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DiQuMaSPAB Francesco Tornabene 2018-02-09 The main aim of this book is to show the features of DiQuMASPAB so ware through the description of its graphical interface, by giving special emphasis to all those aspects implemented in the code. DiQuMASPAB, acronym of "Differential Quadrature for Mechanics of Anisotropic Shells, Plates, Arches and Beams", is a computational code, which can be used for the numerical analysis of doubly curved shells made of innovative materials, using the Generalized Differential Quadrature (GDQ) and the Generalized Integral Quadrature (GIQ) methods. The software can investigate the mechanical behavior of these structures through different approaches and structural theories. In particular, this code allows considering a kinematic expansion characterized by different degrees of freedom for the Equivalent Single Layer (ESL) theories and for each layer when the Layer-Wise (LW) approach is taken into account. As far as the materials are concerned, it is possible to consider different lamination schemes, as well as various distributions of the volume fraction of the constituents for those layers that vary their mechanical properties along the thickness. In addition, the software analyzes structures with variable thickness and characterized by variable mechanical properties that can change point by point. A finite element formulation is also available to investigate the mechanical behavior of plane structures characterized by irregular domains and mechanical discontinuities. Waves in Nonlinear Pre-Stressed Materials M. Destrade 2007-11-08 Papers in this book provide a state-of-the-art examination of waves in pre-stressed materials. You'll gain new perspectives via a multi-disciplinary approach that interweaves key topics. These topics include the mathematical modeling of incremental material response (elastic and inelastic), an analysis of the governing differential equations, and boundary-value problems. Detailed illustrations help you visualize key concepts and processes.

Quantum Transport Gregoire Allaire 2008-08-13 In this volume, a result of The CIME Summer School held in Cetraro, Italy, in 2006, four leading specialists present different aspects of quantum transport modeling. It provides an excellent basis for researchers in this field.

Limbic Seizures in Children G. Avanzini 2001 The aim of the colloquium from which this multi-author book derives, was to outline the specific expression of epilepsies involving the limbic structures in children and to establish a consensus on the evidence relevant to the clinical management of these epilepsies. The book addresses basic questions such as age-related aetiologic, pathogenetic and prognostic factors relevant to the course of infantile epilepsies with limbic seizures, and enlightens the criteria for their clinical and laboratory assessment. The interaction between basic scientists, neuropaediatricians and neurosurgeons contributes to define suitable strategies aimed at preventing the unfavourable course of these often severe infantile epilepsies and their optimal timing.

Advances in Utopian Studies and Sacred Architecture Claudio Gambardella 2021-02-02 At a time dominated by the disappearance of Future, as claimed by the French anthropologist Marc Augé, Utopia and Religion seem to be two different ways of giving back an inner horizon to mankind. Therefore this book, on the one hand, considers the importance of utopia as a tool and how it offers an economic and social resource to improve cities' wealth, future and livability. On the other, it explores the impact of religious and cultural ideals on cities that have recently emerged in this context. Based on numerous observations, the book examines the intellectual legacy of utopian theory and practices across various academic disciplines. It also presents discussions, theories, and case studies addressing a range of issues and topics related to utopia.

Simulation of Semiconductor Processes and Devices 1998 Kristin De Meyer 2012-12-06 This volume contains the proceedings of the 1998 International Conference on Simulation of Semiconductor Processes and Devices and provides an open forum for the presentation of the latest results and trends in modeling and simulation of

semiconductor equipment, processes and devices. Topics include: • semiconductor equipment simulation • process modeling and simulation • device modeling and simulation of complex structures • interconnect modeling • integrated systems for process, device, circuit simulation and optimisation • numerical methods and algorithms • compact modeling and parameter extraction • modeling for RF applications • simulation and modeling of new devices (heterojunction based, SET's, quantum effect devices, laser based ...)

Conservation and Restoration of Built Heritage Salvatore D'Agostino 2021-08-16 The word conservation, when used in the context of the preservation of built heritage, implies an intrinsically complex concept that evolved over time, since it has been influenced by the perception of history throughout time. This volume emphasises why an understanding of the cultural evolution of the conservation approach must be considered a prerequisite for architects and engineers if they are to cooperate in full harmony with historic-artistic culture for the preservation of global built heritage. In particular, the volume highlights how, during the second half of the last century, the preservation process also involved engineering – the science of making practical applications of knowledge – which, for a long time, made an uncritical use of techniques and materials and devised interventions on historical heritage that were heavily invasive. The volume also devotes special attention to the problems related to seismic risk, to which Italy, Greece and Portugal are particularly prone. Problems that emerge during the crisis and reconstruction phases are dealt with in detail, as is scheduled maintenance, as this latter approach always constitutes an improvement in the performance of the monument and is the most appropriate tool for the conservation of the built heritage. Finally, the volume collects examples of building restoration with case studies of many outstanding monuments. The work will appeal to professionals and academics in the broader fields of civil engineering (both geotechnical and structural engineering), architecture, art history, the history of architecture, restoration and cultural heritage management. This book will: Provide a critical reading of the history of conservation; Discuss materials and techniques of ancient architecture; Cover seismic vulnerability and preservation of the historic integrity of the monument; Advocate an approach based on programmed maintenance; Feature numerous case histories, including St Mark's Basilica in Venice and the complex restoration of the cathedral of Notre-Dame in Paris.

The Geometry of Supermanifolds C. Bartocci 1991-10-31 'Et moi, ... si favait III mment en revenir, One service mathematics has rendered the je n'y serais point aile:' human race. It has put CXIUlmon sense back lules Verne where it belongs. on the topmost shelf next to the dUlty canister labelled 'discarded non- The series i. divergent; therefore we may be able to do something with it. Eric T. Bell O. Hesvi.ide Mathematics is a tool for thOUght. A highly necessary tool in a world where both feedback and non- linearities abound. Similarly, all kinds of parts of mathematics serve as tools for other parts and for other sciences. Applying a simple rewriting rule to the quote on the right above one finds such statements as: 'One service topology has rendered mathematical physics .. .'; 'One service logic has rendered com- puter science .. .'; 'One service category theory has rendered mathematics .. .'. All arguably true. And all statements obtainable this way form part of the raison d'ltre of this series.

Physics of Semiconductor Devices Massimo Rudan 2017-09-27 This textbook describes the basic physics of semiconductors, including the hierarchy of transport models, and connects the theory with the functioning of actual semiconductor devices. Details are worked out carefully and derived from the basic physical concepts, while keeping the internal coherence of the analysis and explaining the different levels of approximation. Coverage includes the main steps used in the fabrication process of integrated circuits: diffusion, thermal oxidation, epitaxy, and ion implantation. Examples are based on silicon due to its industrial importance. Several chapters are included that provide the reader with the quantum-mechanical concepts necessary for understanding the transport properties of crystals. The behavior of crystals incorporating a position-dependent impurity distribution is described, and the different hierarchical transport models for semiconductor devices are derived (from the Boltzmann transport equation to the hydrodynamic and drift-diffusion models). The transport models are then applied to a detailed description of the main semiconductor-device architectures (bipolar, MOS, CMOS), including a number of solid-state sensors. The final chapters are devoted to the measuring methods for semiconductor-device parameters, and to a brief illustration of the scaling rules and numerical methods applied to the design of semiconductor devices.

Entropy and Information in Science and Philosophy Libor Kubát 1975

Modal Analysis Theory and Testing Ward Heylen 1998

The Logic of Religion Jude P. Dougherty 2010-03-30 The philosopher and author of *Western Creed*, *Western Identity* offers a probing history of important writings on the logic of religion. *The Logic of Religion* offers a sweeping history of philosophical perspectives on religion from ancient Greek and Roman writings to medieval Christian thought to modern Western philosophy and beyond. Even among those who find no evidence for the existence of God, such as Karl Marx and Sigmund Freud, we encounter discussions of the nature of religion and its function in society. This study begins in antiquity with Socrates, Plato, Cicero, and Seneca. It then moves through Augustine to the Middle Ages as represented by Averroes and Aquinas. By so proceeding, philosopher Jude P. Dougherty gives the reader insight into the logic of religion as conceived before and after the advent of Christianity. Subsequent investigation leads to the works of David Hume, Immanuel Kant, and G. W. F. Hegel,

each of whom spoke to the implications of religion in the practical order, and of Sigmund Freud's negative assessment of religion in *The Future of an Illusion*. Although the focus of this study is primarily Western religion, attention is also paid to certain Eastern modes of thought such as Buddhism and Confucianism. Throughout, readers will find many interesting philosophical observations of the nature of belief, worship, ritual, sacrifice, doctrine, theology, and community.

Physical Metallurgy for Engineers Miklós Tisza 2001-01-01 This book should be a valuable reference for experienced metallurgists, mechanical engineers, and students seeking a practical technical introduction to metallurgy. Contents are based on lectures designed for undergraduate students in mechanical engineering, and the book is an excellent introduction to the fundamentals of applied metallurgy. The book also contains numerous graphs, tables, and explanations that can prove useful even for experienced metallurgists and researchers. Contents cover both the fundamental and applied aspects of metallurgy. The first half of the book covers the basic principles of metallurgy, the behavior of crystalline materials, and the underlying materials concepts related to the mechanical properties of metals. The second half focuses on applied physical metallurgy. This includes coverage of the metallurgy of common alloys systems such as carbon steels, alloyed steels, cast iron, and nonferrous alloys. Contents include: Introduction to Physical Metallurgy The Atomic Structure of Materials Fundamentals of Crystal Structure Basic Rules of Crystallization Imperfections in Crystalline Solids Mechanical Properties of Single-Phase Metallic Materials Metallic Alloys Equilibrium Crystallization of Iron-Carbon Alloys Non-Equilibrium Crystallization of Iron-Carbon Alloys Plain Carbon Steels Alloyed Steels Cast Iron Nonferrous Metals and Alloys.

Tech Talk Vicki Hollett 2005 Suitable for adult learners working in the international technical sector, this title features vocabulary relevant to technical applications. It provides practical speaking tasks that enable learners to use new language in hands-on contexts. It also includes survival skills, such as getting directions, changing money, and ordering food.

Modeling of Collisions A. Decoster 1998

Topics in Finite Elasticity Michael Hayes 2001-06-19 More than fifty years ago, Professor R. S. Rivlin pioneered developments in both the theory and experiments of rubber elasticity. These together with his other fundamental studies contributed to a revitalization of the theory of finite elasticity, which had been dormant, since the basic understanding was completed in the nineteenth century. This book with chapters on foundation, models, universal results, wave propagation, qualitative theory and phase transitions, indicates that the subject he reinvigorated has remained remarkably vibrant and has continued to present significant deep mathematical and experimental challenges.

Nonlinear Waves and Dissipative Effects Domenico Fusco 1991-11-25 The collection of papers contained in this volume, the authors of which attended Euromech 270, provides a useful contribution to the study of nonlinear dissipative wave propagation.

Extended Thermodynamics Ingo Müller 2013-03-08 Physicists firmly believe that the differential equations of nature should be hyperbolic so as to exclude action at a distance; yet the equations of irreversible thermodynamics - those of Navier-Stokes and Fourier - are parabolic. This incompatibility between the expectation of physicists and the classical laws of thermodynamics has prompted the formulation of extended thermodynamics. After describing the motifs and early evolution of this new branch of irreversible thermodynamics, the authors apply the theory to mon-atomic gases, mixtures of gases, relativistic gases, and "gases" of phonons and photons. The discussion brings into perspective the various phenomena called second sound, such as heat propagation, propagation of shear stress and concentration, and the second sound in liquid helium. The formal mathematical structure of extended thermodynamics is exposed and the theory is shown to be fully compatible with the kinetic theory of gases. The study closes with the testing of extended thermodynamics through the exploitation of its predictions for measurements of light scattering and sound propagation.

Biomaterials Fabrication and Processing Handbook Paul K. Chu 2008-03-27 Focusing on a lucrative and increasingly important area of biomedicine, the *Biomaterials Fabrication and Processing Handbook* brings together various biomaterials production and processing aspects, including tissue engineering scaffold materials, drug delivery systems, nanobiomaterials, and biosensors. With contributions from renowned international experts and extensive reference lists in each chapter, the volume provides detailed, practical information to produce and use biomaterials. The different facets of biomaterials technology are split into four sections in the book— Part I The development of new materials and devices capable of interacting specifically with biological tissues and the preparation of scaffolds using materials with appropriate composition and structure Part II The necessary materials to create a drug delivery system capable of controlled release and the incorporation of drug reservoirs into implantable devices for sustained controlled release Part III The significant role nanotechnology plays in the biomedical and biotechnology fields Part IV More biomaterials, including synthetic and natural degradable polymeric biomaterials, electroactive polymers as smart materials, and biomaterials for gastrointestinal and

cartilage repair and reconstruction

Mathematics for the Life Sciences Erin N. Bodine 2014-08-17 The life sciences deal with a vast array of problems at different spatial, temporal, and organizational scales. The mathematics necessary to describe, model, and analyze these problems is similarly diverse, incorporating quantitative techniques that are rarely taught in standard undergraduate courses. This textbook provides an accessible introduction to these critical mathematical concepts, linking them to biological observation and theory while also presenting the computational tools needed to address problems not readily investigated using mathematics alone. Proven in the classroom and requiring only a background in high school math, Mathematics for the Life Sciences doesn't just focus on calculus as do most other textbooks on the subject. It covers deterministic methods and those that incorporate uncertainty, problems in discrete and continuous time, probability, graphing and data analysis, matrix modeling, difference equations, differential equations, and much more. The book uses MATLAB throughout, explaining how to use it, write code, and connect models to data in examples chosen from across the life sciences. Provides undergraduate life science students with a succinct overview of major mathematical concepts that are essential for modern biology Covers all the major quantitative concepts that national reports have identified as the ideal components of an entry-level course for life science students Provides good background for the MCAT, which now includes data-based and statistical reasoning Explicitly links data and math modeling Includes end-of-chapter homework problems, end-of-unit student projects, and select answers to homework problems Uses MATLAB throughout, and MATLAB m-files with an R supplement are available online Prepares students to read with comprehension the growing quantitative literature across the life sciences A solutions manual for professors and an illustration package is available

Trend and Applications of Mathematics to Mechanics S. Rionero 2006-09-11 The book provides a collection of recent theoretical and methodological advances which can provide support and stimulus to scientists and scholars involved in research activity in the fields of interest.

Differential Equations and Nonlinear Mechanics Kuppalapalle Vajravelu 2013-12-01 The International Conference on Differential Equations and Nonlinear Mechanics was hosted by the University of Central Florida in Orlando from March 17-19, 1999. One of the conference days was dedicated to Professor V. Lakshmikantham in the honor of his 75 birthday. 50 well established professionals (in differential equations, nonlinear analysis, numerical analysis, and nonlinear mechanics) attended the conference from 13 countries. Twelve of the attendees delivered hour long invited talks and remaining thirty-eight presented invited forty-five minute talks. In each of these talks, the focus was on the recent developments in differential equations and nonlinear mechanics and their applications. This book consists of 29 papers based on the invited lectures, and I believe that it provides a good selection of advanced topics of current interest in differential equations and nonlinear mechanics. I am indebted to the Department of Mathematics, College of Arts and Sciences, Department of Mechanical, Materials and Aerospace Engineering, and the Office of International Studies (of the University of Central Florida) for the financial support of the conference. Also, to the Mathematics Department of the University of Central Florida for providing secretarial and administrative assistance. I would like to thank the members of the local organizing committee, Jeanne Blank, Jackie Callahan, John Cannon, Holly Carley, Brad Pyle, Pete Rautenstrauch, and June Wingler for their assistance. Thanks are also due to the conference organizing committee, F. H. Busse, J. R. Cannon, V. Girault, R. H. J. Grimshaw, P. N. Kaloni, V.

Safety, Health and Welfare in Agriculture and Agro-food Systems Marcello Biocca 2022-03-23 This book gathers the latest advances, innovations and applications in the field of agricultural biotechnology, agro-food systems and forestry, as presented by leading international researchers and engineers at the 5th International Conference on Safety, Health and Welfare in Agriculture and Agro-food Systems (SHWA), held in Ragusa, Italy, on September 15-18, 2021. The papers cover a range of topics such as agricultural assistive technologies, machine milking, animal welfare, sustainable livestock farming, work organization and logistic in agro-food supply chain, agricultural instrumentation and equipment, safety and health in building, agriculture 4.0, automation, occupational health, precision farming, effect of landscapes on human health, environmental safety, rural health, agricultural machinery, ROPS, augmented reality and IoT, cyber security. The contributions included in the book were selected by means of a rigorous peer-review process, and offer an extensive and multidisciplinary overview of interesting solutions in the field of sustainable agriculture.

Contemporary Research in the Mechanics and Mathematics of Materials R. C. Batra 1996

Transport in Multilayered Nanostructures

From Fractals And Cellular Automata To Biology: Information As Order Hidden Within Chance Alberto Strumia 2020-07-02 The didactical level of exposition, together with many astonishing images and animations, accompanied by the related simple computer programming codes (in Python and POV-Ray languages) make this book an extremely and unique useful tool to test the power of algorithmic information in generating ordered structure models (2D and 3D) like regular geometric shapes, complex shapes like fractals and cellular automata, and biological systems as the organs of a living body. Informational biologists besides mathematicians and physicists of complexity may learn to test their own capabilities in programming and modelling ordered structures

starting from random initial conditions at different scale of each system: from elementary particles, to biological systems, to galaxies and the whole universe. Moreover the philosophical comments comparing some aspects of modern information theory to the Aristotelian notion of 'form are very appealing also for the epistemologist and the philosopher involved in complexity matters.

Database Processing David M. Kroenke 1983 A high price call girl whose sordid life revolves around the dark, frightening jungle of Manhattan is being stalked by dangerous psychopath, with only a detective to save her.

A Concise Introduction to Software Engineering Pankaj Jalote 2008-10-17 An introductory course on Software Engineering remains one of the hardest subjects to teach largely because of the wide range of topics the area encompasses. I have believed for some time that we often tend to teach too many concepts and topics in an introductory course resulting in shallow knowledge and little insight on application of these concepts. And Software Engineering is usually about application of concepts to efficiently engineer good software solutions. Goals I believe that an introductory course on Software Engineering should focus on imparting to students the knowledge and skills that are needed to successfully execute a commercial project of a few person-months effort while employing proper practices and techniques. It is worth pointing out that a vast majority of the projects executed in the industry today fall in this scope—executed by a small team over a few months. I also believe that by carefully selecting the concepts and topics, we can, in the course of a semester, achieve this. This is the motivation of this book. The goal of this book is to introduce to the students a limited number of concepts and practices which will achieve the following two objectives: – Teach the student the skills needed to execute a smallish commercial project.

History of Engineering 2020 2020

Generalized Continua - from the Theory to Engineering Applications Holm Altenbach 2012-10-18 On the roots of continuum mechanics in differential geometry -- a review.- Cosserat media.- Cosserat-type shells.- Cosserat-type rods.- Micromorphic media.- Electromagnetism and generalized continua.- Computational methods for generalized continua. The need of generalized continua models is coming from practice. Complex material behavior sometimes cannot be presented by the classical Cauchy continua. At present the attention of the scientists in this field is focused on the most recent research items • new models, • application of well-known models to new problems, • micro-macro aspects, • computational effort, and • possibilities to identify the constitutive equations The new research directions are discussed in this volume - from the point of view of modeling and simulation, identification, and numerical methods.

Nonlinear Waves in Solids A. Jeffrey 2014-05-04 Travelling wave processes and wave motion are of great importance in many areas of mechanics, and nonlinearity also plays a decisive role there. The basic mathematical models in this area involve nonlinear partial differential equations, and predictability of behaviour of wave phenomena is of great importance. Beside fluid dynamics and gas dynamics, which have long been the traditional nonlinear sciences, solid mechanics is now taking an ever increasing account of nonlinear effects. Apart from plasticity and fracture mechanics, nonlinear elastic waves have been shown to be of great importance in many areas, such as the study of impact, nondestructive testing and seismology. These lectures offer a thorough account of the fundamental theory of nonlinear deformation waves, and in the process offer an up to date account of the current state of research in the theory and practice of nonlinear waves in solids.

Looptail Bruce Poon Tip 2013-09-17 Much in the same vein as DELIVERING HAPPINESS, LOOPTAIL combines both Bruce Poon Tip's extraordinary first-person account of his entrepreneurial instincts to start and develop G Adventures, a highly-successful international travel adventure company, and along the way, he reveals his unusual management secrets that not only keep his employees fully engaged but also keep his customers extremely happy.

The New Concrete Mario Collepardi 2010

Near Earth Objects, Our Celestial Neighbors (IAU S236) International Astronomical Union. Symposium 2007-05-24 IAU S236 concentrates on specific techniques of observation and modeling Near Earth Objects (NEOs).

The Jobs Rated Almanac Les Krantz 1992 Provides up-to-date evaluations of 250 jobs and ranks them according to six vital factors--income, work environment, security, stress, physical demands, and outlook

Physics of III-V Compounds Robert K. Willardson 1968

Transport Phenomena and Kinetic Theory Carlo Cercignani 2007-12-03 The study of kinetic equations related to gases, semiconductors, photons, traffic flow, and other systems has developed rapidly in recent years because of its role as a mathematical tool in areas such as engineering, meteorology, biology, chemistry, materials science, nanotechnology, and pharmacy. Written by leading specialists in their respective fields, this book presents an overview of recent developments in the field of mathematical kinetic theory with a focus on modeling complex systems, emphasizing both mathematical properties and their physical meaning. Transport Phenomena and Kinetic Theory is an excellent self-study reference for graduate students, researchers, and practitioners working in pure and applied mathematics, mathematical physics, and engineering. The work may be used in courses or seminars on selected topics in transport phenomena or applications of the Boltzmann equation.

Image Analysis and Recognition Aurélio Campilho 2004-09-23 ICIAR 2004, the International Conference on

Image Analysis and Recognition, was the first ICIAR conference, and was held in Porto, Portugal. ICIAR will be organized annually, and will alternate between Europe and North America. ICIAR 2005 will take place in Toronto, Ontario, Canada. The idea of offering these conferences came as a result of discussion between researchers in Portugal and Canada to encourage collaboration and exchange, mainly between these two countries, but also with the open participation of other countries, addressing recent advances in theory, methodology and applications. The response to the call for papers for ICIAR 2004 was very positive. From 316 full papers submitted, 210 were accepted (97 oral presentations, and 113 posters). The review process was carried out by the Program Committee members and other reviewers; all are experts in various image analysis and recognition areas. Each paper was reviewed by at least two reviewing parties. The high quality of the papers in these proceedings is attributed first to the authors, and second to the quality of the reviews provided by the experts. We would like to thank the authors for responding to our call, and we wholeheartedly thank the reviewers for their excellent work in such a short amount of time. We are especially indebted to the Program Committee for their efforts that allowed us to set up this publication. We were very pleased to be able to include in the conference, Prof. Murat Kunt from the Swiss Federal Institute of Technology, and Prof. Mario Figueiredo, of the Instituto Superior Técnico, in Portugal.

Image Fusion Tania Stathaki 2011-08-29 The growth in the use of sensor technology has led to the demand for image fusion: signal processing techniques that can combine information received from different sensors into a single composite image in an efficient and reliable manner. This book brings together classical and modern algorithms and design architectures, demonstrating through applications how these can be implemented. Image Fusion: Algorithms and Applications provides a representative collection of the recent advances in research and development in the field of image fusion, demonstrating both spatial domain and transform domain fusion methods including Bayesian methods, statistical approaches, ICA and wavelet domain techniques. It also includes valuable material on image mosaics, remote sensing applications and performance evaluation. This book will be an invaluable resource to R&D engineers, academic researchers and system developers requiring the most up-to-date and complete information on image fusion algorithms, design architectures and applications. Combines theory and practice to create a unique point of reference Contains contributions from leading experts in this rapidly-developing field Demonstrates potential uses in military, medical and civilian areas

Dynamics of Populations of Planetary Systems (IAU C197) Zoran Knezevic 2005-05-05 Recent advances in computational power are now enabling scientists to consider problems of population dynamics at an advanced level regarding the small bodies of our solar system, the planets around other stars, dust belts, space debris, etc., and their collective dynamical evolution, stability and instability, order and chaos, aggregations and impacts. Important results on specific populations of celestial bodies, in addition to new methods of computation and analysis, have been obtained in the last few years. This proceedings volume reviews current understanding of the field, and is a valuable resource for professional astronomers and planetary scientists.