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Sci-Tech Book News Reviews

Ellis Mount

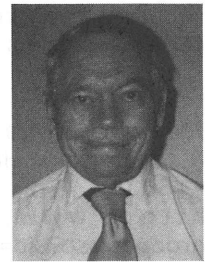
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GB841 2003-270745 90-5809-362-X

Water resources management in arid regions (WaRMAR); proceedings; 4v.

International Conference on Water Resources Management in Arid Regions (2002: Kuwait) Ed. by V.P. Singh et al.

A.A. Balkema, ©2002 2170 p. \$595.00

Gathered in Kuwait in March 2002, an international roster of experts in the forefront of hydrologic, groundwater, environmental, and water resources research discussed matters of vital concern to arid or semi-arid countries, as well as to forward-looking countries where water is plentiful now but wise management is understood to be essential for the future. Four attractively prepared volumes—each with a brief author index but, inexplicably, lacking subject indexes—are devoted, respectively, to surface water hydrology, water resources development and management, environmental and groundwater pollution, and groundwater hydrology. Within these subject areas, 25 main topics encompass virtually all facets of water resources management in arid regions, each topic addressed with several contributions, for a total of about 150 papers. Coverage includes climate change, rainfall simulators and analysis of precipitation, evaporation and evapotranspiration, infiltration, runoff modeling, transport of sediment and agricultural chemicals, flood and drought frequency analysis, stochastic analysis, and hydrologic applications. The set is distributed in the US by Ashgate.

GC9 2002-192707 0-7172-5946-3

Interdisciplinary encyclopedia of marine sciences; 3v.

Title main entry. Ed. by James W. Nybakken et al.

Grolier, ©2003 1363 p. \$349.00

Covering topics in ecology, technology, and economics, as well as all the traditional areas of academic oceanography (biological, chemical, geological, and physical), this three-volume encyclopedia is intended by Nybakken (Moss Landing Marine Laboratories) to stimulate interest about the marine sciences among lay readers. Nearly 800 entries, from *abyssal gigantism* (a rare phenomenon in deep-ocean waters in which certain species are larger than their shallow-water cousins) to *zooxanthellae* (a single-celled algae), explain scientific terms, describe ocean phenomenon and inhabitants, and present details on selected scientists and other historical figures. Each entry is accompanied by a brief "further reading" section.

PRODUCTION, INDUSTRY, COMMERCE

HD1690 2003-273000 90-5809-541-X

Dams and dikes in development; proceedings.

Title main entry. Ed. by Hans van Duivendijk et al.

A.A. Balkema, ©2003 88 p. \$54.00 (pa)

Eight papers explain why dams and dikes are needed, why in some cases and places people are against them, and how to solve such opposition. They were delivered to a symposium marking World Water Day, March 2001, by people from industries or Dutch agencies with an interest in building dams. The topics include living with dams, the role of consultants, and the changing role of contractors. There is no index.

HD9502 2003-009703 0-8330-3416-2

State level changes in energy intensity and their national implications.

Bernstein, Mark et al.

RAND, ©2003 98 p. \$20.00 (pa)

This report examines changes in energy intensity and evaluates its contribution to nationwide energy efficiency. The authors examine changes in energy intensity from 1977 through 1999 across the 48 contiguous states and in each state's residential, commercial, industrial, and transportation sectors. They then identify factors contributing to the variations.

HD9565 2003-013082 0-8330-3436-7

New forces at work in refining; industry views of critical business and operations trends.

Peterson, D.J. and Sergei Mahnovski.

RAND, ©2003 115 p. \$24.00 (pa)

Based on discussions with representatives of 40 refining firms and related businesses, this report commissioned by the U.S. Department of Energy offers insight into how the U.S. refinery industry views its future. The report gives an overview of expected market, management and regulatory trends, providing a reference for policymakers, industry executives, and stakeholders. Coverage includes refinery operations and technologies, the regulatory and financial environments, and the U.S. refining capacity base.

HD9711 1-56347-607-X

Economic principles applied to space industry decisions.

Greenberg, Joel S. (Progress in astronautics and aeronautics; v.201)

A.I.A.A., ©2003 486 p. \$94.95

Greenberg (president, Princeton Synergetics, Inc.), conceiving the purpose of his text to be largely tutorial, presents a number of economic evaluation applications for decisions related to space technology. Decision processes relating to technology development, product design, capital expenditures, and investments are modeled, often in reference to the concepts of uncertainty and risk.

KF1298 2003-267504 1-58576-040-4

The natural resource damage assessment deskbook; a legal and technical analysis.

Lee, Valerie Ann et al.

Environmental Law Inst., ©2002 577 p.

\$89.95 (pa)

Natural resource damage assessment is used to determine the restitution a polluter must pay for oil spills and similar incidents. Lee and Bridgen (both of the consulting firm Environment International Ltd.) survey the law, science, and economics associated with natural resource damage assessment practices in the United States. They provide overviews of the legal framework resulting from federal statutes and regulations and examine recent case law. Techniques in injury determination are described and restoration planning and implementation is discussed.

KF3821 0-7355-3864-6

2003 Medicare handbook.

Stein, Judith A. and Alfred J. Chiplin.

Aspen Publishers, Inc., ©2003 538 p. \$159.00 (pa)

This guide for attorneys outlines coverage criteria and advocacy strategies for each service offered under the Medicare umbrella, such as hospital services, skilled nursing facilities, home health care, and durable medical equipment. Staff from the Center for Medicare Advocacy

review relevant Medicare law and regulations, case law developments, agency manuals, and other program implementing materials. The 2003 edition explains changes caused by the 2002 bioterrorism bill and adds a section on appeal provisions.

KF5692 1-58576-055-2

Open ground; effective local strategies for protecting natural resources.

Nolon, John R. (Ground suite)
Environmental Law Inst., ©2003 606 p. \$39.95 (pa)
Along with two other books on the beginnings and general contours of local environmental law and local law's role in promoting "smart growth," this is one of a trio of volumes edited or penned by Nolon (law, Pace U. School of Law) that describe the role of local governments in land use and conservation in the U.S. federal system. The sole author of this volume, Nolon examines the use of local law and land use practices in resource conservation. Chapters cover protection using traditional land use regulation, innovative natural resource regulations, strategic acquisition of open lands, balancing conservation and development, and legal authority for local action and legal challenges.

EDUCATION

L901 0-7689-0813-2

Graduate programs in the physical sciences, mathematics, agricultural sciences, the environment & natural resources, book 4; 2003, 37th ed.

Title main entry.
Peterson's, ©2003 1027 p. \$49.95
This is the fourth book in a six-volume set which is cited in *Guide to Reference Books as Peterson's Annual Guides to Graduate Study* and notes "continues *The Annual Guides to Graduate Study* (title varies)." Entries provide basic data about graduate programs in capsule form and include information on names and contacts, degrees offered, professional accreditation, part-time and evening/weekend programs, distance learning degrees, faculty, and students, as well as entrance requirements, expenses, financial support, and faculty research. A brief introduction to the directory overviews the admissions process and options for financial aid.

SCIENCE (GENERAL)

Q121 2002-34327 0-471-36331-6

Van Nostrand's concise encyclopedia of science.

Title main entry. Ed. by Christopher De Pree and Alan Axelrod.
John Wiley & Sons, ©2003 821 p. \$40.00
Drawn from the contents of the 2002 ninth edition of the larger, two-volume encyclopedia, this condensed volume was undertaken to make available a general reference for a less technical audience. Editors DePree (physics and astronomy, Agnes College, Decatur, GA) and historian Axelrod reduced the larger reference by 75%, eliminating some entries (a great proportion of those related to materials sciences and information sciences) and abridging others. Some 5,000 alphabetically arranged entries range in length from a sentence or two to several paragraphs. Coverage encompasses terms related to all scientific fields, with an emphasis on those that pertain most readily to a general readership. B&w drawings and photos support the text. In future editions an index or listing of terms by broad subject area would be useful as would a bibliography, but the reference generally serves its purpose as a first stop for non-scientists with a paper to write or an article to understand.

Q121 0-471-33230-5

Van Nostrand's scientific encyclopedia, 9th ed; 2v.

Title main entry. Ed. by Glenn D. Considine and Peter H. Kulik.
John Wiley & Sons, ©2002 3898 p. \$350.00
Earlier incarnations of *Van Nostrand's* (first pub. in 1938) are cited in *Guide to Reference Books*, and *Books for College Libraries*. This weighty two-volume set, with 8,000 entries and 4,400 illustrations, covers animals, plants, biosciences, chemistry, earth and atmosphere, energy sources and power technology, mathematics and information sciences, materials science and engineering,

medicine, physics, and space. *Van Nostrand's* is suitable for a wide range of readers, because explanations progress from plain language to increased complexity and use of technical terms. Since the last edition (1994) there are new or entirely rewritten articles, or families of articles, on genetics, bioprocess engineering, space sciences, artificial intelligence, medicine, climate ageing, and computer sciences. This edition's additional reading sections at the ends of most entries now feature websites. Large entries on, for example, the Internet or AI, include time lines and glossaries. Finally, small scientist biographies have been added. Contributors, primarily from the US, come from both industry and academe.

Q123 0-19-860757-1

A dictionary of science, 4th ed.

Title main entry.
Oxford U. Press, ©2003 858 p. \$16.95 (pa)
This dictionary contains more than 9,000 cross-referenced entries covering all aspects of science including biology, human biology, chemistry, physics, earth sciences, and astronomy. The updated 4th edition includes appendices on the periodic table, the solar system, geological time scale, and animal and plant classification. Other features include short biographies of leading scientists, illustrated features on topics such as the Solar System and genetically-modified organisms, and chronologies of the development of plastics, electronics, and cell biology. The reference may be of use to writers, students, and general readers.

Q335 0-7695-2038-3

Tools with artificial intelligence (ICTAI 2003); proceedings. (CD-ROM included)

International Conference on Tools with Artificial Intelligence (15th: 2003: Sacramento, CA)
Computer Society Press, ©2003 651 p. \$248.00 (pa)
Papers from a November 2003 conference focusing on software engineering with computational intelligence, plus abstracts of four keynote speeches, are collected in this book/CD-ROM conference proceedings. Themes include bioinformatics, software engineering, artificial intelligence in medicine, SAT, data mining, evolutionary computing, planning and scheduling, knowledge management and sharing, NLP and speech understanding, and machine learning. Other topics are agents, vision and image processing, CSP, fuzzy logic, intelligent information retrieval, knowledge representation, and computer visions and pattern recognition. There is no subject index.

Q341 2003-044611 1-4020-1204-7

The Turing test; the elusive standard of artificial intelligence.

Title main entry. Ed. by James H. Moor. (Studies in cognitive systems; v.30)
Kluwer Academic Pubs., ©2003 445 p. \$99.00
In a famous 1950 article, British mathematician and philosopher Alan Turing proclaimed that properly designed and educated computers could exhibit intelligent behavior indistinguishable from that of humans, and predicted that in half a century average people would not be able to tell whether they were talking to a human or a machine. Here, 14 articles reprinted from 2000 and 2001 issues of *Minds and Machines* and *Journal of Logic, Language and Information*, question whether the criteria is valid, if so why it is far from being met, and if not what other criteria for artificial intelligence might be. They are not indexed.

MATH, COMPUTERS

QA76 2002-044843 1-57356-521-0

Milestones in computer science and information technology.

Reilly, Edwin D.
Oryx Pr., ©2003 380 p. \$70.00
Shorter than encyclopedia articles but longer than those of a dictionary, 671 entries describe some act, company, machine, or other entity that advanced the development of computing or—in the case of theoretical and technological oriented topics—was an essential prelude to a later development. Each ends with a list of additional reading. People are not considered. The reference could be useful to high school and college students, and general readers. Reilly has written widely about science and technology.

QA76.41 2003-110435 0-7695-2028-6
Computer graphics and applications; proceedings.
 Pacific Conference on Computer Graphics and Applications (11th: 2003: Canmore, Alb., Canada). Ed. by Jon Rokne et al.
Computer Society Press, ©2003 514 p. \$209.00 (pa)
 Thirty-five papers and 24 short presentations from the October 2003 conference that explore new problems, solutions, and technologies for computer graphics. The researchers describe techniques for geometric modeling, rendering, morphing, 3D acquisition, computer animation, and representing volume and mesh. Specific topics include lightweight face relighting, illustration watermarks for vector graphics, dynamic sculpting and deformation of point set surfaces, shadow generation using discretized shadow volume in angular coordinates, a hierarchical least squares conformal map, and a state machine for real time cutting of tetrahedral meshes. No subject index is provided.

QA76.5 2002-156238 1-931777-52-7
Computing information technology; the human side.
 Title main entry. Ed. by Steven R. Gordon.
IRM Press, ©2003 308 p. \$59.95 (pa)
 Gordon (information systems and technology, Babson College) presents the latest research on the human side of computer information technology, encompassing Web site user interface design, interface design and usability, end user computing, information technology and the organization, and the human side in IT research. Topics discussed include using usability factors to predict the e-commerce user experience, and conditions and effects of user systems development. Material originated at the May 2002 IRMA International Conference.

QA76.76 2003-012210 0-321-16882-8
.NET; a complete development cycle. (CD-ROM included)
 Lenz, Gunther and Thomas Moeller.
Addison-Wesley, ©2004 553 p. \$54.99
 Central to this guide on combining the software-engineering practices of the Unified Process with the .NET architecture is a case study developing a working imaging application. After an overview of the principles of software engineering and an introduction to Microsoft technologies such as Visual C#, the authors lead readers through the complete life cycle of a .NET development project. The CD-ROM contains source code, tools, and examples. Lenz is an expert in the design and implementation of optimized 2D image-processing algorithms. Moeller is a computer programmer and engineer.

QA76.76 2003-050668 0-201-70945-7
Software quality assurance; from theory to implementation.
 Galin, Daniel.
Addison-Wesley, ©2004 590 p. \$70.00
 Providing a broad overview of Software Quality Assurance (SQA), this textbook emphasizes practical questions of SQA application, operation, organization, and control. Specific sections focus on topics like pre-project component, the project life cycle, infrastructure components, management components, standards and assessment, and organizational aspects of quality assurance. Intended for students, trainees, and professionals in software development and maintenance, the book covers the ISO 9000-3 requirements and a substantial portion of the knowledge required for the Certified Software Quality Engineer exam. Galin teaches information system studies at Ruppig Academic Center.

QA76.9 2002-153135 0-471-26716-3
Mastering Web services security.
 Title main entry. Ed. by Bret Hartman et al.
John Wiley & Sons, ©2003 436 p. \$40.00 (pa)
 This guide examines each of the security technologies used with Web services, paying special attention to their compatibility with XML and SOAP. It offers detailed instructions for building secure web services, explaining the theory behind security strategies and illustrating its main principles with two case studies. The authors are security architects with private companies.

QA76.9 2003-051438 0-13-100851-X

.NET security and cryptography.
 Thorsteinson, Peter and G. Gnana Arun Ganesh. (The integrated .Net series)
Prentice Hall PTR, ©2004 466 p. \$49.99 (pa)
 Written specifically for programmers interested in .NET security and cryptography, this book takes a blended approach, covering fundamental cryptography theory as well as cryptographic and security programming on the .NET platform. Thorsteinson, a systems analyst, and Ganesh, a developer and .NET consultant, provide examples in both C# and Visual basic .NET and offer detailed commentary on how the code works.

QA76.9 2003-46280 0-8493-1241-8
Simulation modeling handbook; a practical approach.
 Chung, Christopher A. (Industrial and manufacturing engineering series)
CRC Pr., ©2004 — p. \$149.95
 Focusing on practical needs rather than theory, Chung (industrial engineering, University of Houston) offers information and step-by-step procedures for conducting simulation studies, addressing every phase of performing simulations, from formulating the problem to presenting results. Sample simulation project support material is provided, including checklists, data-collection forms, and project reports. While treatment is independent of any particular simulation software, the pros and cons of major software packages and programming languages are discussed.

QA76.9 2003-51462 1-58488-344-8
Statistical data mining and knowledge discovery.
 Title main entry. Ed. by Hamparsum Bozdogan.
Chapman & Hall / CRC, ©2004 588 p. \$99.95
 Bozdogan (Department of Statistics, University of Tennessee) brings together selected papers from a June 2002 conference reporting on recent developments in data analysis techniques for data mining and knowledge extraction. Contributors in statistics, business, engineering, and computer science present novel approaches and models and relate their experiences in using data mining techniques in areas such as market segmentation, customer profiling, image and speech analysis, and fraud detection.

QA273 90-6764-386-6
Time series, fuzzy analysis and miscellaneous topics; v.3.
 Puri, Madan Lal. Ed by Peter G. Hall et al. (Madan Lal Puri; Selected collected works, 3v.)
VSP Publications, ©2003 773 p. \$327.00
 Professor Madan Lal Puri's published research works number some 3,000 pages. This book, part of a three-volume set on Puri's work, contains 48 of his research papers on time series and related topics, fuzzy set theory and related topics, and miscellaneous topics. Some subjects addressed in this volume include rank tests for time series analysis, a nonparametric approach for non-Gaussian vector stationary processes, differentials of fuzzy functions, a new semigroup technique in Poisson approximation, and the fundamental bordered matrix of linear estimation and the Duffin-Morley general linear electromechanical systems. A preface to this volume offers a biographical sketch of Puri, and each volume contains a final section consisting of the contents of the other two volumes, as well as a complete list of Puri's publications.

QA329 2003-42878 3-11-017551-7
Nonlinear integral operators and applications.
 Bardaro, Carlo et al. (De Gruyter series in nonlinear analysis and applications; 9)
Walter de Gruyter, ©2003 201 p. \$79.95
 Written for advanced students and researchers, this book presents fundamental theoretical results on approximation theory by means of nonlinear integral operators in function spaces. Fundamentals of approximate identity for kernels of nonlinear operators and a general concept of modulus of continuity are developed, and applications to nonlinear summability, nonlinear integral equations, and nonlinear sampling theory are given. Background in the theory of measurement and functional analysis is required. Author information is not given.

QA371 0-19-850654-6

Numerical methods for delay differential equations.

Bellen, Alfredo and Marino Zennaro. (Numerical mathematics and scientific computation)

Oxford U. Press, ©2003 395 p. \$100.00

For mathematicians, scientists, and engineers interested in the theoretical aspects of numerical methods for ordinary and delay differential equations, or are just looking for a suitable technique to simulate a model by numerically solving some specific equations, Bellen and Zennaro (both mathematical science, U. of Trieste, Italy) examine initial value problems for Bolterra functional differential equations characterized by the presence of discretely distributed delays, possibly of neutral type, usually called delay differential equations. They describe, analyze, unify, and when necessary extend and improve the various approaches and techniques that appear in the literature.

TECHNOLOGY (GENERAL)

T55 92-1-139090-7

Recommendations on the transport of dangerous goods; model regulations, 13th ed.; 2v.

Title main entry.

United Nations Publications, ©2003 — p. \$130.00 (pa)

Considering technical parameters, the advent of new substances and materials, and the exigencies of modern transport systems; the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods have drawn recommendations and model regulations on hazardous good transport. After describing the principles underlying the recommendations, model regulations are presented related to classification, dangerous goods listing and limited quantities exceptions, packing and tank provisions, consignment procedures, construction and testing requirements for packages and containers, and provisions concerning transport operations.

T57 2002-191056 0-471-89942-9

Geometric programming for computer-aided design.

Paoluzzi, Alberto.

John Wiley & Sons, ©2003 776 p. \$110.00

Paoluzzi (Università Roma Tre, Italy) presents PLaSM, a design environment for graphics, modeling, and animation that supports rapid prototyping but does not deprive the user of control over underlying geometric programming. He introduces functional programming with PLaSM, explains basic graphics programming techniques, and provides a tutorial on basic and advanced geometric modeling. Examples are given from graphics, mathematics, engineering, architecture, and the arts.

T58 2003-041798 0-8493-1595-6

IS management handbook, 8th ed.

Title main entry. Ed. by Carol V. Brown and Heikki Topi. Auerbach Pub., ©2003 922 p. \$99.95

Practicing, consulting, and research information technology managers offer guidelines, checklists, and other tools to help their practitioners in organizations negotiate the environment the industry currently operates within. The 70 studies cover achieving strategic alignment, designing and operating an enterprise infrastructure, providing application solutions, leveraging electronic business opportunities, and facilitating knowledge work. Among specific topics are leadership roles, data warehousing, systems development approaches, security and privacy issues, and supporting remote workers. Distributed in the US by CRC.

T58 2003-40623 1-931777-74-8

Managing the human side of information technology; challenges and solutions. (reprint, 2002)

Title main entry. Ed. by Edward J. Szewczak and Coral Snodgrass.

IRM Press, ©2003 351 p. \$59.95 (pa)

This is a paperback edition of a 2002 work. Scholars from fields including business management and computer information systems contribute studies of the impact of information technology on individual behavior, leadership, cooperation, communication, groups, and culture within

organizations. Szewczak and Snodgrass (both Canisius College) edit 13 chapters addressing such topics as the risks of IT-enabled jobs, e-mail as a driver for changing the communication paradigm, and an ethnographic perspective on the characteristics of IT professionals.

T59 2002-44604 0-471-02053-2

Handbook of human systems integration.

Title main entry. Ed. by Harold R. Booher. (Wiley series in systems engineering and management)

John Wiley & Sons, ©2003 964 p. \$120.00

Human systems integration (HSI) is a systems engineering effort employed across the life-cycle process for the engineering of systems to ensure the incorporation of such critical human factors as usability, reliability, manning, training, and safety within the deployed system. The 23 chapters in this collection characterize the system acquisition culture, describes methods for the analysis and assessment of systems performance and integration issues, and present example HSI system applications. Topics include simulation-based acquisition, a user-centered systems engineering framework, integrating training into the design and operation of complex systems, system safety principles, cost-benefit analysis for HSI, and HSI in army systems acquisition.

ENGINEERING (GENERAL, CIVIL)

TA157 0-8379-5762-1

Who's who in science and engineering; 2003-2004, 7th ed.

Title main entry.

Marquis Who's Who, Inc., ©2003 1773 p. \$335.00

A previous edition of this standard reference is cited in *Guide to Reference Books*. Here's where to look to identify achievers throughout the scientific community, to glean some information about the purpose and progress of their work and accomplishments, and to find a network of people with similar or related interests. Coverage includes the biographies of 30,000-plus scientists, doctors, and engineers (most from the U.S. but some from other nations) whose careers span about 110 specialties such as robotics, genetics, information science, aerospace, civil, environmental and optical engineering, medical specialties, and physical and life sciences. While the bulk of the entries concern the technical and physical sciences, some from the social sciences are included as well. Where applicable, data includes titles or brief descriptions of patents, patents pending, inventions, invention disclosures, discoveries, designs, pioneering developments, and current research interests. Geographical and professional indices group individuals by country, state, and city, as well as by field and specialty.

TA418 2003-265944 1-57590-127-7

NACE corrosion engineer's reference book, 3d ed.

Title main entry. Ed. by Robert Baboian and R.S. Treseder. Natl/Assn/Corrosion/Engrs, ©2002 448 p. \$99.00

This reference provides a tool for corrosion technologists, including numerous tables and charts to assist in the evaluation of corrosion tests and data. All of the sections in the third edition have been updated and expanded, most significantly the sections on conversion tables, corrosion testing, atmospheric corrosion, cathodic protection, protective coatings, and standards. Additional contents include dew point of moist air, electrochemical series, standard rating chart for pits, corrosion of structure steel in various environments, seawater and cooling water corrosion, alloys for nitric acid and sulfuric acid service, duplex stainless steels, and a glossary of corrosion terms.

TA460 2003-052197 0-87170-778-0

Handbook of workability and process design.

Title main entry. Ed. by George E. Dieter et al.

ASM International, ©2003 414 p. \$175.00

This handbook is an update and expansion in scope of the book *Workability Testing Techniques*, which was published by the American Society for Metals in 1984. The present book reflects the use of FEM analysis for process design. It provides practical workability testing techniques that can be used by inexperienced practitioners. Coverage encompasses bulk workability

of metals, the evolution of microstructure during hot working, cold upset testing, hot compression testing, torsion testing to assess bulk workability, and thermomechanical testing. Other topics include workability in forging, modeling techniques in forming processes, and optimal design of thermomechanical processes. Editor information is not given.

TA658 1-86058-364-4

Seismic design for engineering plant.

Title main entry. Ed. by C. Ealing and J. MacFarlane. *Professional Engineering Pub.*, ©2003 199 p. \$169.00

Focusing on nuclear chemical plants, this guide describes and assesses seismic requirements for different types of structures. International contributors from the nuclear, academic, governmental, and engineering consultancy sectors explore recent challenges and developments in the field, including vessel seismic design, nuclear safety requirements for traveling cranes, and modification of piping systems. Material is based on papers from a November 2001 symposium. Ealing is former chairman of the Institution of Mechanical Engineers Nuclear Power Committee. MacFarlane is a Chartered Mechanical and Chartered civil Engineer. The book is distributed in the US by ASME.

TA660 2003-52685 1-4020-1381-7

Recent advances in structural joints and repairs for composite materials.

Title main entry. Ed. by Liyong Tong and Costas Soutis. *Kluwer Academic Pubs.*, ©2003 254 p. \$118.00

Joints found in components or structures incur a weight burden, are a source of failure, cause manufacturing problems, and unfortunately are unavoidable in most structures including aircraft, spacecraft, ships, offshore platforms, buildings, bridges, and automobiles. In this volume, seven contributions written by aeronautics, maritime, mechanical, metals, and materials engineers provide a current account of adhesively bonded and mechanically fastened joints and repairs. Chapters address topics including stress analysis and failure assessment of lap joints; stresses in mechanical fastened joints; strength analysis of adhesively bonded repairs; and design and analysis of bolted and riveted joints in fibrous composite structures. Of likely utility for engineers and researchers involved with the joining and repair of composite structures. Lacks a subject index.

TA705 90-5809-604-1

Deformation characteristics of geomaterials; proceedings. (CD-ROM included)

International Symposium on Deformation Characteristics of Geomaterials (3rd: 2003: Lyon, France). Ed. by H. Di Benedetto et al.

A.A. Balkema, ©2003 1425 p. \$339.00

Papers from a September 2003 symposium describe recent experimental investigations in deformation properties, analyze results from laboratory, in situ, and field observations, discuss behavior characterization and modeling, and present case histories. Emphasis is on investigations in anisotropy and non-linearity, effects of stress-strain-time history, ageing and time effects, and cyclic and dynamic behavior. Many papers apply advanced geotechnical testing to engineering problems and to ways of synthesizing information from a range of sources in site characterization studies. A CD-ROM is included. There is no subject index.

TA1637 2003-54262 0-8194-4720-X

Hands-on morphological image processing.

Dougherty, Edward R. and Roberto A. Lotufo. (Tutorial texts in optical engineering; v.TT59) *SPIE*, ©2003 272 p. \$56.00 (pa)

Dougherty (electrical engineering, Texas A&M University) and Lotufo (Department of Computer Engineering and Industrial Automation, University of Campinas, Brazil) show how to analyze problems that can be solved by morphological image processing and how to develop successful algorithms based on the analysis. They show how morphological techniques can be combined to produce effective algorithms. Readers can download a toolbox of techniques and images from a Web site to process images according to examples in the text.

TA1637 2003-46213 0-8493-1376-7

Software engineering for image processing systems.

Laplante, Phillip A. (Image processing series) *CRC Pr.*, ©2004 220 p. \$89.95

Laplante (software engineering, Pennsylvania State U.) provides a modern engineering framework for the specification, design, coding, testing, and maintenance of image processing software and systems. The text is written for individuals working in the image processing systems industry who have little or no formal training in software engineering, but may find themselves working on a software project team and would benefit from a better understanding of software and software engineering. No prior experience in programming in any particular language is required, nor a mathematical background beyond calculus.

HYDRAULIC ENGINEERING

TC330 2003-056051 0-7844-0689-8

Advances in coastal structure design.

Title main entry. Ed. by Ram K. Mohan et al. *Am. Society of Civil Engineers*, ©2003 220 p. \$55.00 (pa)

Correcting and sometime neutralizing natural processes in order to design coastlines more amenable to commerce, as well as designing built structures that participate in the interaction between sea and land, are the concerns here. Practicing engineers discuss such aspects as international perspectives on coastal structure uses, numerical and physical modeling, selecting a design wave height for coastal engineering, and groins and jetties.

TC401 2003-57744 0-7844-0694-4

Risk-based decisionmaking in water resources X; proceedings.

UEF Conference on Risk-Based Decisionmaking in Water Resources (10th: 2002: Santa Barbara, CA) Ed. by Y.Y. Haimes et al.

Am. Society of Civil Engineers, ©2003 229 p. \$79.00 (pa)

The theme of the United Engineering Foundation conference was terrorism, which it considered from such perspectives as risks to and vulnerabilities of the water resources system in The Homeland (the former USA), methodological aspects of risk of extreme events, interconnectedness and interdependencies between water resource systems and other infrastructure, and institutional and organizational structuring. In addition to the 13 reviewed and edited technical papers, are summaries of three of the sessions, and a summary of responses to participant questionnaires over the ten gatherings.

TC1645 2003-050039 0-7844-0701-0

Deepwater mooring systems; concepts, design, analysis, and materials; proceedings.

International Symposium on Deepwater Mooring Systems (2003: Houston, TX). Ed. by Jun Zhang and Richard S. Mercier.

Am. Society of Civil Engineers, ©2003 352 p. 75.00 (pa)

Addressing the requirements of building oil and gas drilling platforms in deeper parts of the oceans, these 24 contributions from the October 2003 symposium consider synthetic mooring lines, the mechanics of foundation systems, coupled analysis of moored structures, the design of mooring and riser systems, and the numerical modeling of floating, production, storage, and offloading. Topics include suction anchor piles for the Na Kika floating development system, the effect of weather dependent line tension optimization in mooring design, and a study of the hydrodynamic force acting on an oscillating plate in water.

TC1665 2002-28858 0-471-26467-9

Dynamics of offshore structures, 2d ed.

Title main entry. Ed. by James F. Wilson. *John Wiley & Sons*, ©2003 325 p. \$175.00

Wilson, Muga (both civil and environmental engineering, Duke U.) and Reese (civil engineering, U. of Texas, Austin) provide a text for students, professors, engineers, and researchers working with the design and analysis of

structures of the offshore environment. The second edition includes more example problems to illustrate dynamic modeling, analysis, and solution of deterministic and stochastic responses for a wide variety of offshore structures (e.g. buoys, moored ships, platforms of various types). The extensive references of the first edition have been updated, especially source material involving offshore waves, structural model damping, and fluid-structure-soil interactions.

ENVIRONMENTAL TECHNOLOGY

TD145 0-86587-957-5
Fundamentals of environmental sampling.
 Bodger, Keith.
Government Institutes Inc., ©2003 138 p.
 \$79.00 (pa)

Bodger, an environmental specialist at a large natural gas distribution company, provides environmental professionals with practical tips and techniques for understanding basic sampling concepts and performing environmental sampling tasks. He examines major sampling media, including groundwater, soil, surface water, and air, and discusses how to choose the right equipment for each job. In addition to a review of relevant geology and chemistry principles, he offers information on EPA and ASTM guidelines and provides project management guidelines. A list of tools is included, along with common uses for each, descriptions of usage, and tips on purchasing them.

TD194 2003-003582 0-471-45722-1
Environmental impact assessment; practical solutions to recurrent problems.

Lawrence, David P.
John Wiley & Sons, ©2003 562 p. \$99.95
 This work, written by a member of the National Association of Environmental Professionals, challenges the assumption that environmental impact assessments (EIAs) should be structured around a unitary assessment process. Addressing eight recurring problems in EIA practice and providing solutions, the author shows how each solution would operate at the regulatory and applied levels, looks at how well each solution satisfies EIA process characteristics, and tells how to combine EIA processes to deal with overlapping problems.

TD195 2002-043392 1-56670-550-9
Waste sites as biological reactors; characterization and modeling.

Miller, Percival A.
Lewis Publishers, ©2003 383 p. \$139.95
 Miller, an analyst with the New York State Legislative Commission on Solid Waste Management, describes waste disposal sites as a microcosm of nature: simple, complex, ugly, beautiful, and functional. He characterizes site properties and ecology, the wastes disposed, decomposition processes and issues; and discusses sensitivity analysis, an approach to waste site environment modeling. Charts summarize waste and landfill gas properties. Clesceri (environmental engineering, Rensselaer Polytechnic Institute, Troy, NY) currently works for the National Science Foundation.

TD196 2002-033145 0-471-89923-2
Radioactive releases in the environment; impact and assessment.

Cooper, John R. et al.
John Wiley & Sons, ©2003 473 p. \$95.00
 Looking at both natural and anthropogenic sources, this text explains the creation, decay, and movement of environmental radiation. Cooper (National Radiation Protection Board, UK), Randle (chemistry, U. of Birmingham, UK), and Sokhi (environmental sciences, U. of Hertfordshire, UK) further discuss the impact of radiation on biological organisms and explain the basic management of radioactive waste disposal, radioactive protection, and nuclear power. Techniques for measuring and sampling radioactivity are also described.

TD223 2002-727283 1-58321-207-8
Drought management handbook.
 Title main entry. (Science and technology)
American Water Works Assn., ©2002 121 p.
 \$75.00 (pa)

A committee has assembled insight into how water utilities can respond to severe shortages of their product. The six studies examine drought management planning, advocating a national drought policy, impacts of municipal water shortages, a successful water restriction program in Austin in 2000, unexpected negative effects of water restrictions on diurnal demand patterns, and demand elasticity during a drought. They are not indexed.

TD426 0-8247-4704-6
Chemical and isotopic groundwater hydrology; 3d ed.

Mazor, Emanuel.
Marcel Dekker, ©2004 453 p. \$175.00
 Mazor, formerly a professor at Weizmann Institute of Science in Israel, describes an applied approach to understanding the measurable properties of groundwater systems, enabling readers to understand the natural regimes of groundwater systems in specific case study areas, appreciate the consequences of anthropogenic intervention, reach conclusions related to management of water resources, and establish boundary conditions that lead to conceptual models. He presents a variety of physical, chemical, isotopic, and dating methods based on the multiparameter-multisampling approach.

TD426 92-807-2297-2
Groundwater and its susceptibility to degradation; a global assessment of the problem and options for management.

Title main entry.
UN Environment Programme, ©2003 126 p. \$30.00 (pa)
 This report provides an overview of groundwater occurrence and of the main issues affecting its quantity and quality. It shows how water is used in cities, in industry, in agriculture, and in rural areas around the world, and gives examples to illustrate resource management issues. Chapters cover hydrogeological environments, groundwater exploitation, fundamentals of pollution, urbanization processes and effects on groundwater, the impact of industry and mining, and protection of rural groundwater quality.

TD434 2003-40119 1-56670-627-0
Handbook of water & wastewater treatment plant operations.

Spellman, Frank R.
Lewis Publishers, ©2003 660 p. \$99.95
 Accessible to new and experienced water and wastewater treatment plant operators, this text focuses on operations, from process control procedures and safety and health information to administrative and technological trends. Numerous real-world scenarios include problem-solving practice sets, allowing students to integrate math with theory and practical applications. Author information is not given.

TD898 2003-042138 0-929600-76-2
Management techniques for laboratories and other small institutional generators to minimize off-site disposal of low-level radioactive waste.

National Council on Radiation Protection and Measurements. (NCRP report; no.143)
NCRP-Radiation Protection, ©2003 230 p.
 \$45.00 (pa)
 This report issued by the US-based Council analyzes and describes strategies for nuclear waste minimization in small institutional such as biomedical facilities, laboratories, and academic institutions in the US. Intended both as a general reference and as a handbook on specific methods of minimization, the book covers the regulatory framework; general advice for managers; examples of source reduction, recycling, treatment, and disposal techniques; plant lifetime considerations; and recommendations for institutional and regulatory change.

ROADS, RAILROADS

TE270 0-415-24733-0
Asphalt pavements; a practical guide to design, production and maintenance for engineers and architects.

Lavin, Patrick G.
Spon Press, ©2003 444 p. \$112.00
 In this guide for engineers and architects who are not

directly involved in the asphalt industry, Lavin, a business manager at a chemical company, explains the technology behind the design, production, and maintenance of asphalt roads and parking lots, concentrating on low-volume roads and parking areas. Special attention is given to determining traffic capacity, required thickness, and asphalt mixture type for parking applications. Coverage encompasses material information such as binder properties, testing, and grading, as well as construction information such as mixing plant operation, and design information related to thickness and mixture design. Spon Press is an imprint of Taylor & Francis.

BUILDING CONSTRUCTION

TH443 2003-50349 0-86587-813-7
Construction safety handbook; a practical guide to OSHA compliance and injury prevention, 2d ed.
 Moran, Mark McGuire.
Government Institutes Inc., ©2003 451 p.
 \$89.00 (pa)

Intended for employers in the construction industry, this handbook reviews the standards required by the Occupational Safety and Health Act (OSHA) that apply to construction sites, such as personal protective equipment, excavation safety, crane operation, and lead exposure. The second edition reflects OSHA's new record keeping requirements and new guidelines on ergonomics and traffic control signals.

TH1095 2003-041921 0-7844-0670-7
Seismic evaluation of existing buildings.
 Title main entry. Ed. by American Society of Civil Engineers. (ASCE standard)
Am. Society of Civil Engineers, ©2003 436 p.
 \$150.00 (pa)

This work provides a three-tiered process for seismic evaluation of existing buildings in any level of seismicity. The standard is intended to serve as a nationally applicable tool for design professionals, code officials, and building owners seismically evaluating existing buildings. A major portion of the book is dedicated to instructing the evaluating design professional on how to determine if a building is adequately designed and constructed to resist seismic forces. All aspects of building performance are considered and defined in terms of structural, nonstructural, and foundation/geologic hazard issues.

TH7653 2002-43027 0-415-27056-1
Ventilation of buildings, 2d ed.
 Awbi, Hazim B.
Spon Press, ©2003 522 p. \$63.95 (pa)
 Awbi (building services engineering, University of Reading, UK) adds a new chapter on natural ventilation to this second edition of a text presenting practical issues of ventilation system design. The text is intended for practitioners in the building services industry, architects, and postgraduate students in courses on HVAC, building services engineering, or built environment engineering. Familiarity with basic principles of fluid flow and heat transfer is assumed.

MECHANICAL ENGINEERING & MACHINERY

TJ163 2002-192433 0-470-84979-7
Mechatronic systems; modelling and simulation with HDLs.
 Pelz, Georg and Rachel Waddington.
John Wiley & Sons, ©2003 223 p. \$105.00

Pelz, with a Munich company, describes how to model and simulate systems that integrate electronics, mechanics, and information technology, whether ordinary sized or so small they are called micromechatronic or microelectromechanical systems. He discusses the principles for modelling and simulating electronics and mechanics, simulating mechatronics in particular, the most important constructs of digital and analog hardware description languages, considering software and mechanics in those languages, and case studies that demonstrate the techniques. He writes primarily for practicing engineers, but graduate students and researchers might also find the material interesting.

TJ250 2002-028857 0-471-39015-1
Heat transfer handbook. (CD-ROM included)
 Title main entry. Ed. by Adrian Behan and Allan D. Kraus.
John Wiley & Sons, ©2003 1477 p. \$195.00
 Research mechanical engineers—most from US universities, but some from industry, government agencies, Canada, and Japan—provide practitioners and other researchers up-to-date information on heat transfer, with main results and correlations summarized at the ends of chapters for quick reference. The goal is to help integrate the latest scientific findings into design. Among the topics are thermophysical properties of fluids and materials, natural convection, heat exchangers, heat transfer in electronic equipment, porous media, and heat transfer in manufacturing and materials processing. The disk contains the NIST Thermodynamic and Transport Properties of Fluids Database.

TJ840 0-87849-918-0
Abrasive waterjet machining of engineering materials.

Wang, Jun. (Materials science foundations series; v.19)
Trans Tech Publications, ©2003 106 p. \$48.00 (pa)
 Wang (mechanical, manufacturing, and medical engineering, Queensland U. of Technology, Australia) describes the relatively new machining process and its advantages in machining various advanced materials, such as ceramics, composites, and thermal sensitive materials. He reviews the fundamentals of the technology and analyzes the effects of the major process parameters on cutting performance. He then explores the use of straight-slit cutting and contouring techniques on various materials. Distributed by Enfield.

TJ1075 0-7918-4161-8
Design and control of diesel and natural gas engines for industrial and rail transportation applications; proceedings.

Fall Technical Conference of the ASME Internal Combustion Engine Division (2003: Erie, Pennsylvania)
 Ed. by Neil X. Blythe. (ICE; v.40)
ASME, ©2003 456 p. \$120.00 (pa)
 Forty-seven papers from the September 2003 conference report on new developments in fundamental combustion and emission processes, lubrication, component and system design, and the utilization of various fuels. The keynote address by a Ford engineer discusses the reduction of emission levels from the internal combustion engine to meet California state requirements. Other topics include rotor dynamic improvement for a locomotive turbocharger, water addition in diesel engine intake for nitrogen oxide reduction, acoustic cavitation simulation for high pressure injection systems, and instantaneous engine speed analysis for cylinder isolation in multiple misfire events. No subject index is provided.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK1087 2003-53063 0-8493-1793-2
Photovoltaic systems engineering, 2d ed.
 Messenger, Roger A. and Jerry Ventre.
CRC Pr., ©2004 455 p. \$99.95
 Messenger (electrical engineering, Florida Atlantic University) and Ventre (Florida Solar Energy Center, University of Central Florida) present an engineering basis for photovoltaic (PV) system design, covering electrical, mechanical, economic, and aesthetic aspects. While the book is intended for classroom use, it can also serve as a reference for practicing engineers. This second edition is updated to reflect new ideas in the PV industry over the past three years, and includes new homework problems.

TK2000 2002-192434 0-471-49631-6
Handbook of electrical engineering; for practitioners in the oil, gas, and petrochemical industry.
 Sheldrake, Alan L.
John Wiley & Sons, ©2003 624 p. \$225.00
 This reference for electrical engineers working in the petrochemical industry covers both the design of the electrical supply and equipment specifications needed in oil, gas, and petrochemical plants. Theories behind the design of facilities are outlined, and there is practical

guidance on selecting the electrical power systems and equipment used on offshore production platforms, drilling rigs, pipelines, and chemical plants. Non-electrical material is also included, to help electrical engineers interact with those in mechanical, safety, and civil engineering. Sheldrake is a consultant electrical engineer.

TK2861 0-8247-0972-1

Protective relaying theory and applications, 2d rev.ed.

Title main entry. Ed. by Walter A. Elmore. *Marcel Dekker*, ©2004 410 p. \$135.00
Probably most useful as a reference for engineers, this collection of 17 chapters reviews devices and techniques for protecting generators, motors, transformers, stations buses, and electric power lines as part of an overall power system. Topics include system grounding, solid state units, microprocessor-based relays, shunt reactors, out-of-step schemes, and automatically reclosing and synchronizing relays after faults. The second edition adds a chapter on voltage stability.

TK2941 0-8247-4249-4

Battery technology handbook, 2d ed.

Title main entry. Ed. by H.A. Kiehne. *Marcel Dekker*, ©2003 515 p. \$175.00
This reference volume for professionals contains 20 contributions focusing on the safety, performance, quality, and enhancement of various batteries and battery systems. A sampling of topics includes power supply concepts for driverless industrial trucks, technical aspects of chargers and current transformers, standards and regulations for battery plants, and the disposal of portable batteries. The second edition features a new chapter on maintenance-free lead batteries with immobilized electrolyte. The material in this book is reprinted from *Batterien* (2000) and *Geräte-batterien* (2001), which were originally published in Germany by Expert Verlag. Editor Kiehne is a technical consultant in Breckerfeld, Germany.

TK5101 2003-57716 1-58053-528-3

Telecommunications technology handbook, 2d ed.

Minoli, Daniel. (Artech House telecommunications library) *Artech House*, ©2003 785 p. \$119.00
Minoli has years of telecom and networking experience for such entities as Bell Labs, ITT, Prudential, Bellcore, AT&T, and Capital One, and has written columns for *Computer World*, *NetworkWorld*, and *Network Computing*. The second edition of his text focuses on the technologies that are expected to be commercially important in the next decade, in particular the introduction of broadband/Ethernet-based/wireless transmission in enterprise networks. Among the new technologies discussed are optical networking, 10 Gigabit Ethernet for WANS, multilink frame relay, transparent LAN services, MPLS, virtual private networks, MPEG-7 and MPEG-21.

TK5102 2003-51705 0-7808-0646-8

Communications security sourcebook; basic information for general readers...

Title main entry. Ed. by Wilma R. Caldwell. (Security reference series) *Omnigraphics, Inc.*, ©2003 375 p. \$68.00
Documents and excerpts from government and organization publications provide basic consumer information about telecommunications security. Information is presented in sections on cell phone and wireless security, security issues and the telephone company, long distance telephone scams, telemarketing fraud, and wiretapping and electronic eavesdropping. A final section contains glossaries, wireless fraud tips, and directories of resources for more information.

TK5102 2003-058804 1-4020-7570-7

Scalable performance signalling and congestion avoidance.

Welzl, Michael. *Kluwer Academic Pubs.*, ©2003 167 p. \$130.00
Writing for network engineers and researchers, Welzl (Telecooperation Department, University of Innsbruck, Austria) looks at Internet congestion control, with special emphasis on signalling and network architecture. He introduces a new protocol, Performance Transparency Protocol (PTP), and a congestion control mechanism,

Congestion Avoidance with Distributed Proportional Control (CADPC), and provides simulation results showing how CADPC/PTP outperforms several current alternatives. Chiu/Jain vector diagrams, congestion control and quality of service, and explicit signalling mechanisms between end points and the network are also discussed.

TK5103 2002-191070 0-470-84921-5

Digital image display; algorithms and implementation. (CD-ROM included)

Berbecel, Gheorghe. (Wiley-SID series in display technology) *John Wiley & Sons*, ©2003 286 p. \$110.00
By describing IP algorithms required to adapt an arbitrary image source to an arbitrary display type, this book/CD-ROM reference helps technology developers, systems integrators, and video graphics interface engineers understand image delivery fonts. It addresses image fidelity and nonlinear image rescaling techniques, outlines display test methodologies, and offers guidance on the selection and design of application specific display devices. The CD-ROM contains images and video sequences. The author works in the private sector.

TK5105 2003-56127 0-7356-1420-2

Internet information services (IIS) 6.0. (CD-ROM included)

Title main entry. Ed. by the Microsoft IIS Team. *Microsoft Press*, ©2004 1216 p. \$69.99 (pa)
This book/CD-ROM package offers deployment, operations, and technical information on IIS 6.0 and includes step-by-step instructions for common administrative tasks. It provides details and guidance on security enhancements, the new IIS 6.0 architecture, migration strategies, and troubleshooting, along with timesaving tools, IIS 6.0 product documentation, and a searchable eBook on the CD-ROM. The CD-ROM also features IIS 6.0 software tools, and an evaluation version of Windows Server 2003.

TK5105 2003-053465 0-471-39299-5

Managing IP networks; challenges and opportunities.

Title main entry. Ed. by Salah Aidarous and Thomas Plevyak. (IEEE Press series on network management) *Wiley-Interscience*, ©2003 360 p. \$89.95
Six chapters by computer scientists and electrical engineers consider the role of internet protocol, detailing current practices and examining prospective developments in areas like electronic commerce, quality of service, security, and the integration of optical and IP technologies. The volume may be of interest to network operations engineers, computer scientists, software vendors, and research and development professionals.

TK5105 1-58053-516-X

Mission-critical network planning.

Liotine, Matthew. (Artech House telecommunications library) *Artech House*, ©2003 414 p. \$89.00
Taking a proactive approach to disaster recovery, this book reveals techniques for keeping enterprise data and voice networks in service under critical circumstances, showing how to minimize single points of failure through redundancy and backups, select the right networking technologies to improve survivability, spot vulnerabilities in a network, and build a survivable network infrastructure. Liotine consults in business continuity and security.

TK5105 0-07-222785-0

Windows security portable reference.

O'Dea, Michael. (Hacknotes) *McGraw-Hill/Osborne*, ©2003 241 p. \$29.99 (pa)
This resource for system administrators describes in detail the tools and techniques used by criminals to break in to computer networks. It then discusses ways to strengthen Windows systems to protect them against attack. A quick reference section found in the middle of the volume contains tables with information ranging from TCP/IP data types to system commands and security-related group policy settings.

TK6570 2003-54567 1-4020-7522-7

Preferential emergency communications; from telecommunications to the Internet.

Carlberg, Ken et al. (The Kluwer international series in engineering and computer science; SECS 744) *Kluwer Academic Pubs.*, ©2003 187 p. \$129.00
For network designers, vendors, and users of authorized communication services, engineers Carlberg, Robert Desourdis Jr., and James Polk, all with US companies; and Ian Brown (U. College London) discuss authorized emergency communications. They describe systems and protocols deployed as private networks for government agencies such as the US Department of Defense, land mobile radio commonly used by local emergency agencies such as police and fire departments, systems that have been deployed over the public switched telephone network, and emergency communications over TCP/IP networks for the Internet.

TK7868 2003-48948 1-4020-7466-2

Design of low-voltage CMOS switched-opamp switched-capacitor systems.

Cheung, Vincent S.L. and Howard C. Luong. (Kluwer international series in engineering and computer science; SECS 737) *Kluwer Academic Pubs.*, ©2003 192 p. \$115.00
Cheung and Luong (both of Hong Kong U. of Science and Technology) address the design and development of advanced switched-opamp architectures and techniques for low-voltage, low-power switched capacitor (SC) systems. In particular, they present a novel multiphase switched-opamp technique along with new system architectures that are critical in improving the performance of switched capacitor systems at low supply voltages. The authors also propose a fast-switching methodology, at the circuit level, for the design of the switchable opamps to achieve switching frequency up to 50 Mhz at IV. Finally, detailed design considerations, architecture choices, and circuit implementation of five chip prototypes are presented to illustrate potential applications of the proposed multi-phase switched-opamp techniques.

TK7870 2003-106910 1-58883-019-5

Adhesive bonding in photonics assembly and packaging.

Yacobi, B.G. and M. Hubert. *American Scientific Publishers*, ©2003 173 p. \$249.00
Yacobi (U. of Toronto) and Hubert (Exfor Photonics Solutions, Canada) have expanded a review published in the *Journal of Applied Physics* on a subject crucial to a wide variety of applications in microelectronics and photonics assemblies and packaging and to the manufacturing of optoelectronic and fiber-optic components, and of medical devices. Photocuring of adhesives offers advantages related to its capabilities for instant cure, cure-on-demand, increased production speed, and ease of automation; but its use requires understanding of adhesion, optical, thermal, mechanical, and chemical properties. After an introductory chapter, material is arranged in sections on photonics components, assemblies, and devices; fundamentals of bonding; types of adhesives; photopolymerization techniques; applications in photonics; issues related to optical adhesive bonding; and future directions.

TK7871 2002-104464 1-58883-006-3

Molecular nanoelectronics.

Title main entry. Ed. by Mark A. Reed and Tahkee Lee. *American Scientific Publishers*, ©2003 394 p. \$395.00
The field involves using single molecules to act as self-contained electronic devices, and research in this area is evolving rapidly. Thirteen contributions discuss the theory and computational aspects of transport in molecular structures, molecular systems as alternatives to oligomer-based systems, and applications of molecular electronic systems. A sampling of specific topics: unimolecular electrical rectifiers, gated molecular devices using self-assembled monolayers, carbon nanotubes, nanowire nanoelectronics assembled from the bottom up, and organic and polymeric light emitting devices. Of interest to students or cutting edge researchers in the fields of nanotechnology, solid-state physics materials

science, electrical and electronic engineering, chemistry, computational engineering, device applications, and information technology. Editors Reed and Lee are affiliated with the department of electrical engineering at Yale University; contributors are based in the US (one exception, from Canada).

TK7871 2002-32424 0-471-21010-2

Smart antennas.

Sarkar, Tapan K. et al. (Wiley series in microwave and optical engineering) *Wiley-IEEE Press*, ©2003 452 p. \$89.95
This text covers smart antenna technology, from the fundamentals to the latest developments, including new adaptive techniques developed by the authors. Sarkar (electrical and computer engineering, Syracuse U.) and co-authors provide 12 chapters covering topics including the difference between adaptive antennas and adaptive signal processing, adaptive processing using directive elements in a conformal array, multistage analysis, and a survey of models for radio wave propagation in rural and urban areas. The book provides a reference for engineers working on improvement of adaptive techniques, characterization of propagation channels, and applications of airborne phased arrays.

TK7872 1-57498-172-2

Phase diagrams for electronic ceramics I; dielectric Ti, Nb, and Ta oxide systems.

Title main entry. Ed. by Robert S. Roth. *Am. Ceramic Society*, ©2003 665 p. \$185.00
Focusing on the oxides TiO₂, Nb₂O₅, and Ta₂O₅, this work compiles previously published and new material from the Ceramic Phase Diagram Data Center files, providing 1,104 phase diagrams and commentaries for use by those working with ceramics with high dielectric constants. Diagrams are organized by the same chemical sort conventions governed by computer programs used in other phase diagram books by the publisher. An appendix provides references to papers that contain phase equilibria information. Roth is affiliated with the National Institute of Standards and Technology.

TK7874 2003-51006 0-07-228365-3

Analysis and design of digital integrated circuits; in deep submicron technology, 3d ed.

Hodges, David A. et al. *McGraw-Hill Book Co.*, ©2004 580 p. \$145.55
The third edition of Hodges', Jackson's (both U. of California-Berkeley), and Saleh's (U. of British Columbia) textbook reflects the extensive changes in the integrated circuit (IC) industry since publication of the second edition 15 years ago, particularly the development of complementary metal-oxide-semiconductor (CMOS) as the dominant IC technology. The new edition focuses on CMOS technologies (0.18 micrometers and 0.13 micrometers), with new material on deep submicron interconnect, high-speed design and optimization techniques, and expanded coverage of logic, memory design, and SPICE simulation.

TK7876 2003-52295 1-58053-356-6

Intermodulation distortion in microwave and wireless circuits.

Pedro, José Carlos and Nuno Borges Carvalho. *Artech House*, ©2003 432 p. \$125.00
Pedro and Carvalho (both U. of Aveiro and the Telecommunications Institute, both in Portugal) write primarily for engineers working in radio frequency and microwave circuit design, but also for researchers, academics, or graduate students who have at least the equivalent of a bachelor's degree in electrical engineering. In a broad view of nonlinear distortion phenomena encountered in microwave and wireless systems, they discuss intermodulation distortion problems in general from a systems perspective, characterizing nonlinear distortion, mathematical analysis tools, the mathematical representation of electronic devices, and circuit design methods to minimize distortion.

TK7881 0-471-20814-0

Pulse width modulation for power converters; principles and practice.

Holmes, D. Grahame and Thomas A. Lipo. (IEEE series on power engineering)

Wiley-IEEE Press, ©2003 724 p. \$110.00
 Holmes (Department of Electrical and Computer Systems Engineering, Monash University, Australia) and Lipo (Department of Electrical and Computer Engineering, University of Wisconsin-Madison) explain fundamentals of pulse width modulation (PWM), looking at active switch pulse width determination, active switch pulse placement within a switching period, and active switch pulse sequence between phase legs and across switching periods. They offer a general approach to the development of fixed switching frequency pulse width-modulated strategies to suit hard-switched converters.

TK7882 2002-114127 1-58883-010-1
Handbook of luminescence, display materials, and devices; 3v.

Title main entry. Ed. by Hari Singh Nalwa and Lauren Shea Rohwer.
 American Scientific Publishers, ©2003 1314 p. \$998.00

This three-volume reference will attract attention from cutting-edge folk dispersed in a variety of fields, among them: materials science, solid state physics, polymer science, chemistry, electrical and electronic engineering, optical engineering, display devices, nanotechnology... The first volume is devoted to organic light-emitting diodes, presenting seven review chapters on topics that include electroluminescent devices, novel polymers and copolymers for LEDs, exciton dissociation in conjugated polymers, and electro-optic characterization of thin-film electroluminescent devices. The second volume (10 contributions) covers inorganic display materials, addressing topics such as applications of X-ray storage phosphors, optical spectroscopy, and remote thermometry with thermographic phosphors, among others. The third volume arouses excitement with coverage of advancements in display devices—a market area that can't help but grow (we can all look forward to roll-up computer screens, for example). Editor Nalwa is president of American Scientific Publishers, and a prolific author, editor, scientist, and inventor; Rohwer is affiliated with Sandia National Laboratories in Albuquerque, New Mexico.

TK8315 2003-019191 0-471-15300-1
Foundations of image science.

Barrett, Harrison H. and Kyle J. Myers. (Wiley series in pure and applied optics)
 John Wiley & Sons, ©2004 1540 p. \$140.00
 Barrett (radiology, University of Arizona) and Myers (Center for Devices & Radiological Health, Food & Drug Administration) present a comprehensive treatment of the principles, mathematics, and statistics needed to understand and evaluate imaging systems, employing the continuous-to-discrete, or CD, model of digital imaging. They present the mathematical underpinnings of image science at a level that is accessible to graduate students and practitioners working with imaging systems, then cover models and mechanisms of image formation, and discuss ways of drawing inferences from images. Case studies of specific imaging systems provide examples of how various mathematical tools developed in the book can be applied. Appendices on matrix algebra, complex variables, and probability theory are included.

MINING ENGINEERING

TN271 963-05-7927-8
Development of petroleum reservoirs; theory and practice.

Pápay, József.
 Akadémiai Kiadó, ©2003939 p. \$89.00
 Pápay, educated and employed primarily in Hungary (currently, he's chief technical advisor of Hungarian Oil and Gas Company) presents the basics as well as sophisticated material concerning the theory and practice of petroleum reservoir exploitation technology. He draws on both English-language and Russian professional literature to describe both conventional and enhanced recovery methods for crude oil and natural gas, including discussion of geological principles and such topics as reservoir classification, numerical simulation, and the temperature management of flowing wells and pipelines. The book will serve students and professionals concerned with crude oil, natural gas, and water production from

structures located underground, and for specialists dealing with gas storage in porous rocks or geothermal energy. Distributed in the US by ISBS.

TN871 0-7506-7724-4
Gas well deliquification; solution to gas well liquid loading problems.

Lea, James, et al.
 Butterworth-Heinemann, ©2003 314 p. \$59.95
 When the well pressure and production rate decline, and they always do, the water and condensate that are present in most gas well streams begin to accumulate in the tubing or flow path. In trombones, the problem is addressed with a spit valve, but gas wells are not trombones. Lea (Texas Tech U.), Henry Nickens, (British Petroleum, Texas) and Denver-based consultant Michael Wells describe methods used widely in the oil and gas industry for predicting and analyzing the situation, and for eliminating or reducing the effects of liquid loading so gas well production can proceed on its natural decline.

TP156 2-7108-0837-4
Physico-chemical analysis of industrial catalysts; a practical guide to characterisation.

Title main entry. Ed. by John Lynch.
 Editions Technip, ©2003 305 p. \$110.00
 Lynch, a specialist in the modification of catalyst structures in reaction mixtures, describes physico-chemical techniques for characterizing catalysts used in searching for new active phases, optimizing formulation, and monitoring industrial production. Techniques developed cover various fields, including textural characterization, elementary and structural analysis, and the analysis of composition and surface sites. The author describes the major phases of the technique's development and industrial application, and provides a description of industrial equipment. There is a particular focus on measurement and performance. The book is of interest to technicians and chemical engineers, and is distributed by Enfield.

TP157 0-8247-4274-5
Chemical process engineering; design and economics.

Silla, Harry.
 Marcel Dekker, ©2003 482 p. \$165.00
 Silla (Stevens Institute of Technology, Hoboken, New Jersey) offers a systematic approach to solving design problems, addressing the structure of processes and process engineering; production and capital cost estimation; process circuit analysis; process heat transfer; compressors, pumps, and turbines; separator design; reactor design; and the design of flow systems. Intended for a senior level course in process design or for entry-level process engineers in industry or taking a refresher course. Numerous calculation procedures and the relationships needed for sizing commonly used equipment are provided. An appendix lists SI units and conversion factors.

TP159 3-527-30358-8
Handbook of machine olfaction; electronic nose technology.

Pearce, T.C. et al.
 Wiley-VCH, ©2003 592 p. \$185.00
 Covering basic principles, recent research, and successful applications of the technology, this volume contains chapters on topics like: perception and molecular biology, chemical sensing, odor handling and delivery systems, chemosensors, signal conditioning and preprocessing, pattern analysis, commercial instruments, hand-held microsensors, electronic tongues, drift compensation and calibration, environmental monitoring, medical diagnostics, product recognition, process monitoring, detection of explosives, and industrial uses.

TP244 2003-52933 1-4020-1409-0
Carbon dioxide recovery and utilization.

Title main entry. Ed. by Michele Aresta.
 Kluwer Academic Pubs., ©2003 407 p. \$110.00
 Based on the results of an EU study on the recovery and utilization of carbon dioxide (RUCADI), this report presents an outline of emissions in the EU, and examines

the scientific and technical aspects of carbon dioxide separation, carbon dioxide technological use, utilization of supercritical carbon dioxide, and the perspective use of carbon dioxide in chemical and biological processes. Topics of the 16 chapters include supercritical fluid chromatography, polymer synthesis in supercritical carbon dioxide, linear organic carbonates, electrochemical conversion of carbon dioxide, residual biomass as a source of energy, and the effect of recovered carbon dioxide on methanol production.

TP244 2003-052007 0-8412-3836-7
Supercritical carbon dioxide; separation and processes.

Title main entry. Ed. by Aravamudan S. Gopalan et al. (ACS symposium series; 860)
American Chemical Society, ©2003 479 p.
\$165.00

Presenting papers from an April 2002 symposium held at the 223rd American Chemical Society National Meeting in Orlando, Florida, this book will be of interest to scientists and engineers in separation technologies, materials science, and environmental remediation. Topics covered include extraction and separation of transition metals, actinide ions, and organics, as well as development of novel materials such as nanoparticles, monitoring methods, molecular modeling, reactivity and catalysis, and the formation and use of microemulsions and surfactants in supercritical carbon dioxide. Some specific topics are cleanup of dispersed-dye-contaminated water by supercritical carbon dioxide extraction, nanocrystal synthesis and stabilization in supercritical solvents, and hydroformylation of olefins in microemulsions. The book is distributed by Oxford University Press.

TP244 2003-043737 0-8412-3827-8
Utilization of greenhouse gases.

Title main entry. Ed. by Chang-jun Liu et al. (ACS symposium series; 852)
American Chemical Society, ©2003 412 p.
\$145.00

An overview of the sources, separation, and utilization of carbon dioxide is followed by six chapters discussing the subject of the simultaneous conversion of two greenhouse gases and possible new utilization technologies. The next three sections address processes for conversion and new utilization technologies including biochemical fixation, plasma conversion, and microwave applications. The fundamental economic, technical, and development issues with these technologies are discussed, as well as reports on investigations on the use of technologies for the use of greenhouse gases. A new application of supercritical CO₂ for the selective oxidation of alcohols over supported platinum catalysts is presented. Concluding chapters address the use of methane for combustion. Distributed by Oxford University Press.

TP368 2003-55526 0-8247-0938-1
Encyclopedia of agricultural, food, and biological engineering.

Title main entry. Ed. by Dennis R. Heldman.
Marcel Dekker, ©2003 1184 p. \$335.00
Some 200 alphabetical entries explore all areas of agricultural technology in this reference for professionals in nutrition, quality control, biochemistry, microbiology, and product development. Coverage encompasses both fundamental definitions and in-depth technical explanations of the development and design of procedures, equipment, and systems used in the production and conversion of raw materials into food. Entries examine various engineering processes associated with the production of materials with agricultural origins, including aspects of machinery design and power systems, irrigation system components, food preservation processes, separation and fermentation processes, biomaterials and biomedical applications, and dehydration and concentration systems. Heldman is director of the Cooperative Research and Development Program at the Center for Advanced Food Technology, Rutgers University.

TP807 0-8247-0988-8
Ceramic processing and sintering, 2d ed.
Rahaman, M.N. (Materials engineering; 23)

Marcel Dekker, ©2003 875 p. \$225.00
Rahaman (ceramic engineering, University of Missouri-Rolla) details methods in the processing of polycrystalline ceramics in this text for a one-semester (or two-quarter) course at the senior undergraduate or introductory graduate level. Coverage progresses from synthesis of powders through special topics in sintering, and chapter problems are included. A background in processing of traditional ceramics is assumed. This second edition contains new material on powder synthesis and sol-gel processing, and expanded material on many areas, including colloid stability and additives used in ceramic forming.

TP1087 2001-056652 0-8412-3818-9
Polymer characterization techniques and their application to blends.

Title main entry. Ed. by George P. Simon.
American Chemical Society, ©2003 516 p.
\$250.00

As Simon (physics and materials engineering, Monash U., Victoria, Australia) points out, polymer science and engineering is a growing area with important research and industrial applications. To enhance control of polymer properties and performance in developing improved materials, 16 contributed chapters explain standard and novel techniques to characterize the molecular behavior of such materials, and present case studies-cum-literature reviews specific to the popular area of polymer blends. Color figures exemplify the use of polarized light optical microscopy with blends. Distributed by Oxford U. Press.

TP1110 2003-9475 0-471-45603-9
Plastics materials and processes; a concise encyclopedia.

Harper, Charles A. and Edward M. Petrie.
John Wiley & Sons, ©2003 974 p. \$135.00
Industry consultants Harper and Petrie, writing for management personnel and others in the plastics industry, present an alphabetic encyclopedia that presents information on the materials, properties, test methods, and other relevant industrial information. An introductory section discusses the nature of polymers and explores the basics of the material and process descriptions that follow. Appendices contain property data and other information.

MANUFACTURES

TS156 2003-48453 0-8493-1083-0
Instrument engineers handbook, 4th ed: Process measurement and analysis; v.1.

Title main entry. Ed. by Belá G. Lipták.
CRC Pr., ©2003 1860 p. \$159.95
This fourth edition of a reference for process control engineers and students of instrument engineering covers both basic information and new developments in the field over the past decade. Emphasis is on measurement hardware, including the detection of flow, level, temperature, pressure, density, viscosity, weight, and composition. Each subchapter begins with a flowsheet summary and a feature summary, providing quick access to information on available sizes, costs, suppliers, ranges, and inaccuracies of devices covered in that section.

TS171 2002-25860 0-7546-1831-5
Design project management.

Boyle, Griff.
Ashgate Publishing Co., ©2003 182 p. \$89.95
Boyle provides a clients' guide to successfully contracting and working with designers, and managing design projects from conception to completion. The book helps public and private sector managers involved in building services, retail, leisure, other businesses understand principles of design project management that ultimately will save time and money. Boyle (director of a private design management company in the UK) covers the entire design project, including setting business objectives and design parameters, monitoring costs and resources, evaluating design proposals and fees, and assembling in-house and external project teams.

TS192 2002-024926 0-7546-1590-1

Managing maintenance error; a practical guide.

Reason, James and Alan Hobbs.

Ashgate Publishing Co., ©2003 183 p. \$89.95

Writing for professionals who manage, supervise, and carry out maintenance activities in a range of industries, Reason (psychology, emeritus, University of Manchester, UK) and Hobbs (San Jose State University Foundation at the NASA Ames Research Center) deal with human risks in general and the special human performance problems in maintenance, providing an engineer's guide to understanding and addressing the threat of maintenance error. Coverage of types of errors and the conditions that provoke them are illustrated by examples of three system failures.

TT267 2003-051963 0-87170-784-5

Brazing, 2d ed.

Schwartz, Mel M.

ASM International, ©2003 421 p. \$149.00

This second edition of a text on brazing includes revised material on tooling, design, materials, atmospheres, processing, and equipment. Several new topics are covered, including nanostructures and materials, microwave and laser brazing, more effective use of vacuum atmospheres, functionally gradient materials, and intermetallics. There is also more coverage of beryllium alloys, aluminum-lithium alloys, new titanium alloys, ceramic-to-metal brazing, composites, and ceramic-to-ceramic brazing. Case histories and problem-solving examples are included.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z674 2003-008872 1-57387-171-0

Net effects; how librarians can manage the unintended consequences of the Internet.

Title main entry. Ed. by Marylaine Block.

Information Today, Inc., ©2003 380 p. \$39.50

Some 50 librarians gather insights and personal stories and offer solutions to the range of Internet "side effects" ranging from the troublesome or costly (the need for constant retraining) to the detrimental (the devaluation and ultimately threatened survival of the book). Practical and creative methods are suggested to deal with the problems, regain control of the library, and avoid being blindsided by technology in the future.

SLA on the Web

Sci-Tech News Division Websites

(information taken from the SLA Homepage: www.sla.org)

Chemistry Division

Web Addresses: www.sla.org/division/dche/chemdiv.html
depts.washington.edu/chemlib/sanant.html

Subscription: listserv@listserv.indiana.edu

List Address: CHMINF-L@listserv@listserv.indiana.edu

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