unique feature of the book is a set of programming laboratories, supplemented with over 250 programs and functions on an associated Web site, which provides hands-on experience and a better understanding of the material. These laboratories lead students through the implementation and evaluation of Hamming codes, CRC codes, BCH and R-S codes, convolutional codes, turbo codes, and LDPC codes. This text offers both "classical" coding theory-such as Hamming, BCH, Reed-Solomon, Reed-Muller, and convolutional codes-as well as modern codes and decoding methods, including turbo codes, LDPC codes, repeat-accumulate codes, space time codes, factor graphs, soft-decision decoding, Guruswami-Sudan decoding, EXIT charts, and iterative decoding. Theoretical complements on performance and bounds are presented. Coding is also put into its communications and information theoretic context and connections are drawn to public key cryptosystems. Ideal as a classroom resource and a professional reference, this thorough guide will benefit electrical and computer engineers, mathematicians, students, researchers, and scientists.

Progress in Scale Modeling - Kozo Saito 2008-08-20
Scale modeling can play an important role in R&D. When engineers receive some ideas in new product

development, they can test how the new design looks by bui- ing scale models and they can get an actual feeling with the prototype through their imagination. Professor Emori often said: "When children play with a toy airplane, their mind is wondering about the prototype airplane which they haven't ridden. " Children can use the scale model airplane as a means to enter into an imagi- tive world of wonder by testing in their own way how the actual airplane might function, how the actual airplane can maneuver aerodynamically, what might be the actual sound of a jet engine, how to safely land the actual airplane, and so on. This imagination that scale models can provide for children will help them later develop professional intuition. Physical scale models can never be entirely succe- fully replaced by computer screens where virtual models are displayed and fancy functions are demonstrated. Not only children but also adults can learn things by actually touching things only offered by physical models, helping all of us develop imagination and feeling eventually leading toward Kufu. Einstein's famous "thought experiments [11]," which helped him to restructure modern physics may possibly and effectively be taught by letting researchers play with scale models!? References 1. I. Emori, K. Saito, and K. Sekimoto, Mokei Jikken no Riron to Ouyou (Scale Models in Engineering: Its Theory and Application), Gihodo, Tokyo, Third Edition, 2000.

Nanoferroics - M.D. Glinchuk 2013-05-13
This book covers the physical properties of nanosized ferroics, also called nanoferroics. Nanoferroics are an important class of ceramic materials that substitute conventional ceramic ferroics in modern electronic devices. They include ferroelectric, ferroelastic, magnetic and multiferroic nanostructured materials. The phase transitions and properties of these nanostructured ferroics are strongly affected by the geometric confinement originating from surfaces and interfaces. As a consequence, these materials exhibit a behavior different from the corresponding bulk crystalline, ceramic and powder ferroics. This monograph offers comprehensive coverage of size- and shape-dependent effects at the nanoscale; the specific properties that these materials have been shown to exhibit; the theoretical approaches that have been successful in describing the size-dependent effects observed experimentally; and the technological aspects of many chemical and physico-chemical nanofabrication methods relevant to making nanoferroic materials and composites. The book will be of interest to an audience of condensed matter physicists, material scientists and engineers, working on ferroic nanostructured materials, their fundamentals, fabrication and device applications.

Information in Contemporary Society - Natalie Greene Taylor 2019-03-12
This book constitutes the proceedings of the 14th International Conference on Information in Contemporary Society, iConference 2019, held in Washington, DC, USA, in March/April 2019. The 44 full papers and 33 short papers presented in this volume were carefully reviewed and selected from 133 submitted full papers and 88 submitted short papers. The papers are organized in the following topical sections: Scientific work and data practices; methodological concerns in (big) data research; concerns about "smart" interactions and privacy; identity questions in online communities; measuring and tracking scientific literature; limits and affordances of automation; collecting data about vulnerable populations; supporting communities through public libraries and infrastructure; information behaviors in academic environments; data-driven storytelling and modeling; online activism; digital libraries, curation and preservation; social-media text mining and sentiment analysis; data and information in the public sphere; engaging with multi-media content; understanding online behaviors and experiences; algorithms at work; innovation and professionalization in technology communities; information behaviors on Twitter; data mining and NLP; informing technology design through offline experiences; digital tools for health management; environmental and visual literacy; and addressing social problems in iSchool research.

ASHRAE Handbook Fundamentals 2017 - 2017

How to Perform Radon Inspections - Nick Gromicko 2015-08-14

Foundations of Radiation Theory and Quantum Electrodynamics - Asim Barut 2013-06-29

Optimum Design of Steel Structures - József Farkas 2013-03-29
This book helps designers and manufacturers to select and develop the most suitable and competitive steel structures, which are safe, fit for production and economic. An optimum design system is used to find the best characteristics of structural models, which guarantee the fulfilment of design and fabrication requirements and minimize the cost function. Realistic numerical models are used as main components of industrial steel structures. Chapter 1 containts some experiences with the optimum design of steel structures Chapter 2 treats some newer mathematical optimization methods. Chapter 3 gives formulae for fabrication times and costs. Chapters 4 deals with beams and columns. Summarizes the Eurocode rules for design. Chapter 5 deals with the design of tubular trusses. Chapter 6 gives the design of frame structures and fire-resistant design rules for a frame. In Chapters 7 some minimum cost design problems of stiffened and cellular plates and shells are worked out for cases of different stiffenings and loads. Chapter 8 gives a cost comparison of cylindrical and conical shells. The book contains a large collection of literatures and a subject list and a name index.

Upgrading Environmental Radiation Data - J. E. Watson 1980

Ordinary Level Physics - A. F. Abbott 1977

The Centenary of a Paper on Slow Viscous Flow by the Physicist H.A. Lorentz - H.K. Kuiken 2013-12-20
This book commemorates the appearance one hundred years ago of a paper on slow viscous flow, written by the physicist and Nobel laureate H.A. Lorentz. Although Lorentz is not remembered by most as a fluid dynamicist - indeed, his fame rests primarily on his contributions to the theory of electrons, electrodynamics and early developments in relativity - his fluid-mechanics paper of 1896 contains many ideas which have remained important in fluid mechanics to this very day. In that short paper he put forward his reciprocal theorem (an integral-equation formulation which is used extensively nowadays in boundary-element calculations) and his reflection theorem. Furthermore, he must be credited with the invention of the stokeslet. The contributors to this book have all made their mark in slow viscous flow. Each of these authors highlights further developments of one of Lorentz's ideas. There are applications in sintering, micropolar fluids, bubbles, locomotion of microorganisms, non-Newtonian fluids, drag calculations, etc. Other contributions are of a more theoretical nature, such as the flow due to an array of stokeslets, the interaction between a drop and a particle, the interaction of a particle and a vortex, the reflection theorem for other geometries, a disk moving along a wall and a higher-order investigation. Lorentz's paper of 1896 is also included in an English translation. An introductory paper puts Lorentz's work in fluid mechanics in a wider perspective. His other great venture in fluid mechanics - his theoretical modelling on the enclosure of the Zuyderzee - is also discussed. The introduction also presents a short description of Lorentz's life and times. It was Albert Einstein who said of Lorentz that he was `...the greatest and noblest man of our time'.

Real Analysis - N. L. Carothers 2000-08-15
A text for a first graduate course in real analysis for students in pure and applied mathematics, statistics, education, engineering, and economics.

Cyclotron Produced Radionuclides - International Atomic Energy Agency 2009
Application of radioisotopes has shown significant growth in the past decade, and a major factor contributing towards this growth is the availability of a large number of cyclotrons dedicated to the production of radioisotopes for medical applications. Although there are many articles in journals on cyclotrons and their use for radioisotope production, there is no single source of information for beginners on radioisotope production using cyclotrons. This publication attempts to address this deficiency. Its contains chapters on accelerator technology, theoretical considerations of nuclear reactions, the technology behind targetry, techniques on preparation of targets, irradiation of targets under high beam currents, target processing and target recovery.

The Mathematical Gardner - David A. Klarner 2012-12-06
-~- T he articles in this book are dedicated to Martin Gardner, the world's greatest expositor and popularizer of mathematics. While our papers are confined to this single subject, Gardner's interests and accomplishments have a wide range of subjects. Hence, we have entitled the book the Mathematical Gardner, and would like to see other volumes such as the Magical, the Literary, the Philosophical, or the Scientific Gardner accompany it. Of course, our title is also an appropriate pun, for Martin Gardner's

relationship to the mathematical community is similar to a gardener's relationship to a beautiful flower garden. The contributors to this volume comprise only a small part of a large body of mathematicians whose work has been nurtured by its exposition in "Mathematical Games"; Martin's column which appears every month in Scientific American. More than just a mathematical journalist, Martin connects his readers by passing along problems and information and stimulating creative activity. Thus, he is a force behind the scenes as well as a public figure. Two people were particularly helpful in putting this book together.

Optics, Light and Lasers - Dieter Meschede 2017-06-06
This new, updated and enlarged edition of the successful and exceptionally well-structured textbook features new chapters on such hot topics as optical angular momentum, microscopy beyond the resolution limit, metamaterials, femtocombs, and quantum cascade lasers. It provides comprehensive and coherent coverage of fundamental optics, laser physics, and important modern applications, while equally including some traditional aspects for the first time, such as the Collins integral or solid immersion lenses. Written for newcomers to the topic who will benefit from the author's ability to explain difficult theories and effects in a straightforward and readily comprehensible way.

Community Resilience to Sectarian Violence in Baghdad - Ami C. Carpenter 2013-10-04
The recent conflict in Iraq evolved from an insurgency against the interim U.S. led government (the Coalition Provisional Authority or CPA) into a sectarian civil war. Violence became widespread, especially in areas of Baghdad City such as Sadr City, Al Amiriyah, and Al Adhamiya. However, a number of multiethnic neighborhoods in Baghdad successfully prevented sectarian attitudes and behaviors from taking hold. Four communities stand out in their self-organization to prevent the escalation of violence. This book looks at what makes these communities different from other areas within Baghdad. In-depth interviews in Sunni-dominant, Shia-dominant and Mixed neighborhoods generated a few key insights about conflict-resilience, or the capacity to prevent structural changes associated with conflict escalation. Key factors turned out to be the organization of non-sectarian self-defense groups, place attachment, collective efficacy, active intervention to de-escalate tensions, and also the presence of local religious leaders who forbid sectarian attacks. The continuity or strength of interpersonal relationships supported by the integrated physical structure of these neighborhoods and internal versus tribal conflict resolution mechanisms played a role as well. This volume examines the characteristics of the communities that have successfully prevented the rise of violence, and how they are able to maintain qualities of resilience to violent conflict.

Symmetries in Science II - Bruno Gruber 2013-11-11
The Symposium "Symmetries in Science II" was held at Southern Illinois University, Carbondale, during the period March 24-26, 1986, following the Einstein Centennial Symposium "Symmetries in Science" after a lapse of seven years. As it was the case for the original Symposium, the 1986 Symposium was truly interdisciplinary and truly international. I wish to thank all participants who made the. effort to come to Carbondale, Illinois, from allover the world. At this point I also wish to express my sincere thanks to Dr. Albert Somit, President of Southern Illinois University at Carbondale, and Dr. John C. Guyon, Vice President for Academic Affairs and Research at Southern Illinois University at Carbondale. Their generous support and encouragement was instrumental in getting the Symposium organized. In addition I wish to thank Associate Vice President Charles B. Klasek, Dr. Russell R. Dutcher, Dean of the College of Science, John H. Yopp, Associate Dean, College of Science, Dr. Subir K. Bose, Chairman of the Physics Department, Dr. James Tyrrell, Chairman of the Chemistry Department, Dr. Jared H. Dorn, Director of International Programs and Services, Dr. Rhonda Jo Vinson, Director of International and Economic Development, Dr. Tommy T. Dunagan, Vice President of Sigma Xi at Southern Illinois University, Dr. George Garoian, Professor of Zoology, Dr. Ann Phillippi, Assistant Professor of Zoology and Dr. Linda R. Gannon, Coordinator of Women's Studies, for their support and assistance.

Energy, Complexity and Wealth Maximization - Robert Ayres 2016-07-14
This book is about the mechanisms of wealth creation, or what we like to think of as evolutionary "progress." The massive circular flow of goods and services between producers and consumers is not a perpetual motion machine; it has been dependent for the past 150 years on energy inputs from a finite storage of fossil fuels. In this book, you will learn about the three key requirements for wealth creation, and how this process acts according to physical laws, and usually after some part of the natural wealth of the planet has been exploited in an episode of "creative destruction." Knowledge and natural capital, particularly energy, will interact to power the human wealth engine in the future as it has in the past. Will it sputter or continue along the path of evolutionary progress that we have come to expect? Can the new immaterial wealth of information and ideas, which makes up the so-called knowledge economy, replace depleted natural wealth? These questions have no simple answers, but this masterful book will help you to understand the grand challenge of our time. Praise for Energy, Complexity and Wealth Maximization: "... people who run the modern world (politicians, economists and lawyers) have a very poor grasp of how it really works because they do not understand the fundamentals of energy, exergy and entropy ... those decision-makers would greatly benefit from reading this book ..." - Vaclav Smil, Distinguished Professor Emeritus, University of Manitoba "... A grandiose design; impressive, worth reading and reflecting!" - Prof. Dr. Ernst Ulrich von Weizäcker, Founder of Wuppertal Institute; Co-President of the Club of Rome, Former Member of the German Bundestag, co-chair of the UN's Resource Panel "... The book is a must read for concerned citizens and decision makers across the globe." - RK Pachauri, Founder and Executive Vice Chairman, The Energy and Resources Institute (TERI) and ex-chair, International Panel on Climate Change (IPCC)

Developments in Demographic Forecasting - Stefano Mazzuco 2020-09-28
This open access book presents new developments in the field of demographic forecasting, covering both mortality, fertility and migration. For each component emerging methods to forecast them are presented. Moreover, instruments for forecasting evaluation are provided. Bayesian models, nonparametric models, cohort approaches, elicitation of expert opinion, evaluation of probabilistic forecasts are some of the topics covered in the book. In addition, the book is accompanied by complementary material on the web allowing readers to practice with some of the ideas exposed in the book. Readers are encouraged to use this material to apply the new methods to their own data. The book is an important read for demographers, applied statisticians, as well as other social scientists interested or active in the field of population forecasting. Professional population forecasters in statistical agencies will find useful new ideas in various chapters.

Introduction to Quantum Mechanics - David J. Griffiths 2019-11-20
Changes and additions to the new edition of this classic textbook include a new chapter on symmetries, new problems and examples, improved explanations, more numerical problems to be worked on a computer, new applications to solid state physics, and consolidated treatment of time-dependent potentials.

Elementary Nuclear Theory - Hans Albrecht Bethe 2006-01-01
Suitable for advanced undergraduates and graduate students, this compact treatment of basic theory of nuclear forces, structures, and reactions is based on familiar results of nonrelativistic quantum theory. 1956 edition.

Universal Artificial Intelligence - Marcus Hutter 2006-01-17
Personal motivation. The dream of creating artificial devices that reach or outperform human inteUigence is an old one. It is also one of the dreams of my youth, which have never left me. What makes this challenge so interesting? A solution would have enormous implications on our society, and there are reasons to believe that the AI problem can be solved in my expected lifetime. So, it's worth sticking to it for a lifetime, even if it takes 30 years or so to reap the benefits. The AI problem. The science of artificial intelligence (AI) may be defined as the construction of intelligent systems and their analysis. A natural definition of a system is anything that has an input and an output stream. Intelligence is more complicated. It can have many faces like creativity, solving prob lems, pattern recognition, classification, learning, induction, deduction, build ing analogies, optimization, surviving in an environment, language processing, and knowledge. A formal definition incorporating every aspect of intelligence, however, seems difficult. Most, if not all known facets of intelligence can be formulated as goal driven or, more precisely, as maximizing some utility func tion. It is, therefore, sufficient to study goal-driven AI; e. g. the (biological) goal of animals and humans is to survive and spread. The goal of AI systems should be to be useful to humans.

Laser Program Annual Report - 1981

Radiological Safety Aspects of the Operation of Electron Linear Accelerators - William P. Swanson 1979

Electron linear accelerators are being used throughout the world in increasing numbers in a variety of important applications. Foremost among these is their role in the treatment of cancer. Commercial uses include non-destructive testing by radiography, food preservation, product sterilization and radiation processing of materials such as plastics and adhesives. Scientific applications include investigations in radiation biology, radiation chemistry, nuclear and elementary particle physics and radiation research. This manual provides authoritative guidance in radiation protection for this important category of radiation sources.

Data Mining for Bioinformatics - Sumeet Dua 2012-11-06
Covering theory, algorithms, and methodologies, as well as data mining technologies, Data Mining for Bioinformatics provides a comprehensive discussion of data-intensive computations used in data mining with applications in bioinformatics. It supplies a broad, yet in-depth, overview of the application domains of data mining for bioinformatics to help readers from both biology and computer science backgrounds gain an enhanced understanding of this cross-disciplinary field. The book offers authoritative coverage of data mining techniques, technologies, and frameworks used for storing, analyzing, and extracting knowledge from large databases in the bioinformatics domains, including genomics and proteomics. It begins by describing the evolution of bioinformatics and highlighting the challenges that can be addressed using data mining techniques. Introducing the various data mining techniques that can be employed in biological databases, the text is organized into four sections: Supplies a complete overview of the evolution of the field and its intersection with computational learning Describes the role of data mining in analyzing large biological databases—explaining the breath of the various feature selection and feature extraction techniques that data mining has to offer Focuses on concepts of unsupervised learning using clustering techniques and its application to large biological data Covers supervised learning using classification techniques most commonly used in bioinformatics—addressing the need for validation and benchmarking of inferences derived using either clustering or classification The book describes the various biological databases prominently referred to in bioinformatics and includes a detailed list of the applications of advanced clustering algorithms used in bioinformatics. Highlighting the challenges encountered during the application of classification on biological databases, it considers systems of both single and ensemble classifiers and shares effort-saving tips for model selection and performance estimation strategies.

Advanced Chemistry - Michael Clugston 2000-06-08
Carefully researched by the authors to bring the subject of chemistry up-to-date, this text provides complete coverage of the new A- and AS-level core specifications. The inclusion of objectives and questions make it suitable for self study.

Mathematics for Computer Science - Eric Lehman 2017-03-08
This book covers elementary discrete mathematics for computer science and engineering. It emphasizes mathematical definitions and proofs as well as applicable methods. Topics include formal logic notation, proof methods; induction, well-ordering; sets, relations; elementary graph theory; integer congruences; asymptotic notation and growth of functions; permutations and combinations, counting principles; discrete probability. Further selected topics may also be covered, such as recursive definition and structural induction; state machines and invariants; recurrences; generating functions.

High Energy Density Materials - Thomas M. Klapötke 2007-06-12

Properties of Silicon Carbide - Gary Lynn Harris 1995
Research on SiC is driven by the growing promise of applications in blue light diodes, integrated circuits operating at high temperatures, highpower/high frequency devices and quantum structures. To fulfill this promise it is necessary to understand and fully characterise the SiC system. In this book Professor Gary Harris has drawn together the expert knowledge of numerous researchers from around the world and presented it in one highly structured fully indexed volume with over 1000 references to published and unpublished sources.

The Atomic Nucleus - R. D. Evans 2003-01-01

Advanced Light Alloys and Composites - R. Ciach 2013-06-29
An expert exposition of the structural and mechanical properties of light alloys and composites, bridging the gap between scientists and industrial engineers in its consideration of advanced light materials, their structure, properties, technology and application. Includes basic problems of alloy constitution and phase transformations. The aluminium alloys are the main topic of the book, consideration being given to their properties, casting technology, thermomechanical treatment and structure. Attention is also given to the magnesium alloys, particularly those having rare earth metal constituents. Both commercial titanium alloys and intermetallic compounds are discussed, as are metallic composites. The latest engineering techniques are discussed in both theoretical and practical terms.

Lie Groups and Algebraic Groups - Arkadij L. Onishchik 2012-12-06
This book is based on the notes of the authors' seminar on algebraic and Lie groups held at the Department of Mechanics and Mathematics of Moscow University in 1967/68. Our guiding idea was to present in the most economic way the theory of semisimple Lie groups on the basis of the theory of algebraic groups. Our main sources were A. Borel's paper [34], C. Chevalley's seminar [14], seminar "Sophus Lie" [15] and monographs by C. Chevalley [4], N. Jacobson [9] and J-P. Serre [16, 17]. In preparing this book we have completely rearranged these notes and added two new chapters: "Lie groups" and "Real semisimple Lie groups". Several traditional topics of Lie algebra theory, however, are left entirely disregarded, e.g. universal enveloping algebras, characters of linear representations and (co)homology of Lie algebras. A distinctive feature of this book is that almost all the material is presented as a sequence of problems, as it had been in the first draft of the seminar's notes. We believe that solving these problems may help the reader to feel the seminar's atmosphere and master the theory. Nevertheless, all the non-trivial ideas, and sometimes solutions, are contained in hints given at the end of each section. The proofs of certain theorems, which we consider more difficult, are given directly in the main text. The book also contains exercises, the majority of which are an essential complement to the main contents.

Biology HL - Guy Décarie 2011-01

Advances in Theory and Practice of Computational Mechanics - Lakhmi C. Jain 2020-03-31
This book discusses physical and mathematical models, numerical methods, computational algorithms and software complexes, which allow high-precision mathematical modeling in fluid, gas, and plasma mechanics; general mechanics; deformable solid mechanics; and strength, destruction and safety of structures. These proceedings focus on smart technologies and software systems that provide effective solutions to real-world problems in applied mechanics at various multi-scale levels. Highlighting the training of specialists for the aviation and space industry, it is a valuable resource for experts in the field of applied mathematics and mechanics, mathematical modeling and information technologies, as well as developers of smart applied software systems.