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## KEY=T50 - DESIREE COPELAND

## Real-Time Systems Design and Analysis

## An Engineer's Handbook

Wiley-IEEE Press **Acknowledgments. Basic Real-Time Concepts. Computer Hardware. Languages Issues. The Software Life Cycle. Real-Time Specification and Design Techniques. Real-Time Kernels. Intertask Communication and Synchronization. Real-Time Memory Management. System Performance Analysis and Optimization. Queuing Models. Reliability, Testing, and Fault Tolerance. Multiprocessing Systems. Hardware/Software Integration. Real-Time Applications. Glossary. Bibliography. Index.**

## Advances in Intelligent Systems

## Concepts, Tools and Applications

Springer Science & Business Media **Intelligent Systems involve a large class of systems which posses human-like capabilities such as learning, observation, perception, interpretation, reasoning under uncertainty, planning in known and unknown environments, decision making, and control action. The field of intelligent systems is actually a new interdisciplinary field which is the outcome of the interaction, cooperation and synergetic merging of classical fields such as system theory, control theory, artificial intelligence, information theory, operational research, soft computing, communications, linguistic theory, and others. Integrated intelligent decision and control systems involve three primary hierarchical levels, namely organization, coordination and execution levels. As we proceed from the be performed organization to the execution level, the precision about the jobs to increases and accordingly the intelligence required for these jobs decreases. This is in compliance with the principle of increasing precision with decreasing intelligence (IPOI) known from the management field and theoretically established by Saridis using information theory concepts. This book is concerned with intelligent systems and techniques and gives emphasis on the computational and processing issues. Control issues are not included here. The contributions of the book are presented in four parts as follows.**

## Data Information Literacy

## Librarians, Data and the Education of a New Generation of Researchers

Purdue University Press **Given the increasing attention to managing, publishing, and preserving research datasets as scholarly assets, what competencies in working with research data will graduate students in STEM disciplines need to be successful in their fields? And what role can librarians play in helping students attain these competencies? In addressing these questions, this book articulates a new area of opportunity for librarians and other information professionals, developing educational programs that introduce graduate students to the knowledge and skills needed to work with research data. The term "data information literacy" has been adopted with the deliberate intent of tying two emerging roles for librarians together. By viewing information literacy and data services as complementary rather than separate activities, the contributors seek to leverage the progress made and the lessons learned in each service area. The intent of the publication is to help librarians cultivate strategies and approaches for developing data information literacy programs of their own using the work done in the multiyear, IMLS-supported Data Information Literacy (DIL) project as real-world case studies. The initial chapters introduce the concepts and ideas behind data information literacy, such as the twelve data competencies. The middle chapters describe five case studies in data information literacy conducted at different institutions (Cornell, Purdue, Minnesota, Oregon), each focused on a different disciplinary area in science and engineering. They detail the approaches taken, how the programs were implemented, and the assessment metrics used to evaluate their impact. The later chapters include the "DIL Toolkit," a distillation of the lessons learned, which is presented as a handbook for librarians interested in developing their own DIL programs. The book concludes with recommendations for future directions and growth of data information literacy. More information about the DIL project can be found on the project's website: datainfolit.org.**

## New Results in Numerical and Experimental Fluid Mechanics X

## Contributions to the 19th STAB/DGLR Symposium Munich, Germany, 2014

Springer **This book presents contributions to the 19th biannual symposium of the German Aerospace Aerodynamics Association (STAB) and the German Society for Aeronautics and Astronautics (DGLR). The individual chapters reflect ongoing research conducted by the STAB members in the field of numerical and experimental fluid mechanics and aerodynamics, mainly for (but not limited to) aerospace applications, and cover both nationally and EC-funded projects. Special emphasis is given to collaborative research projects conducted by German scientists and engineers from universities, research-establishments and industries. By addressing a number of cutting-edge applications, together with the relevant physical and mathematics fundamentals, the book provides readers with a comprehensive overview of the current research work in the field. Though the book’s primary emphasis is on the aerospace context, it also addresses further important applications, e.g. in ground transportation and energy.**

## Device and Circuit Cryogenic Operation for Low Temperature Electronics

Springer Science & Business Media **Device and Circuit Cryogenic Operation for Low Temperature Electronics is a first in reviewing the performance and physical mechanisms of advanced devices and circuits at cryogenic temperatures that can be used for many applications. The first two chapters cover bulk silicon and SOI MOSFETs. The electronic transport in the inversion layer, the influence of impurity freeze-out, the special electrical properties of SOI structures, the device reliability and the interest of a low temperature operation for the ultimate integration of silicon down to nanometer dimensions are described. The next two chapters deal with Silicon-Germanium and III-V Heterojunction Bipolar Transistors, as well as III-V High Electron Mobility Transistors (HEMT). The basic physics of the SiGe**

**HBT and its unique cryogenic capabilities, the optimization of such bipolar devices, and the performance of SiGe HBT BiCMOS technology at liquid nitrogen temperature are examined. The physical effects in III-V semiconductors at low temperature, the HEMT and HBT static, high frequency and noise properties, and the comparison of various cooled III-V devices are also addressed. The next chapter treats quantum effect devices made of silicon materials. The major quantum effects at low temperature, quantum wires, quantum dots as well as single electron devices and applications are investigated. The last chapter overviews the performances of cryogenic circuits and their applications. The low temperature properties and performance of inverters, multipliers, adders, operational amplifiers, memories, microprocessors, imaging devices, circuits and systems, sensors and read-out circuits are analyzed. Device and Circuit Cryogenic Operation for Low Temperature Electronics is useful for researchers, engineers, Ph.D. and M.S. students working in the field of advanced electron devices and circuits, new semiconductor materials, and low temperature electronics and physics.**

# Guide to Vulnerability Analysis for Computer Networks and Systems

# An Artificial Intelligence Approach

Springer **This professional guide and reference examines the challenges of assessing security vulnerabilities in computing infrastructure. Various aspects of vulnerability assessment are covered in detail, including recent advancements in reducing the requirement for expert knowledge through novel applications of artificial intelligence. The work also offers a series of case studies on how to develop and perform vulnerability assessment techniques using start-of-the-art intelligent mechanisms. Topics and features: provides tutorial activities and thought-provoking questions in each chapter, together with numerous case studies; introduces the fundamentals of vulnerability assessment, and reviews the state of the art of research in this area; discusses vulnerability assessment frameworks, including frameworks for industrial control and cloud systems; examines a range of applications that make use of artificial intelligence to enhance the vulnerability assessment processes; presents visualisation techniques that can be used to assist the vulnerability assessment process. In addition to serving the needs of security practitioners and researchers, this accessible volume is also ideal for students and instructors seeking a primer on artificial intelligence for vulnerability assessment, or a supplementary text for courses on computer security, networking, and artificial intelligence.**

# Critical Issues in Head and Neck Oncology

# Key Concepts from the Seventh THNO Meeting

Springer Nature **This open access book discusses the most current issues in head and neck cancer with a focus on current trends such as biomarkers, precision medicine and immunotherapy. New approaches in the diagnosis such as liquid biopsies and imaging biomarkers to predict radiotherapy toxicity as well as approaches in the surgical management of head and neck cancers are discussed. The book discusses medical and surgical approaches in both primary, recurrent and metastatic disease and also covers approaches for rare head neck cancers. Readers will learn about the latest drug developments and epidemiological aspects in cancers ranging from Head and Neck Squamous Cell Cancer to Nasopharynx cancer. Edited by a team of world leaders in Head and Neck Cancer, this volume serves as an easy reference to the head and neck oncology practitioner and provides a contemporary overview for specialists the field. The chapters are based on the latest data presented at the 7th Trends in Head and Neck Oncology Conference and reflect the most up-to-date information in the field.**

# Effects of Temperature on Ectothermic Organisms

# Ecological Implications and Mechanisms of Compensation

Springer Science & Business Media **The study of thermoregulation in endotherms has contributed much to the emergence of the concept of control theory in biology. By the same token, the study of tempera ture adjustment in ectotherms is likely to have a far-reaching influence on ideas on the regulation of metabolism in general. The reason for this is that ectotherms, in adapting to the vagaries of a thermally unstable environment, deploy a range of subtle molecular and organismic strategies. Thus the experimenter, using temperature changes as a tool, is well equipped to analyze some of these strategies. This approach has enabled some important mechanisms of temperature-induced adaptation to be elucidated; the most striking of these are the effects on metabolism of changes in the conformation of enzymes and the transfer properties of membranes. Furthermore, there is a vague but persistent feeling among those working in this field that changes in the nervous system will ultimately prove to be the agency by which many of the molecular mechanisms of temperature adaptation are controlled. Should this indeed be the case, a new phase would soon begin in our understanding of the interactions between the systemic and the cellular levels of organization. However, it is not only questions about the causes of temperature adaptation that can provide answers of potential importance to the general biologist; of equal significance are questions as to the meaning of temperature adaptation in a particular organism.**

# Obesity and Binge Eating Disorder

Karger Medical and Scientific Publishers **Overweight and obesity have quite recently become a major problem affecting many countries worldwide. This publication gives a comprehensive overview on the current knowledge of the pathophysiological mechanisms in the regulation of hunger and satiety. An**

# ELF-VLF Radio Wave Propagation

# Proceedings of the NATO Advanced Study Institute held at Spåtind, Norway, April 17–27, 1974

Springer Science & Business Media **This volume is based on lectures and discussions presented at a NATO Advanced Study Institute on ELF and VLF Radio Wave Propagation, which was held in Norway April 1974. The study of propagation of electromagnetic waves with frequen cies below 100 kHz has long traditions in ionospheric physics. To-day, this frequency range is still of great importance, both to the physicist, who uses the waves as diagnostic tools to study the earth's environment and to the engineer who exploits the characteris tics of these waves to improve communications, navigation and timing systems. In recent years the active interest in the field has led to very rapid progress in the development of propagation theory as well as in the application of this theory to the solution of practical problems. The intention of the Organizing Committee for this Conference was to bring together theoreticians and experi mentalists working on the various aspects of wave propagation, in order to stimulate a fruitful discussion and exchange of ideas.**

# Consumer Preferences and Acceptance of Food Products

MDPI **The acceptance and preference of the sensory properties of foods are among the most important criteria determining food choice. Sensory perception and our response to food products, and finally food choice itself, are affected by a myriad of intrinsic and extrinsic factors. The pressing question is, how do these factors specifically affect our acceptance and preference for foods, both in and of themselves, and in combination in various contexts, both fundamental and applied? In addition, which factors overall play the**

**largest role in how we perceive and behave towards food in daily life? Finally, how can these factors be utilized to affect our preferences and final acceptance of real food and food products from industrial production and beyond for healthier eating? A closer look at trends in research showcasing the influence that these factors and our senses have on our perception and affective response to food products and our food choices is timely. Thus, in this Special Issue collection “Consumer Preferences and Acceptance of Food Products”, we bring together articles which encompass the wide scope of multidisciplinary research in the space related to the determination of key factors involved linked to fundamental interactions, cross-modal effects in different contexts and eating scenarios, as well as studies that utilize unique study design approaches and methodologies.**

# Ultrashort Laser Pulses in Biology and Medicine

Springer Science & Business Media **Learn about the many biological and medical applications of ultrashort laser pulses. The authors highlight and explain how the briefness of these laser pulses permits the tracing of even the fastest processes in photo-active bio-systems. They also present a variety of applications that rely on the high peak intensity of ultrashort laser pulses. Easy-to-follow examples cover non-linear imaging techniques, optical tomography, and laser surgery.**

# West Virginia Legislative Hand Book and Manual and Official Register

# Peterson's Stress Concentration Factors

John Wiley & Sons **The bible of stress concentration factors—updated to reflect today's advances in stress analysis This book establishes and maintains a system of data classification for all the applications of stress and strain analysis, and expedites their synthesis into CAD applications. Filled with all of the latest developments in stress and strain analysis, this Fourth Edition presents stress concentration factors both graphically and with formulas, and the illustrated index allows readers to identify structures and shapes of interest based on the geometry and loading of the location of a stress concentration factor. Peterson's Stress Concentration Factors, Fourth Edition includes a thorough introduction of the theory and methods for static and fatigue design, quantification of stress and strain, research on stress concentration factors for weld joints and composite materials, and a new introduction to the systematic stress analysis approach using Finite Element Analysis (FEA). From notches and grooves to shoulder fillets and holes, readers will learn everything they need to know about stress concentration in one single volume. Peterson's is the practitioner's go-to stress concentration factors reference Includes completely revised introductory chapters on fundamentals of stress analysis; miscellaneous design elements; finite element analysis (FEA) for stress analysis Features new research on stress concentration factors related to weld joints and composite materials Takes a deep dive into the theory and methods for material characterization, quantification and analysis methods of stress and strain, and static and fatigue design Peterson's Stress Concentration Factors is an excellent book for all mechanical, civil, and structural engineers, and for all engineering students and researchers.**

# Motor Cognition

# What Actions Tell the Self

Oxford University Press **'Motor Cognition' describes the field of motor cognition - one to which the author's contribution has been seminal. The book examines how the motor actions we perform and watch others perform play a pivotal role in the construction of the 'self' - our ability to acknowledge and recognise our own identity.**

# What the Face Reveals

# Basic and Applied Studies of Spontaneous Expression Using the Facial Action Coding System (FACS)

Oxford University Press **While we have known for centuries that facial expressions can reveal what people are thinking and feeling, it is only recently that the face has been studied scientifically for what it can tell us about internal states, social behavior, and psychopathology. Today's widely available, sophisticated measuring systems have allowed us to conduct a wealth of new research on facial behavior that has contributed enormously to our understanding of the relationship between facial expression and human psychology. The chapters in this volume present the state-of-the-art in this research. They address key topics and questions, such as the dynamic and morphological differences between voluntary and involuntary expressions, the relationship between what people show on their faces and what they say they feel, whether it is possible to use facial behavior to draw distinctions among psychiatric populations, and how far research on automating facial measurement has progressed. The book also includes follow-up commentary on all of the original research presented and a concluding integration and critique of all the contributions made by Paul Ekman. As an essential reference for all those working in the area of facial analysis and expression, this volume will be indispensable for a wide range of professionals and students in the fields of psychology, psychiatry, and behavioral medicine.**

# Carbon Dioxide Chemistry, Capture and Oil Recovery

BoD – Books on Demand **Fossil fuels still need to meet the growing demand of global economic development, yet they are often considered as one of the main sources of the CO2 release in the atmosphere. CO2, which is the primary greenhouse gas (GHG), is periodically exchanged among the land surface, ocean, and atmosphere where various creatures absorb and produce it daily. However, the balanced processes of producing and consuming the CO2 by nature are unfortunately faced by the anthropogenic release of CO2. Decreasing the emissions of these greenhouse gases is becoming more urgent. Therefore, carbon sequestration and storage (CSS) of CO2, its utilization in oil recovery, as well as its conversion into fuels and chemicals emerge as active options and potential strategies to mitigate CO2 emissions and climate change, energy crises, and challenges in the storage of energy.**

# The Science of Facial Expression

Oxford University Press **The importance of facial expressions has led to a steadily growing body of empirical findings and theoretical analyses. Every decade has seen work that extends or challenges previous thinking on facial expression. The Science of Facial Expression provides an updated review of the current psychology of facial expression . This book summarizes current conclusions and conceptual frameworks from leading figures who have shaped the field in their various subfields, and will therefore be of interest to practitioners, students, and researchers of emotion in cognitive psychology, neuroscience, biology, anthropology, linguistics, affective computing, and homeland security. Organized in eleven thematic sections, The Science of Facial Expression offers a broad perspective of the "geography" of the science of facial expression. It reviews the scientific history of emotion perception and the evolutionary origins and functions of facial expression. It includes an updated compilation on the great debate around Basic Emotion Theory versus Behavioral Ecology and Psychological constructionism. The developmental psychology and social psychology of facial expressions is explored in the role of facial expressions in child development, social interactions, and culture. The book also covers appraisal theory, concepts, neural and behavioral processes, and lesser-known facial behaviors such as yawing, vocal crying, and vomiting. In addition, the book reflects that research on the "expression of emotion" is moving towards a significance of context in the production and interpretation of facial expression The authors expose various fundamental questions and controversies yet to be resolved, but in doing so, open many sources of inspiration to pursue in the scientific study of facial expression.**

# Threats to Mangrove Forests

## Hazards, Vulnerability, and Management

Springer **This book focuses on the worldwide threats to mangrove forests and the management solutions currently being used to counteract those hazards. Designed for the professional or specialist in marine science, coastal zone management, biology, and related disciplines, this work will appeal to those not only working to protect mangrove forests, but also the surrounding coastal areas of all types. Examples are drawn from many different geographic areas, including North and South America, India, and Southeast Asia. Subject areas covered include both human-induced and natural impacts to mangroves, intended or otherwise, as well as the efforts being made by coastal researchers to promote restoration of these coastal fringing forests.**

# High-Speed VLSI Interconnections

John Wiley & Sons **This Second Edition focuses on emerging topics and advances in the field of VLSI interconnections In the decade since High-Speed VLSI Interconnections was first published, several major developments have taken place in the field. Now, updated to reflect these advancements, this Second Edition includes new information on copper interconnections, nanotechnology circuit interconnects, electromigration in the copper interconnections, parasitic inductances, and RLC models for comprehensive analysis of interconnection delays and crosstalk. Each chapter is designed to exist independently or as a part of one coherent unit, and several appropriate exercises are provided at the end of each chapter, challenging the reader to gain further insight into the contents being discussed. Chapter subjects include: * Preliminary Concepts * Parasitic Resistances, Capacitances, and Inductances * Interconnection Delays * Crosstalk Analysis * Electromigration-Induced Failure Analysis * Future Interconnections High-Speed VLSI Interconnections, Second Edition is an indispensable reference for high-speed VLSI designers, RF circuit designers, and advanced students of electrical engineering.**

# Gas Capture Processes

**This book introduces the recent technologies introduced for gases capture including CO2, CO, SO2, H2S, NOx, and H2. Various processes and theories for gas capture and removal are presented. The book provides a useful source of information for engineers and specialists, as well as for undergraduate and postgraduate students in the fields of environmental and chemical science and engineering.**

# Shortcut to Superconductivity

## Superconducting Electronics via COMSOL Modeling

Springer **This accessible textbook offers a novel, concept-led approach to superconducting electronics, using the COMSOL Multiphysics software to help describe fundamental principles in an intuitive manner. Based on a course taught by the author and aimed primarily at engineering students, the book explains concepts effectively and efficiently, uncovering the “shortcut” to understanding each topic, enabling readers to quickly grasp the underlying essence. The book is divided into two main parts; the first part provides a general introduction to key topics encountered in superconductivity, illustrated using COMSOL simulations based on time-dependent Ginzburg-Landau equations and avoiding any deeply mathematical derivations. It includes numerous worked examples and problem sets with tips and solutions. The second part of the book is more conventional in nature, providing detailed derivations of the basic equations from first principles. This part covers more advanced topics, including the BCS-Gor'kov-Eliashberg approach to equilibrium properties of superconductors, the derivation of kinetic equations for nonequilibrium superconductors, and the derivation of time-dependent Ginzburg–Landau equations, used as the basis for COMSOL modeling in the first part. Supported throughout by an extensive library of COMSOL Multiphysics animations, the book serves as a uniquely accessible introduction to the field for engineers and others with a less rigorous background in physics and mathematics. However, it also features more detailed mathematical background for those wishing to delve further into the subject.**

# Control of Fluid Flow

Springer Science & Business Media **This monograph presents the state of the art of theory and applications in fluid flow control, assembling contributions by leading experts in the field. The book covers a wide range of recent topics including vortex based control algorithms, incompressible turbulent boundary layers, aerodynamic flow control, control of mixing and reactive flow processes or nonlinear modeling and control of combustion dynamics.**

# An Account of the Receipts and Expenditures of the United States

## Natural Laminar Flow and Laminar Flow Control

Springer Science & Business Media **Research on laminar flow and its transition to turbulent flow has been an important part of fluid dynamics research during the last sixty years. Since transition impacts, in some way, every aspect of aircraft performance, this emphasis is not only understandable but should continue well into the future. The delay of transition through the use of a favorable pressure gradient by proper body shaping (natural laminar flow) or the use of a small amount of suction (laminar flow control) was recognized even in the early 1930s and rapidly became the foundation of much of the laminar flow research in the U.S. and abroad. As one would expect, there have been many approaches, both theoretical and experimental, employed to achieve the substantial progress made to date. Boundary layer stability theories have been formu lated and calibrated by a good deal of wind tunnel and flight experiments. New laminar now airfoils and wings have been designed and many have been employed in aircraft designs. While the early research was, of necessity, concerned with the design of subsonic aircraft interest has steadily moved to higher speeds including those appropriate to planetary entry. Clearly, there have been substantial advances in our understanding of transition physics and in the development and application of transition prediction methodolo gies to the design of aircraft.**

# Directed Information Measures in Neuroscience

Springer **Analysis of information transfer has found rapid adoption in neuroscience, where a highly dynamic transfer of information continuously runs on top of the brain's slowly-changing anatomical connectivity. Measuring such transfer is crucial to understanding how flexible information routing and processing give rise to higher cognitive function. Directed Information Measures in Neuroscience reviews recent developments of concepts and tools for measuring information transfer, their application to neurophysiological recordings and analysis of interactions. Written by the most active researchers in the field the book discusses the state of the art, future prospects and challenges on the way to an efficient assessment of neuronal information transfer. Highlights include the theoretical quantification and practical estimation of information transfer, description of transfer locally in space and time, multivariate directed measures, information decomposition among a set of stimulus/responses variables and the relation between interventional and observational causality. Applications to neural data sets and pointers to open source software highlight the usefulness of these measures in experimental neuroscience. With state-of-the-art mathematical developments, computational techniques and applications to**

**real data sets, this book will be of benefit to all graduate students and researchers interested in detecting and understanding the information transfer between components of complex systems.**

# Spawning and Life History Information for North Atlantic Cod Stocks

# Ultrasound

# The Requisites

Elsevier Health Sciences **This best-selling volume in The Requisites Series provides a comprehensive introduction to timely ultrasound concepts, ensuring quick access to all the essential tools for the effective practice of ultrasonography. Comprehensive yet concise, Ultrasound covers everything from basic principles to advanced state-of-the-art techniques. This title perfectly fulfills the career-long learning, maintenance of competence, reference, and review needs of residents, fellows, and practicing physicians.**

# Handbook of Stress and the Brain Part 2: Stress: Integrative and Clinical Aspects

Elsevier **The Handbook of Stress and the Brain focuses on the impact of stressful events on the functioning of the central nervous system; how stress affects molecular and cellular processes in the brain, and in turn, how these brain processes determine our perception of and reactivity to, stressful challenges - acutely and in the long-run. Written for a broad scientific audience, the Handbook comprehensively reviews key principles and facts to provide a clear overview of the interdisciplinary field of stress. The work aims to bring together the disciplines of neurobiology, physiology, immunology, psychology and psychiatry, to provide a reference source for both the non-clinical and clinical expert, as well as serving as an introductory text for novices in this field of scientific inquiry. Part 1 addresses basic aspects of the neurobiology of the stress response including the involvement of neuropeptide, neuroendocrine and neurotransmitter systems and its corollaries regarding gene expression and behavioural processes such as cognition, motivation and emotionality. Part 2 treats the complexity of short-term and long-term regulation of stress responsivity, the role of stress in psychiatric disorders as based on both preclinical and clinical evidence, and the current status with regard to new therapeutic strategies targetting stress-related disorders. * Provides an overview of recent advances made in stress research * Includes timely discussion of stress and its effect on the immune system * Presents novel treatment strategies targeting brain processes involved in stress processing and coping mechanisms.**

# Silicon Analog Components

# Device Design, Process Integration, Characterization, and Reliability

Springer **This book covers modern analog components, their characteristics, and interactions with process parameters. It serves as a comprehensive guide, addressing both the theoretical and practical aspects of modern silicon devices and the relationship between their electrical properties and processing conditions. Based on the authors' extensive experience in the development of analog devices, this book is intended for engineers and scientists in semiconductor research, development and manufacturing. The problems at the end of each chapter and the numerous charts, figures and tables also make it appropriate for use as a text in graduate and advanced undergraduate courses in electrical engineering and materials science. Enables engineers to understand analog device physics, and discusses important relations between process integration, device design, component characteristics, and reliability; Describes in step-by-step fashion the components that are used in analog designs, the particular characteristics of analog components, while comparing them to digital applications; Explains the second-order effects in analog devices, and trade-offs between these effects when designing components and developing an integrated process for their manufacturing.**

# Export Growth in Latin America

# Policies and Performance

Lynne Rienner Publishers **Although Latin American and Caribbean countries have assigned a high priority to increasing exports, export performance in most cases remains deficient. This work investigates why this is so, identifying the policies that determine successes and failures in Brazil, Chile, Colombia and Mexico.**

# Articular Cartilage of the Knee

# Health, Disease and Therapy

Springer **Covering both pediatric and adult populations, this comprehensive text covers the diverse topics related to the health, disease and therapy of articular cartilage of the knee, from basic principles to future directions for research. This vast array of information is arranged into eight sections, encompassing a number of relevant disciplines and covering, in turn, normal articular cartilage, aging and degeneration, evaluation and assessment, non-surgical approaches, surgical approaches, qualitative and quantitative assessment of repair, research into cartilage repair and engineering, and future prospects for therapy. Each chapter is amply referenced and self-contained for independent study and reference. Scoring systems for knee cartilage assessment are included in four appendices as well, rounding out the presentation. A multidisciplinary collection of basic, translational and clinical material, Articular Cartilage of the Knee is a singular resource for orthopedic surgeons, rheumatologists, pathologists and the broad spectrum of professionals working with articular cartilage.**

# Electromigration in ULSI Interconnections

World Scientific **Electromigration in ULSI Interconnections provides a comprehensive description of the electromigration in integrated circuits. It is intended for both beginner and advanced readers on electromigration in ULSI interconnections. It begins with the basic knowledge required for a detailed study on electromigration, and examines the various interconnected systems and their evolution employed in integrated circuit technology. The subsequent chapters provide a detailed description of the physics of electromigration in both Al- and Cu-based Interconnections, in the form of theoretical, experimental and numerical modeling studies. The differences in the electromigration of Al- and Cu-based interconnections and the corresponding underlying physical mechanisms for these differences are explained. The test structures, testing methodology, failure analysis methodology and statistical analysis of the test data for the experimental studies on electromigration are presented in a concise and rigorous manner. Methods of numerical modeling for the interconnect electromigration and their applications to the understanding of electromigration physics are described in detail with the aspects of material properties, interconnection design, and interconnect process parameters on the electromigration performances of**

**interconnects in ULSI further elaborated upon. Finally, the extension of the studies to narrow interconnections is introduced, and future challenges on the study of electromigration are outlined and discussed.**

# Internet Auctions

Now Publishers Inc **Internet Auctions reviews recent empirical and theoretical works on internet auctions with a focus on internet auction design, formats, and features that are currently debated in the marketing literature.**

# Process Control

## Modeling, Design, and Simulation

Prentice Hall Professional **Process Control: Modeling, Design, and Simulation is the first complete introduction to process control that fully integrates software tools-helping you master critical techniques hands-on, using MATLAB-based computer simulations. Author B. Wayne Bequette includes process control diagrams, dynamic modeling, feedback control, frequency response analysis techniques, control loop tuning, and start-to-finish chemical process control case studies.**

# Characterization of Solid Materials and Heterogeneous Catalysts

## From Structure to Surface Reactivity

John Wiley & Sons

# Mangrove Ecosystems of Asia

## Status, Challenges and Management Strategies

Springer Science & Business Media **The book provides an up-to-date account of mangrove forests from Asia, together with restoration techniques, and the management requirements of these ecosystems to ensure their sustainability and conservation. All aspects of mangroves and their conservation are critically re-examined. The book is divided into three sections presenting the distribution and status of mangrove ecosystems in Asia, the challenges they are facing, their issues and opportunities, and the management strategies for their conservation.**

# Embedded Librarians

## Moving Beyond One-shot Instruction

Assoc of Cllge & Rsrch Libr **Showcases strategies for successfully embedding librarians and library services across higher education. Chapters feature case studies and reports on projects from a wide variety of colleges and universities. --from publisher description.**

# Pistons and Engine Testing

**The ever-increasing demands placed on combustion engines are just as great when it comes to this centerpiece-the piston. Achieving less weight or friction, or even greater wear resistance, requires in-depth knowledge of the processes taking place inside the engine, suitable materials, and appropriate design and manufacturing processes for pistons, including the necessary testing measures. It is no longer possible for professionals in automotive engineering to manage without specific expertise of this kind, whether they work in the field of design, development, testing, or maintenance. This technical book answers these questions in detail and in a very clear and comprehensible way. In this second, revised edition, every chapter has been revised and expanded. The chapter on "Engine testing", for example, now include extensive results in the area of friction power loss measurement and lube oil consumption measurement. Contents Piston function, requirements, and types Design guidelines Simulation of the operational strength using FEA Materials Cooling Component testing Engine testing The target groups Engineers in the field of engine development and maintenance Lecturers and students in the areas of mechanical engineering, engine technology, and vehicle construction Anyone interested in technology Publisher MAHLE is a leading international development partner for the automotive industry. With its products for combustion engines and their peripherals as well as for electric vehicles, the group addresses all the crucial issues connected to the powertrain and air conditioning technology: from engine systems and components to filtration to thermal management.**

# Hydrogen Storage Materials

Trans Tech Publications Ltd **Materials Science Forum Vol. 31**