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Sci-Tech Book News Reviews

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Sci-Tech Book News Reviews Susan Fingerman, Selector



The following section consists of 100 book reviews selected from *Sci-Tech Book News*, reprinted with the permission of Book News Inc. This review journal is published four times a year, each issue reviewing over 2,000 new titles in the physical and biological sciences, mathematics, engineering, computer science, technology, and agriculture. For a sample issue and subscription information, contact Book News Inc. at 5739 NE Sumner Street, Portland, OR 97218. Phone: (503)281-9230; Fax: (503)287-4485; E-mail: booknews@booknews.com.

GEOGRAPHY, HYDROLOGY, ENVIRONMENT

G70 978-1-4398-1004-0

Geographical information science.

Panigrahi, Narayan.

CRC / Taylor & Francis, ©2009 276 p. \$89.95

A physicist and computer scientists working in artificial intelligence and robotics in Bangalore, Panigrahi explains the scientific concepts behind the increasingly popular and increasingly powerful geographical information systems (GIS) approach to information processing. He writes both for users of GIS who want a deeper foundation than the instructional material provides, and for readers interested in pursuing the science itself as a distinct discipline. His topics include spatial data modeling, coordinate systems and referencing earth objects, the computational geometry used in GIS, the applications domain, spatial decision support system, and a developer's perspective of GIS. Published by Universities Press, India, and distributed in the rest of the world by CRC.

G109 978-1-59693-329-3

GNSS applications and methods. (DVD-ROM included)

Title main entry. Ed. by Scott Gleason and Demoz Gebre-Egziabher. (GNSS technology and applications series)

Artech House, ©2009 508 p. \$139.00

The growth of applications for global navigation satellite systems (GNSS) over the past few years has grown substantially and is expected to continue. This reference work, which emphasizes application development, provides an overview of GNSS. Topics include GPS and traditional location applications, combining GNSS with other sensors and systems, and remote sensing and space weather monitoring. An included DVD contains processing tools and data sets to complement several of the applications discussed in the book. Editors Gleason, a GNSS and satellite design professional, Gebre-Egziabher, an aerospace engineering and mechanics professor at the U. of Minnesota, and 21 co-authors contributed to the book

SOCIAL SCIENCES (GENERAL), STATISTICS

H61 2009-015830 978-1-4398-0038-6

Linear causal modeling with structural equations.

Mulaik, Stanley A. (Chapman & Hall/CRC statistics in the social and behavioral sciences series)

CRC Press, ©2009 444 p. \$79.95

Mulaik (emeritus psychology, Georgia Institute of Technology) writes specifically for quantitative methodologists and graduate students in methodological programs, but suggests that the book would also be useful for researchers and graduate students in the behavioral and social sciences who are seeking a deeper understanding of causation, linear causal modeling, and structural equation modeling than provided in standard texts. The more mathematically sophisticated chapters require a working knowledge of calculus, but even there, he says, he tries to offer non-mathematical explanations. Among his topics are graph theory for causal modeling, estimation of parameters, equivalent models, instrumental variables, and model evaluation.

ECONOMICS

HB97 2009-922748 978-1-84542-089-5

Handbook of research on complexity.

Title main entry. Ed. by J. Barkley Rosser.

Edward Elgar Publishing, ©2009 436 p. \$230.00

Most of the contributors are scholars of business or economics, but a few represent mathematics, physics, and forensic science. They explore the phenomenon of complexity at the lowest level of interacting heterogeneous agents; a middle level where processes for endogenous reasons fail to converge to a point, a limit cycle, or a simple expansion or contraction; and a high level named here meta-complexity that is moving into new perspectives and techniques. Specific topics include computational and dynamic complexity in economics, bounded rationality and learning in complex markets, on simplicity and macroeconomic complexity, analyzing time series with non-stationary increments, a nonlinear survey of exchange rate dynamics, ecologic-economic systems, and complexity and the history of economic thought.

PRODUCTION, INDUSTRY, COMMERCE

HD30 2009-025715 978-1-60566-677-8

Strategic information systems; concepts, methodologies, tools, and applications; 4v.

Title main entry. Ed. by M. Gordon Hunter.

Information Science Reference, ©2010 2680 p. \$1,950.00

This four volume reference provides a collection of research articles on the widely varied concepts and issues involved with information systems that are strategic, technology systems that support strategy, and how strategy and information systems should be aligned. Volume one begins with a section providing an overview of fundamental concepts and theories and covers topics such as the nature of strategic intelligence, decision support systems, strategic decision making in global supply networks and implementing supply chain management in the new era. Seven more sections cover development and design methodologies, tools and technologies, utilization and application, organizational and social implications, managerial impact, and emerging trends and include articles on design science, developing a global CRM strategy, enabling the glass pipeline, strategic management of international subcontracting, group decision support systems, information feedback for maintaining service quality and information system development failure and complexity. Editors and contributors are experts representing a host of international universities.

HD45 2009-925928 978-1-84844-441-6

International knowledge and innovation networks; knowledge creation and innovation in medium-technology clusters.

Cappellin, Riccardo and Rüdiger Wink. (New horizons in regional science)

Edward Elgar Publishing, ©2009 275 p. \$125.00

Cappellin (U. of Rome Tor Vergata, Italy) and Wink (Leipzig U. of Applied Sciences, Germany) investigate strategies that small-to-medium enterprises (SMEs) in medium-technology industries in the European Union apply to adjust their knowledge creation strategies to global structural challenges. After reviewing the role of the medium-technology sectors in the European economy and major characteristics of these sectors according to indicators of export, value-added, employment, human capital, and research and development, they explore the role of national and international networks in the strategic management of medium technology SMEs; introduce a theoretical framework for understanding innovation that includes cognitive science concepts of knowledge processing and communication, an evolutionary and spatial perspective of knowledge production processes, and an integrated institutional and territorial dimension in terms of network structures; and assess the policy implications of the foregoing empirical and theoretical discussion.

HD69 2009-928596 978-1-84720-376-2

Innovation networks in industries.

Title main entry. Ed. by Franco Malerba and Nicholas S. Vonortas.

Edward Elgar Publishing, ©2009 262 p. \$125.00

This work reveals the potential for applying network concepts and indicators in research on industry structure,

firm strategy, and public policy, reflecting the belief that some of the most important analytical and policy questions related to networks must consider the perspective of industry and sectoral systems rather than the perspective of the individual organization. The first part of the book discusses concepts and measurements of networks. The second part examines the structure and features of various types of networks across different sectoral and scientific domains. The final two chapters introduce public policy aspects, and use ICT as a case study sector in which to examine policies favoring networks of research and of diffusion. Some specific chapter topics include research and partnership networks within the European pharmaceutical industry, knowledge search and strategic alliance in the electronics industry, and multi-applicant inventors in the European biotechnology industry. The audience for the book includes postgraduate students in the field of innovation, industrial economics, and strategy, in addition to researchers and policymakers.

HD9696 2009-346285 978-81-7708-205-0

Information technology (IT) in the Indian economy; policies, prospects, and challenges.

Title main entry. Ed. by M.S. Bhatt and Asheref Illiyan.

New Century Pub. (New Delhi), ©2009 339 p. \$76.50

India is a major destination for outsourcing of information technology (IT) services. The 16 research papers collected here explore areas of concern such as the shortage of skilled labor, low diffusion of IT in the domestic market, the lagging hardware sector, regional concentration, and excessive dependence on the US. Part I looks at performance issues, such as quality, in the macro context. Papers in Part II examine the diffusion of IT into other sectors of the economy, such as e-governance and retail, in India and other Asian countries. Part III explores social aspects of the IT sector, such as parental reactions to daughters' unconventional work hours at call centers. Three appendices, about 70 pages total, give background on telecommunications in India, and IT in India's financial and agricultural sectors. An extensive glossary of Internet banking is included. Bhatt is professor and head of the Department of Economics at Jamia Millia Islamia, a Central University in New Delhi, India. Illiyan also teaches economics at the same institution. The book is distributed in North America by ISBS.

SOCIOLOGY

HM851 2008-464403 978-3-86838-002-6

Philosophy of the information society; proceedings; v.2.

International Wittgenstein Symposium (30th: 2007: Kirchberg am Wechsel, Austria) Ed. by Herbert Hrachovec and Alois Pichler. (Publications of the Austrian Ludwig Wittgenstein Society; v.7)

Transaction Publishers, ©2008 325 p. \$180.00

This is the second of two volumes of the proceedings of the 30th International Wittgenstein Symposium in Kirchberg, Austria, August 2007. It contains 19 selected papers

from the symposium's sessions on philosophy of media, philosophy of the Internet, ethics and political economy of the information society, and electronic philosophy resources and open source/open access. Examples of topics discussed include the importance of open source and open access for an emerging digital scholarship; ethical and political challenges connected to the Internet and the flow of knowledge; and East-West perspectives on privacy, ethical pluralism, and global information ethics. Five of the papers are in German and the rest are in English.

HV675 978-1-4200-9483-1

Fatal accidents; how prosperity and safety are linked.

Lancaster, John.

CRC Press, ©2009 129 p. \$189.95

After retiring from a career as a metallurgist, primarily in the hydrocarbon processing industry, Lancaster has honed his interest in accidents. As part of the research for his *Engineering Catastrophes*, he discovered that, with some exceptions, the rate of fatal accidents in various industries and modes of transport declines over time in a regular manner. The news was good, but somewhat baffling, so he looked deeper. Here he presents evidence that a population subconsciously and collectively regulates the rate of scientific and technological change, allowing human skill to keep up, thus reducing the accident rate at the same time productivity increases.

HV8079 2009906198 978-0-7695-3792-4

Systematic approaches to digital forensic engineering; proceedings.

International Workshop on Systematic Approaches to Digital Forensic Engineering (4th: 2009: Berkeley, CA)

Computer Society Press, ©2009 99 p. \$177.00 (pa)

A May 2009 workshop promoted the advancement of digital forensic engineering as a discipline, focusing on cybercrime investigations as well as forensics areas such as general attack analysis, insider threat, and insurance and compliance investigations. Papers from the workshop, 12 in total, are compiled here, in sections on file fragment classification, digital device and forensics concerns in jails and prisons, and using Java™ to design forensically resistant applications. Other topics covered include a formal rule-based scheme for digital investigation in wireless ad-hoc networks, and automating disk forensics processing with SleuthKit, XML, and Python. A panel discussion examines technical, social, and legal frameworks for digital forensics and cyber-infrastructure security. There is no subject index.

LB1028 2008-942798 978-1-84860-111-6

Reflexive methodology; new vistas for qualitative research, 2d ed.

Alvesson, Mats and Kaj Sköldbörg.

Sage Publications, ©2009 350 p. \$130.00

Alvesson (business administration, Lund U.) and Sköldbörg (Stockholm School of Business) argue that reflexivity is essential to scientific research, giving researchers the perspective they need when interpreting the results of their

investigations. After a new chapter on important traditions in the philosophy of science, the authors address the four main levels in a reflexive methodology: grounded theory, hermeneutics, critical theory, and poststructuralism and postmodernism. The authors then confront these levels with one another in order to outline a broader scope for qualitative methods in which there is a more creative interaction between empirical research and theoretical concerns.

SCIENCE (GENERAL)

Q172 2009-275447 978-1-84816-205-1

Randomnicity; rules and randomness in the realm of the infinite.

Tsonis, Anastasios A.

World Scientific, ©2008 191 p. \$61.00 (pa)

Tsonis (mathematics, U. of Wisconsin) invites readers to share his fascination with the existence of rules, randomness, and infinity, and with the ways in which they interweave in the world around us. He identifies three sources of randomness—irreversibility, chaos, and interacting systems—and shows how infinity underlies all of them. Tsonis then considers the physical universe and demonstrates how randomness is an intrinsic property of nature. Finally, he shows readers why neither randomness nor rules can exist without the other. Tsonis' fictional chapters (especially the account of a meeting between artist M.C. Escher and physicist Kurt Gödel) are particularly suitable for non-mathematicians.

Q175 2009-009166 978-1-60741-373-8

Philosophical insights about modern science.

Title main entry. Ed. by Eva Zerovnik et al. (Scientific revolutions series)

Nova Science Publishers, ©2009 321 p. \$79.00

Researchers and teachers in various scientific fields describe what is happening there, taking care to distinguish esoteric matters comprehensible only to the adept from matters that people with average educational levels can perfectly well understand if someone will just talk to them. Among the topics are the importance of having a plastic brain, investigating the molecular background of Alzheimer's Disease in search for a cure, using stem cells for restoring neuro-degenerative damage, how intelligent robots can get, ways to sustainable energy sources, how to research experience, consciousness and vision, and philosophical reflections on the history and future of science and spirituality.

Q325 2009-007738 978-1-60566-766-9

Handbook of research on machine learning applications and trends; algorithms, methods and techniques; 2v.

Olivas, Emilio Soria et al.

Information Science Reference, ©2010 620 p. \$495.00

Machine learning is a multidisciplinary topic which concerns the design and development of computer programs that allow machines to improve their performance through experience. This two volume reference for students, researchers,

and educators compiles recent research from a pool of international computer scientists. Topics include exploring the unknown nature of data, nature inspired methods for multi-objective optimization, locally recurrent neural networks and their applications, machine learning in natural language processing, applications of neural networks in animal science, a survey of Bayesian techniques in computer vision, and improving automated planning with machine learning.

Q342 2009-021568 978-1-60566-798-0

Intelligent systems for automated learning and adaptation; emerging trends and applications.

Title main entry. Ed. by Raymond Chiong.

Information Science Reference, ©2010 339 p. \$180.00

Intelligent computer systems have the ability to learn and adapt during their existence. This work contains open-solicited and invited chapters written by leading researchers in the field, presenting architectures, approaches, and trends in intelligent systems and their practical applications. The book begins with four chapters demonstrating the use artificial neural networks and other learning technologies in various practical problems. A set of architectures for designing bio-inspired hardware using commercial field programmable gate arrays (FPGAs) is described. Chapters on adaptive evolutionary systems review evolutionary prototype selection in data mining and its application over different sizes of data sets, and demonstrate the application of particle swarm optimization (PSO) to size analog circuits synthesized by a genetic algorithm. The last section of the book presents three chapters on collective intelligence in social networks, automatic programming, and manufacturing. It will be useful as a reference to researchers and academics working in computational intelligence and its related fields. Chiong is a tenured academic at the School of Computing and Design, Swinburne University of Technology-Sarawak Campus, Malaysia.

MATH, COMPUTERS

QA76.17 2009-280203 978-1-84816-290-7

Fundamental concepts in computer science.

Title main entry. Ed. by Erol Gelenbe and Jean-Pierre Kahane. (Advances in computer science and engineering: Texts; v.3)

Imperial College Press, ©2009 159 p. \$70.00

The science dimension of computer science, known as informatics in Europe, is often overshadowed by its technical dimension—the blinking lights and ring tones distracting even scholars from the mathematical and physical models underlying both the hardware and software. Theorists and practitioners from around the world survey the ideas, many of which they themselves developed, that generated the technology, to which they often contributed as well. Among their topics are a history and brief introduction to membrane computing, deterministic computation with random G-networks, Carl

Adam Petri and Petri Nets, and from rocket control to virtual design. Distributed in the US by World Scientific.

QA76.575 2009-278954 978-981-270-587-7

3D online multimedia & games; processing, transmission and visualization.

Title main entry. Ed. by Irene Cheng et al.

World Scientific, ©2009 357 p. \$98.00

This reference focuses on online multimedia applications and related technologies, specifically, image, video, and 3D content—as well as the related network transmission. Authors discuss scientific techniques used to develop efficient 3D online systems. Topics cover give broad categories, including online multimedia, TexMesh simplification and view independent transmission, view dependent transmission and server side rendering, content and background creation, and creating simple online games. The book is technical and best-suited for readers familiar with the field. There is no index. Editors are Cheng and Basu (U. of Alberta), Cortelazzo (U. of Padova, Italy), and Tripathi (SUNY Buffalo). Eight co-contributors are listed as well as additional contributors from the computing science department of the University of Alberta.

QA76.58 2009-013013 978-0-89871-673-3

Parallel MATLAB for multicore and multinode computers.

Kepner, Jeremy. (Software, environments, and tools; 21)

SIAM, ©2009 253 p. \$65.00

Kepner (a senior technical staff member at the Massachusetts Institute of Technology Lincoln Laboratory) gives instruction on parallel computing in MATLAB, writing primarily for those who wish to adapt their serial MATLAB programs to a parallel environment. He organized the book around two central concepts: the core programming process—design, code, debug, and test—and the core parallel programming models—distributed arrays, manager/worker, and message passing—with the distributed array model being the baseline model used throughout. The approach he takes throughout is to present concrete examples and then discuss the more general programming concepts the examples illustrate.

QA76.5915 2009-026632 978-1-4200-9360-5

Ubiquitous computing fundamentals.

Title main entry. Ed. by John Krumm.

CRC / Taylor & Francis, ©2010 394 p. \$79.95

Over the two decades since the concept of *ubiquitous computing* (ubicom) technology was first introduced into research vernacular, it has grown rapidly and widely in its concepts, technology, and applications. Ubiomp pioneer Krumm presents nine chapters, written by 11 international ubiomp trailblazers, providing an historical examination of how ubiomp has matured into a multidisciplinary endeavor. Following an introduction to ubiomp, the remaining ten tutorial-style chapters examine how to build the software support for deploying ubiomp applications, the critical points where ubiomp technologies touch and improve the lives of people, and how systems sense location and analyze and

determine interface. For advanced undergraduates, graduate students, and professionals interested in ubicomp research.

QA76.73 2009-009805 978-0-7637-3952-2

C programming for scientists and engineers with applications.

Reddy, Rama N. and Carol A. Ziegler.

Jones & Bartlett, ©2010 837 p. \$102.95 (pa)

C is a widely used programming language, particularly in science and engineering. Ideal for those without prior programming experience, this user-friendly introduction guides readers painlessly through the fundamental and advanced concepts of C as they apply to solving engineering and scientific problems. After discussing basic terminology, the authors quickly bring in the key elements of C and have readers writing their own code by the end of the second chapter. Succeeding chapters use a strong, structured approach to build upon the basics, presenting syntax and semantics in an easily understood format. The authors provide numerous sample problems (and solutions) in the areas of mechanical engineering, electrical engineering, heat transfer, fluid mechanics, physics, chemistry, and more.

QA76.73 2009-020819 978-1-4200-7057-6

SAS and R; data management, statistical analysis, and graphics.

Kleinman, Ken and Nicholas J. Horton.

CRC / Taylor & Francis, ©2010 323 p. \$69.95

The primary goal of this book is to provide users of SAS and R, two statistical software packages used in many fields of research, with an easy way to learn how to perform an analytic task in both systems, without having to navigate through unwieldy software documentation. The dictionary-like approach includes SAS and R indexes and cross-references between the two systems. Coverage embraces many common tasks, such as data management, descriptive summaries, inferential procedures, regression analysis, and the creation of graphics, along with more complex applications. Example analyses employ a single data set from the HELP study. A companion web site contains the HELP dataset, and example code in SAS and R. The book will be useful for those with an understanding of statistics at the level of multiple-regression analysis, including statisticians, epidemiologists, economist, engineers, sociologists, and others engaged in research or data analysis. Kleinman is affiliated with Harvard Medical School. Horton is affiliated with Smith College.

QA76.76 2009-024575 978-1-4398-1266-2

Quality assurance of agent-based and self-managed systems.

Dumke, Reiner et al.

CRC Press, ©2010 154 p. \$99.95

The authors explain the basic principles and structures of agent technology, considered a primary approach to implementing global infrastructures such as self-adapting systems, self-healing applications, corporate global creation, and collaborated robotic teams. They cover the primary quality issues of software system development

and give examples of agent measurement and evaluation, as well as software agent systems and multiagent systems and discuss the determination of quality properties. In addition, the authors address various techniques and approaches used to evaluate the development of multiagent systems. Authors are Dumke (software engineering, U. of Magdeburg, Germany), Mencke (Ph.D candidate, computer science, U. of Magdeburg), and Wille (software engineering, U. of Applied Sciences Bingen, Germany).

QA76.76 2009-023947 978-0-87389-773-0

The software audit guide.

Helgeson, John W.

ASQ Quality Press, ©2010 262 p. \$84.00

This software audit guide does not offer a one-size-fits-all approach; instead, it outlines areas to audit and questions that should be asked within these areas. The book offers a customizable checklist with about 1,300 questions as a starting point, covering different audit areas at different life-cycle phases. An auditor with a background in software will have an advantage when working with the questions, but it is not required, because the author explains the questions and gives insight into the different areas. Material is presented in sections on audit fundamentals, activities, constants, and processes, with each chapter designed as a stand-alone section of an audit. The book includes material on two new areas that are often ignored in audit and software books: schedules as a development window, and hidden software. Helgeson has taught software classes at Pima Community College in Arizona and Wake Forest Community College in North Carolina.

QA76.76 2009-396307 978-1-4438-0109-6

Software testing and global industry; future paradigms.

Casey, Valentine.

Cambridge Scholars Publishing, ©2009 196 p. \$52.99

Author Casey (software quality and testing, Bournemouth U., UK) and editors Richardson (computer science and information systems, U. of Limerick, Ireland) and <O> hAodha (Librarian, U. of Limerick) examine the role of software testing in the context of Global Software Development (GSD), providing members of the software community with a practical and industry-based guide for GSD implementations. The author spent a decade researching how GSD affects all phases of a software product's lifecycle, and he provides detailed strategies for research methods and implementation, developing teams within the organization and assessing the impact of fear, communication, culture and project management on these virtual teams. The author also provides an introductory section on global software development to help practitioners understand current trends of globalization, team motivation, outsourcing and offshoring.

QA76.76 2009-009590 978-1-4200-9956-0

Software testing as a service.

Ahmed, Ashfaque.

CRC / Taylor & Francis, ©2010 217 p. \$79.95

Ahmed is a software testing and supply chain management consultant with 20-plus years of experience in the software industry, working with both midsize and large multinational customers on enterprise software applications. Designed for software development managers, software testers, testing managers, and entrepreneurs, his text provides a practical discussion on the use of software testing to improve productivity, reduce time to market, and reduce expensive errors. Coverage includes an overview of software testing management; types of software testing projects; software testing strategies; project effort estimation; software testing project plan, risk management, execution, and reporting; automated software testing benefits; customer expectation management; software testing practice and offshoring; software testing as a commodity; and quality and standards issues. Includes a summary of the IEEE standard for software test documentation (ANSI/IEEE Standard 829-1983) and a glossary of software testing terms.

QA76.88 2009-027266 978-1-4200-9308-7

Attaining high performance communications; a vertical approach.

Title main entry. Ed. by Ada Gavrilovska.

CRC / Taylor & Francis, ©2010 411 p. \$79.95

Editor Gavrilovska (research scientist, College of Computing, Georgia Tech) and 31 co-contributors explore a variety of issues in high performance communications. The authors discuss efficient interconnection hardware, the architectural aspects of network adapters and their integration with processor cores, design of scalable and robust high performance end-to-end communications services and protocols, and system services and tools for new multicore environments. Authors address high performance communications in a particular layer of a vertical stack, and note that no one solution applied at one particular layer can help applications resolve all performance-related problems with communications services. The book is intended for a technical audience.

QA76.88 2009-011754 978-0-470-04039-3

High performance heterogeneous computing.

Lastovetsky, Alexey and Jack J. Dongarra. (Wiley series in parallel and distributed computing)

John Wiley & Sons, ©2009 267 p. \$84.95

Lastovetsky (Computer Science, University College Dublin) and Dongarra (Computer Science, University of Tennessee) provide an overview of the development and uses of heterogeneous parallel and distributed computing in the context of scientific computing, and of ongoing research in the field. Topics include the taxonomy, typical uses, and programming issues involving heterogeneous platforms; performance models and design of heterogeneous algorithms; implementation and software performance; applications; and future trends. The book is suitable as a graduate and postgraduate text or as a reference for researchers and practitioners in the high performance heterogeneous computing field.

QA76.9 2009-005271 978-1-60566-748-5

Complex data warehousing and knowledge discovery for advanced retrieval development; innovative methods and applications.

Title main entry. Ed. by Tho Manh Nguyen.

Information Science Reference, ©2010 403 p. \$180.00

In this update for researchers and practitioners, editorial board members from the *International Journal of Data Warehousing and Mining* explain the latest work in both theoretical and practical aspects of data warehousing and knowledge discovery systems and applications. Section I, on data warehouse architectures and fundamentals, presents current work on areas such as an LBF R-tree framework in a multi-dimensional database environment, and an optimization approach for materialized view implementation in spatial data warehousing. Section II discusses challenges in multidimensional databases and the online analytical processing (OLAP) environment, and Section III presents some typical applications using data warehouse and OLAP technology. Section IV describes a variety of traditional data mining techniques. The last section of the book introduces innovative algorithms and emerging applications in data mining and knowledge discovery. Nguyen is affiliated with the Institute of Software Technology and Interactive Systems, Vienna University of Technology, Austria.

QA76.9 2009-001829 978-1-60692-781-6

Computer security; intrusion, detection and prevention.

Title main entry. Ed. by Ronald D. Hopkins and Wesley P. Tokere.

Nova Science Publishers, ©2009 202 p. \$135.00

Computer security researchers at universities around the world, and a few private companies, survey some results from their own investigations and reports from others researchers published in the literature of the field. Among their topics are self-organizing maps, network management focused on a client computer, a hardware approach to cryptography performance, fast face detector and recognition for biometrical security systems, the word-oriented stream cipher Morpheus, and preserving data authenticity in wireless sensor networks.

QA76.9 2009-017418 978-1-60566-756-0

Data warehousing design and advanced engineering applications; methods for complex construction.

Title main entry. Ed. by Ladjel Bellatreche.

IGI Publishing, ©2010 318 p. \$180.00

The entire process of designing and using a data warehouse is detailed in this work, encompassing requirement specification, conceptual, logical, and physical design, and tuning and evolution management. The role of ontologies in designing and exploiting data warehouses is also examined. The first section of the book examines conceptual design and ontology-based integration, with chapters on integrating XML heterogeneous information sources into a data warehouse, and a unified XML warehouse reference model. A section on

physical design and self-tuning looks at topics including the problem of selecting materialized views to speed up decision support queries, and event-based simulation for analysis of load and availability balancing in chunk-wise parallel data warehouses. The section on evolution and maintenance management looks at construction and maintenance of heterogeneous data warehouses. The final group of chapters, on exploitation of data warehouses, presents material on areas such as ontology query languages for ontology-based databases, an ontology-based database approach for handling preferences, and security in data warehouses. Bellatreche teaches computer science at Poitiers University, France.

QA76.9 2009-004402 978-1-60566-661-7

Handbook of research on scalable computing technologies; 2v.

Title main entry. Ed. by Kuan-Ching Li et al.

Information Science Reference, ©2010 1086 p. \$495.00

Due mainly to the availability of enabling technologies in hardware, software, and networks, the past decade has witnessed a proliferation of more and more high-performance scalable computing systems. This handbook, edited by Li (Providence U., Taiwan), Hsu (Chung Hua U., Taiwan), Yang (St. Francis Xavier U., Canada), Dongarra (U. of Tennessee, US), and Zima (U. of Vienna, Austria), conducts a review of recent research into these enabling technologies and is aimed primarily at those interested in developing programming tools and environments for academic or research computing, extracting the inherent parallelism, and achieving higher performance. The volume's 38 chapters are arranged into sections covering grid architectures and applications, peer-to-peer computing, programming models and tools, scheduling and communication techniques, service computing, optimization techniques, web computing, mobile computing and ad hoc networks, fault tolerance and quality of service, and applications. Other major topics covered within these sections include software and middleware; data and resource management paradigms; trust and security; data-intensive computing; community and collaborative computing networks; load balancing; economic and utility computing models; multi-core/many-core based computing; parallel and distributed techniques; and scientific, engineering, and business computing.

QA76.9 2009-016049 978-0-470-74666-0

Non-negative matrix and tensor factorizations; applications to exploratory multiway data analysis and blind source separation.

Cichocki, Andrzej et al.

John Wiley & Sons, ©2009 477 p. \$165.00

Cichocki (advanced brain signal processing, Riken Brain Institute, Japan, and Warsaw U. of Technology and Systems Research Institute, PAN, Poland) et al. provide a survey of models and efficient algorithms for nonnegative matrix factorization, including extensions and modifications, especially nonnegative tensor factorizations and nonnegative Tucker decompositions. They focus on the algorithms that

are most useful in practice and aim to derive and implement, in MATLAB, efficient and simple iterative algorithms that work with real-world data. Included is discussion of iterative multiplicative algorithms, alternating least squares algorithms, projected gradient algorithms, learning algorithms, and selected applications such as data clustering, text mining, email surveillance, musical instrument classification, face recognition, spectroscopy, imaging, and gene expression classification. The book is meant for engineers, researchers, scientists, industry practitioners, and graduate students in signal and image processing, neuroscience, data mining and analysis, computer science, bioinformatics, speech processing, biomedical engineering, and multimedia.

QA76.9 2009-005260 978-1-60566-754-6

Rare association rule mining and knowledge discovery; technologies for infrequent and critical event detection.

Title main entry. Ed. by Yun Sing Koh and Nathan Rountree. (Advances in data warehousing and mining series)

Information Science Reference, ©2010 299 p. \$180.00

Most of the existing research on association rules focuses on establishing common patterns and rules. Choosing instead to study outlier rules and patterns, the 15 papers in this collection explore rare association rule mining techniques, imbalanced datasets, interest metrics, and real-world applications. The contributors propose different algorithms and schemes for discovering relationships among sets of items in a transactional database that occur infrequently. Topics include finding minimal infrequent elements in data defined over partially ordered sets, filtering association rules by their semantics and structure, and boosting bad payment prediction accuracy in financial credit applications. The editors are professors at Auckland University of Technology and the University of Otago in New Zealand.

QA76.9 2009-013047 978-1-4200-5940-3

Text mining; classification, clustering, and applications.

Title main entry. Ed. by Ashok Srivastava and Mehran Sahami. (Chapman & Hall/CRC data mining and knowledge discovery series)

CRC Press, ©2009 290 p. \$79.95

As the number and size of texts grow in the nearly frictionless environment of computers, the need and ability to extract meaning from them has nearly kept pace. Contributors from many institutions and countries, but whose fields are not identified, explain some of the approaches and techniques for finding various meanings in a corpus. Among their topics are detecting bias in media outlets with statistical learning methods, non-negative matrix and tensor factorization for discussion tacking, the constrained partitional clustering of text data, and utility-based information distillation.

QA76.9 2009-026785 978-1-4398-0150-5

Vulnerability management.

Foreman, Park.

CRC Press, ©2010 332 p. \$79.95

For security practitioners and officers, security or network engineers, or CIOs, Foreman describes an approach to vulnerability management that focuses on managing potential weaknesses to prevent the exploitation of information technology security gaps in corporate and government institutions. He describes vulnerability management from both the technology and process perspectives, the strategic significance of vulnerabilities, the structure of a management program, selecting products, planning a program, and execution, reporting, and analysis of the process. No bibliography is provided. Foreman is a global information security director who has worked in information technology and information security strategy and process for many years.

QA162 978-3-11-020300-4

Applied algebraic dynamics.

Anashin, Vladimir and Andrei Khrennikov.

Walter de Gruyter, ©2009 533 p. \$140.00

Writing for mathematicians working in the theory of dynamical systems and related areas, as well as for scientists interested in applying the theory in their fields, Anashin (Institute for Information Security, Moscow State U., Russia) and Khrennikov (International Center for Mathematical Modeling, Vaxjo U., Sweden) develop methods of algebraic dynamics and apply them to problems from computer science, cryptology, theoretical physics, cognitive science, psychology, neurophysiology, and genetics. They cover both commutative and non-commutative non-Archimedean dynamics. Applications involve pseudorandom numbers, stream ciphers, structure of trajectories, p -adic probability theory, p -adic valued quantization, m -adic modeling in cognitive science and psychology, neuronal hierarchy behind the ultrametric mental space, gene expression from dynamics in the 2-adic space, and genetic code on the diadic plane.

QA276 2009-024574 978-1-4200-6426-1

Antedependence models for longitudinal data.

Zimmerman, Dale L. (Monographs on statistics and applied probability; 112)

CRC / Taylor & Francis, ©2010 270 p. \$89.95

Zimmerman (U. of Iowa, US) and Núñez-Antón (The U. of the Basque Country, Spain) describe a class of models for longitudinal data known as antedependence models or transition models, which postulate that certain conditional independencies exist among the observations that are related to their time ordering. They are particularly useful for modeling longitudinal data that exhibit serial correlation (correlation that decays as the elapsed time between measurements increases). The authors describe the models and their properties, focusing on unstructured and structured antedependence individually, and then present inference procedures for the models in chapters that cover informal model identification via simple summary statistics and graphical methods, maximum likelihood and residual maximum likelihood estimation of parameters, likelihood ratio tests and penalized likelihood model selection criteria for the model's covariance structure,

and mean structure. They use illustrative examples throughout and, in a later chapter, use these examples to compare the performance of antedependence models to other models commonly used for longitudinal data.

QA329 2009-275126 978-1-86094-768-1

Spectral theory of block operator matrices and applications.

Tretter, Christiane.

Imperial College Press, ©2008 264 p. \$83.00

Block operator matrices are those with entries that are linear operators between Banach or Hilbert spaces, and appear in several areas of mathematics and its applications, explains Tretter (U. of Bern, Switzerland), and it is vitally important to know their spectral properties, which govern the time evolution and hence stability of the underlying physical systems as well as other crucial matters. She describes methods for investigating these spectral properties, emphasizing several classes of block matrix operators that do not yield themselves lightly to standard methods of operator theory. Her topics include localizing the spectrum and investigating its structure, characterizing and estimating eigenvalues, and applications to concrete problems from mathematical physics. Distributed in the US by World Scientific.

PHYSICS

QC20 2009921879 978-1-84564-394-2

Boundary collocation techniques and their application in engineering.

Kolodziej, J.A. and A.P. Zielinski.

WIT Press, ©2009 320 p. \$256.00

This book deals with application of the boundary collocation method, also called the generalized Trefftz approach, to solve problems in engineering and science. Both advantages and limitations of the approach are presented, so that practitioners can determine the method's suitability for solving a particular problem. The first part of the book provides a general presentation of the boundary collocation approach and its numerous variants. In the second part, the method is applied to many different engineering problems, showing its properties, accuracy, and convergence. The observations are based mainly on investigations carried out in the last two decades by the authors and their co-workers. Figures and tables presenting results of numerical examples are included. The book will be useful to engineers and scientists who solve problems in structural, solid, and fluid mechanics. Kolodziej is affiliated with Poznan University of Technology, Poland. Zielinski is affiliated with Cracow University of Technology, Poland. The US office of WIT Press is Computational Mechanics.

QC482 2009-005619 978-0-470-22722-0

Two-dimensional X-ray diffraction.

He, Bob B.

John Wiley & Sons, ©2009 426 p. \$115.00

Written by one of the pioneers of the field, this guide covers fundamentals, experimental methods, and applications of

two-dimensional X-ray diffraction. A chapter on geometry conventions provides a foundation for material on instrumentation technologies, including critical components, systems configurations, and basic data collection and process algorithms. The following chapters introduce basic concepts, diffractometer configurations, data collection strategies, and data analysis algorithms. Experimental examples are given for various applications, such as phase identification, texture analysis, stress measurement, microstructure analysis, crystallinity, and thin film analysis, in fields such as materials research, pharmaceuticals, and forensics. Appendices of values and symbols are included. The book is for researchers and graduate students in materials science, chemistry, physics, and pharmaceuticals. Author He is the director of R&D and Engineering at Bruker AXS.

QC665 2009-026274 978-1-4200-4489-8

Surface impedance boundary conditions; a comprehensive approach.

Yuferev, Sergey V. and Nathan Ida.

CRC / Taylor & Francis, ©2010 372 p. \$129.95

Now with a big corporation in Finland, Yuferev spent a year as a colleague of Ida (electrical and computer engineering, U. of Akron, Ohio) in 1999-2000, but their association goes back 12 years, and they have been collaborating on this book for over four. The concept of surface impedance, especially at a low frequency, was largely neglected, they say, and when remembered at all was often treated as a esoteric issue and used as an ad hoc measure to simplify some calculations. They remedy that by setting out a comprehensive and consistent approach to surface impedance boundary conditions, not only explaining the need for them but also providing a simple, systematic method for constructing ones of any order using a perturbation approach.

QC794 2009-015987 978-1-4200-5903-8

Cold molecules; theory, experiment, applications.

Title main entry. Ed. by Roman V. Krems et al.

CRC / Taylor & Francis, ©2009 721 p. \$149.95

The study of how atoms behave at very low temperatures has recently been expanded to include the behavior of molecules, and here physicists report on their research and results in it. They cover cold collisions, photoassociation, few-body and many-body physics, cooling and trapping, tests of fundamental laws, quantum computing, and cold molecular ions. Among specific topics are electric dipoles at ultralow temperatures; molecular states near a collision threshold; condensed matter physics with cold polar molecules; cooling, loading traps, and producing beams using a cryogenic helium buffer gas; variation of fundamental constants as revealed by molecules during astrophysical observations and laboratory experiments; quantum information processing with ultra-cold polar molecules; and sympathetically cooled molecular ions.

CHEMISTRY

QD63 2009-009768 978-0-470-27859-8

Solvent microextraction; theory and practice. (CD-ROM included)

Kokosa, John M. et al.

John Wiley & Sons, ©2009 323 p. \$115.00

Industrial consultant Kokosa, Andrzej Przyjazny (chemistry, Kettering U., Michigan), and Michael A. Jeannot (St. Cloud State U.) describe procedures and applications of the research technique, which in the past dozen or so years has grown beyond academic laboratories to find work in industrial, forensic, clinical, and environmental analysis. They compare it with other popular sample preparation methods and discuss basic modes of operation, theory, practical considerations, method development, and experiments. A chapter on applications samples such fields as food and beverage, plant material, consumer products and pharmaceuticals, and forensics.

QD96 2009-016230 978-1-4051-7688-0

Cavity ring-down spectroscopy; techniques and applications.

Title main entry. Ed. by Giel Berden and Richard Engeln.

John Wiley & Sons, ©2009 322 p. \$199.00

For experienced users and scientists unfamiliar with CRDS, Berden (FOM Institute for Plasma Physics "Rijnhuizen," Nieuwegein, The Netherlands) and Engeln (applied physics, Eindhoven U. of Technology, The Netherlands) compile 10 chapters that overview the techniques and select applications of cavity ring-down spectroscopy (CRDS). They explain introductory concepts and basic experimental techniques; useful variants such as continuous wave, phase shift, and broadband CRDS; and developments and applications such as in analytical and atmospheric chemistry, combustion studies, spectroscopic studies of transient molecules in astrophysics, the analysis of exhaled breath in clinical diagnostics, and CRDS under extreme conditions, the detection of species in plasmas and flames. The volume does not review the literature in the field. Chapter authors specialize in applied physics, chemistry, and lasers, in Europe and North America.

QD96 2009-009764 978-0-470-13115-2

Mass spectrometry and gas-phase chemistry of non-covalent complexes.

Schalley, Christoph A. and Andreas Springer. (Wiley-Interscience series in mass spectrometry.)

John Wiley & Sons, ©2009 571 p. \$125.00

Life scientists have discovered a lot of new tricks with mass spectrometry since the advent of soft ionization, but supramolecular chemists remain wary of using any method of analysis that tears their sample into tiny bits, if not early in the process, then later. Schalley (organic chemistry) and Springer (mass spectrometry, both Freie U. Berlin) seek to bridge the gap by explaining many different aspects associated with studying non-covalent complexes in the gas phase. They begin with some background on supramolecular chemistry, then discuss mass spectrometry for examining non-covalent complexes, fundamental studies on smaller non-covalent complexes, determining the secondary structure of

supramolecules, non-covalent complexes with peptides and proteins, non-covalent complexes of nucleotides, and carbohydrates. Different parts of the book will be more helpful and comprehensible depending on whether the reader is a mass spectrometrists or a supramolecular chemist, but in the long run, both are accommodated.

QD381 2009-482110 978-1-84816-202-2

Polymer tribology.

Title main entry. Ed. by Sujeet K. Sinha and Brian J. Briscoe.

Imperial College Press, ©2009 697 p. \$210.00

The study of friction, wear, adhesion, and other phenomena resulting from interaction between moving solid surfaces is applied to bulk polymers, reinforced polymers, and polymer films by scientists and engineers in the many fields where such interaction does or might occur. Their topics include a tribo-physical interpretation of polymer sliding mechanisms, the frictional behavior of miniature journal polymer-on-polymer bearings, polymer composites for tribological applications in a range between liquid helium and room temperature, tribological and mechanical properties of mold-in-color polypropylene used in the automobile industry, mechanical properties of thin polymer films within contacts, and tribological studies of ultra-high molecular weight polyethylene thin films on silicon surfaces. The studies were commissioned to provide a full reference that would be useful in the laboratory or in the field.

QD921 2009-020571 978-1-4398-0674-6

Precision crystallization; theory and practice of controlling crystal size.

Leubner, Ingo H.

CRC / Taylor & Francis, ©2010 206 p. \$199.95

Having taught and worked in industry, chemist Leubner now runs a crystal consulting company. Here he details the concepts and quantitative models for the precision control of crystal size in products. Crystal size in a function of both crystal nucleation and growth, he explains, and controlling the former provides the greater challenge, partly because classical nucleation theories are not much help, and scientists tend to fall back on trial and error. But no longer, because he provides models and equations that relate the crystal number and size distribution (nucleation) to experimentally controlled reaction variables. Among his topics are the balanced nucleation and growth model, diffusion-controlled nucleation, supersizing with ripeners and nanosizing with restrainers (one pill makes you bigger...), crystal growth and renucleation, and continuous crystallization.

BIOLOGY

QH324 2009-028067 978-1-4200-8684-3

Biological data mining.

Title main entry. Ed. by Jake Y. Chen and Stefano Lonardi. (Data mining and knowledge discovery series)

CRC / Taylor & Francis, ©2010 713 p. \$99.95

This reference provides comprehensive data mining

concepts, theories, and applications in current medical and biological research. Features include extensive coverage of biological sequences, structures, Imics, ontology, literature mining, biological concepts integrated with data mining techniques, case studies of biological applications, and more. It is intended for graduate students, researchers, and practitioners. Editors are Chen (Informatics, Indiana U. School of Informatics) and Lonardi (computer science and engineering, U. of California, Riverside). The book's 80 contributors are professionals in biological data mining research.

QH450 2009-022671 978-0-470-51766-6

Bayesian analysis of gene expression data.

Mallick, Bani K. et al.

John Wiley & Sons, ©2009 240 p. \$90.00

The authors (all biostatisticians) provide an introduction to Bayesian analysis and gene expression and describe the use of Bayesian methods for application to high-throughput gene expression data. Using public gene expression data, case studies demonstrate the fundamentals of Bayesian analysis and help students develop analytical skills. More experienced readers will find the review of advanced methods for bioinformatics challenging and attainable. This book will interest graduate students in statistics and bioinformatics researchers from many fields.

QP176 2008-934872 978-1-60327-382-4

A primer for the exercise and nutrition sciences; thermodynamics, bioenergetics, metabolism.

Scott, Christopher B.

Humana Press Inc., ©2008 166 p. \$99.00

Exercise scientist Scott provides a foundation in the three areas for graduate and upper undergraduate students in his field but also research and practicing exercise physiologists, registered dietitians and nutritionalists, and other professionals. He explains such aspects of thermodynamics as systems and surroundings and energy accountability; looks bioenergetics in such terms as ATP and aerobic and anaerobic metabolism; and considers metabolism as energy expenditure in a range of contexts from at rest to exercise and recovery.

QP551 2009-927501 978-1-60761-156-1

Proteomics; methods and protocols.

Title main entry. Ed. by Jörg Reinders and Albert Sickmann.

Humana Press Inc., ©2009 441 p. \$110.00

Presented by Reinders (U. of Regensburg, Germany) and Sickmann (Institute for Analytical Sciences, Germany), 23 chapters detail methods of investigation within the field of proteomics, the large-scale study of the structures and functions of proteins in organisms. Following the introduction, the chapters are arranged in sections dedicated to electrophoretic separations, mass spectrometry and tandem mass spectrometry applications, quantitative proteomics, interpretation of mass spectrometry data, analysis of

protein modifications, subcellular proteomics, and analysis of protein interactions. As is standard in the series, each chapter includes an introduction to the scientific principles associated with the topic, lists of necessary materials, step-by-step protocols, and notes on troubleshooting and pitfalls.

QP552 978-1-904455-49-3

ABC transporters in microorganisms; research innovation and value as targets against drug resistance.

Title main entry. Ed. by Alicia Ponte-Sucre.

Caister Academic Press, ©2009 260 p. \$310.00

Editor Pont-Sucre and 26 expert authors describe the most current theory, applications, and methodology of ABC transporters in microorganisms. The collection of monographs is intended for professionals working in DNA research related to protein superfamilies and scientists interested in microbial physiology and multi-drug resistance. Topics include the structure, evolution, and physiology of ABC transporters and their specific characteristics in microorganisms such as bacteria, yeast, trypanosomes, and malaria parasites. The collection also focuses on the most current research and innovations on the role of ABC transporters as they relate to circumventing drug resistance in microorganisms. In addition, it offers insights into the future of the field from both scientific and clinical perspectives. Distributed in the US by ISBS.

MEDICINE (GENERAL & PUBLIC ASPECTS)

R119 2009-006529 978-1-934465-14-1

How to write, publish, and present in the health sciences; a guide for clinicians and laboratory researchers.

Lang, Thomas A.

Am. College of Physicians, ©2010 389 p. \$59.95 (pa)

Author of a standard reference on reporting medical statistics, Lang delivers a comprehensive and engaging guide to writing and publishing in the health science field. Using realistic examples, he walks readers through the process of creating effective scientific articles, research proposals, abstracts, posters, and presentations. With three decades of experience as a technical and medical writer, Lang is a fount of helpful tips, practical advice, and warnings against common writing pitfalls. (The chapter on how to write effectively is alone worth the price of the book.) Especially valuable for novice researchers, Lang's book will be greatly appreciated by seasoned pros as well.

R853 2009-006954 978-1-60566-752-2

Text mining techniques for healthcare provider quality determination; methods for rank comparisons.

Cerrito, Patricia B.

Medical Information Science Reference, ©2010 398 p. \$245.00

Presenting research based on public data from around the world, this reference discusses the practice of using text mining to define a patient severity index, for the purposes

of comparing patient outcomes across multiple providers, ranking the providers in terms of quality, and determining which patients will need more care. Contributors examine the consequences of various models, and outline the general assumptions required to perform standard severity adjustments. The book begins with an introduction to ranking models, data visualization, and statistical methods. Three models for defining patient severity indices are then described: the Charlson Comorbidity Index, the All Patient Refined Diagnosis Related Group, and risk adjustment based upon resource utilization. Later chapters address text mining to define a patient severity index, working from claims data, and the use of risk adjustment models for provider reimbursements. The book will be valuable to medical practitioners, researchers, and academicians. Ceritto is affiliated with the University of Louisville.

R858 2009-001900 978-1-60566-030-1

Handbook of research on advances in health informatics and electronic healthcare applications; global adoption and impact of information communication technologies.

Title main entry. Ed. by Khalil Khoubati et al.

Medical Information Science Reference, ©2010 595 p. \$325.00

The Internet has transformed the accessibility and usage of health informatics tools that are affecting nearly every aspect of healthcare services. The computerization of health records is being promoted in the U.S. and elsewhere. This handbook compiled by Khoubati (information and communication technology, U. of Sindh, Pakistan) and multidisciplinary international specialists adds a valuable resource to the research literature on the evaluation of e-health tools and methods. Considered from the perspectives of both users and information technology (IT) providers, evaluations are treated in relation to topics including proposed frameworks, its role in decision support for the complex processes of healthcare, impact on telemedicine, and IT solutions. Case studies of models and projects illustrate the organizational and technological challenges and opportunities afforded by informatics. *Medical Information Science Reference* is an imprint of IGI Global.

R858 2009-021574 978-1-4398-0600-5

Knowledge management in public health.

Title main entry. Ed. by Jay Liebowitz et al.

CRC / Taylor & Francis, ©2010 208 p. \$89.95

Editors Liebowitz (knowledge management, Johns Hopkins U.), Schieber (pediatrician and medical epidemiologist, Centers for Disease Control and Prevention, Atlanta) and Andreadis (Innovation Team, Centers for Disease Control and Prevention, Atlanta) have gathered case studies presented by top experts in knowledge management to assist public health care officials in collecting and disseminating data on worldwide issues. Contributors describe how knowledge management and social networking is used in such contexts as extending

cross-generation knowledge flows, building KM practices in an international health NGO and promoting evidence-informed public health decision making. These case studies also stress the need to deliver more knowledge with smaller staffs according to today's public health organization trends.

R859 2009-021413 978-1-60566-772-0

Multi-agent systems for healthcare simulation and modeling; applications for system improvement.

Title main entry. Ed. by Raman Paranjape and Asha Sadanand.

Medical Information Science Reference, ©2010 286 p. \$245.00

Modeling healthcare components and systems to understand component interactions is considered one of the more challenging simulation and modeling problems for software agent systems. This extensive reference provides theoretical frameworks and the most current empirical research medical professionals use to implement multi-agent systems. Among the topics covered are: agency in healthcare system analysis, agent-based healthcare modeling, and collaborative environments in mental health, economic efficiency in healthcare, healthcare multi-agent simulation systems, healthcare systems, operating room simulation, physician-patient support system, population modeling system, and probabilistic neural network. The book will interest medical professionals, information systems designers, application developers, and others such as academic, research, and medical libraries. Editors Paranjape (electronic systems engineering, U. of Regina) and Sadanand (economics, U. of Guelph) and 27 co-authors contributed to the book.

RA971 2009-007893 978-1-60566-284-8

Redesigning innovative healthcare operation and the role of knowledge management.

Saito, M. et al.

Medical Information Science Reference, ©2010 296 p. \$245.00

Editors Saito (research adviser, Waseda U., Japan), Wickramasinghe (associate director, Illinois Institute of Technology), Fuji (director, TBI Rehabilitation Center) and Geisler (business, Illinois Institute of Technology) have collected research from experts in the field to present health care professionals with the latest advances in knowledge management technologies. Contributors discuss the fundamentals of knowledge management before describing modern approaches to operations management for such areas as information processing and interpretation, emergency and disaster scenarios and "realizing the healthcare value proposition." Case studies are included that illustrate key workplace issues such as performance reliability of hospital nurses and rehabilitation equipment for the aged. *Medical Information Science Reference* is an imprint of IGI Global.

INTERNAL MEDICINE, PSYCHIATRY

RC967 2009-008901 978-0-89503-335-2

Unhealthy work; causes, consequences, cures.

Title main entry. Ed. Peter L. Schnall et al. (Critical approaches in the health social sciences series)

Baywood Publishing Co., ©2009 380 p. \$75.00

Workplace hazards are not limited to dangerous chemicals and equipment. They also can be inherent in the work environment in terms of pace and intensity, degree of control over the work process, employment security, and other intangible "work stressors." The book's three parts explore the workplace and its relationship to health. Those parts include: changes taking place in the workplace in the context of the global economy, scientific research on working conditions and their effects on employee health and their economic costs to employers and society, and case studies and approaches for improving health at work. Editors Schnall (medicine, U. of California, Irvine), Marnie Dobson (medical sociologist and researcher, U. of California, Irvine), Ellen Roskam (widely published author and educator in international public health) and 14 co-authors contributed to the book. It will interest a wide variety of readers, from employees and union officials to management and policy makers.

TECHNOLOGY (GENERAL)

T55 2009-031381 978-0-470-57212-2

Guidelines for process safety metrics. (CD-ROM included)

Title main entry. Ed. by Center for Chemical Process Safety.

John Wiley & Sons, ©2010 178 p. \$89.95

Aimed at organizations that are implementing or improving their existing process safety metrics, this book contains guidelines and effective practices for developing and using process safety leading and lagging metrics. The book provides basic information about process safety performance indicators and explains how to calculate the three global lagging metrics recommended by CCPS. Examples help readers gain an understanding of how performance metrics can be successfully applied over the short and long term. Although this book will be most useful to process safety leaders, other leaders in an organization should read the book and work with process safety leaders to select and implement appropriate metrics.

T58 2009-007014 978-1-60566-727-0

Collaborative technologies and applications for interactive information design; emerging trends in user experiences.

Title main entry. Ed. by Scott Rummler and Kwong Bor Ng.

Information Science Reference, ©2010 320 p. \$180.00

Information and computer sciences, education and communications, and business and the fine arts are among the disciplines in which collaboration is described as a foundation for constructing underlying theory or a list of best practices. The studies cover patterns of user experience

with collaboration, interactive tools for collaboration, and designing information spaces for next-generation collaboration. Among specific topics are pattern-based tool design for shared knowledge construction, enhancing the interaction and learning of university students through formative peer-assessment online, maximizing collaboration using an ontology based on topic maps, automatically evaluating the quality of contexts created in collaborative knowledge building, usability in collaboration in open source domains, collaboration in risk markets, and gender and diversity in collaborative virtual teams.

T59 2009-003915 978-1-60741-166-6

Online engineering.

Title main entry. Ed. by Navarun Gupta et al.

Nova Science Publishers, ©2009 195 p. \$79.00

Engineers describe technology and procedures that enable engineers to work together on common projects while separated perhaps by thousands of miles and several hours of time. Many of the contributors are from places remote from the centers of money and power, and online engineering offer the possibility of pursuing their craft instead of spending much of their lives struggling with travel and border-crossings. They cover online laboratories, managing optimality in multi-sensor data fusion consistency using intersection and largest ellipsoid algorithms, linking reservation systems for remote labs, a tele-robotic system with a virtual reality human-machine interface, online engineering in a university environment, and an algorithmic perspective on advanced reservation network architectures for scientific applications.

ENGINEERING (GENERAL, CIVIL)

TA168 2008-044364 978-1-4200-7251-8

Model-oriented systems engineering science; a unifying framework for traditional and complex systems.

Hybertson, Duane W. (Complex and enterprise systems engineering)

CRC / Taylor & Francis, ©2009 363 p. \$89.95

A software and systems engineer working in Virginia, Hybertson offers some conceptual support for what he sees as the expansion of systems engineering beyond its comfort zone to incorporate complex systems, with elements and relationships that are less predictable, less deterministic, and more chaotic than the field has grown up with. Not only is complex systems engineering (CSE) inherently different from garden-variety systems engineering (SE), he says, but it is also very new and findings its bearings. Even so, there are ways of looking at both at the same time, pivoting on models. He discusses core concepts of model-oriented SE science, commonization, time, specification information, mapping and unification, and other aspects.

TA168 2009-005471 978-0-566-08861-2

Systems cost engineering; program affordability management and cost control.

Shermon, Dale.

Ashgate Publishing Co., ©2009 307 p. \$134.95

Parametric cost estimating models can be used for cost and schedule estimation for complex projects involving engineering, hardware, software, service, and IT. This book will help cost engineers and program directors understand and apply parametrics, and enable project sponsors and bid managers to communicate project risks, opportunities, and benefits to stakeholders and project owners. Each chapter explores a different application of parametrics, based on real-life case examples, and explains the rationale and value of cost engineering in a different industry or program context. Aspects covered include preparing bids, validating quotations from suppliers, assessing software, creating home-grown parametric models, and conducting life-cycle costing. B&W screenshots, figures, and tables are included, along with a glossary. Author Shermon, a consultant, has held estimating positions in various defense and aerospace companies.

TA347 2009-010912 978-0-521-11659-6

Fast multipole boundary element method; theory and applications in engineering.

Liu, Yijun.

Cambridge U. Press, ©2009 235 p. \$85.00

For graduate students, researchers, and engineers, Liu (mechanical engineering, U. of Cincinnati) provides a volume on the fast multipole boundary element method (BEM), which has emerged recently as a numerical tool for solving large-scale engineering problems based on the boundary integral equation (BIE) formulations. It describes classical theories in BEM formulations and the recent development of the fast multipole method, and covers potential, elastostatic, Stokes flow, and acoustic wave problems in two and three-dimensional domains, with exercises and computer source codes. It also demonstrates applications in modeling nanocomposite materials, biomaterials, fuel cells, acoustic waves, and image-based simulations.

TA357 2008-054551 978-1-4200-6756-9

Computational transport phenomena for engineering analyses.

Farmer, Richard C. et al.

CRC Press, ©2009 504 p. \$139.95

A team of chemical, mechanical, and aerospace engineers provide a computational fluids dynamics code they developed for illustrating transport processes involving real fluids. It essentially allows the pertinent conservation equations articulated in the 19th century to be solved numerically using today's computers. They consider computational transport phenomena, the equations of change, physical properties, turbulence modeling concepts, computation coordinates and conservation laws, numerical methods for solving governing equations, the code itself, and multiphase phenomena.

TA357 2009-018492 978-1-4200-7578-6

Numerical techniques for direct and large-eddy simulations.

Jiang, Xi and Choi-Hong Lai. (Chapman & Hall/CRC numerical analysis and scientific computing)

CRC Press, ©2009 264 p. \$89.95

Jiang (mechanical engineering, Brunel U., UK) and Lai (numerical mathematics, U. of Greenwich, UK) present a text intended to be used as lecture material for postgraduate students and a reference for research scientists and engineers interested in direct numerical simulation and large-eddy simulation, which are advanced numerical tools for computational fluid dynamics that, compared to the traditional approach based on Reynolds-averaged Navier-Stokes modeling, offer enhanced capability in predicting the unsteady features of the flow field, such as the vortical structures, and provide a detailed solution of the flow field that can be used to develop models for mixing and turbulence. They include numerical techniques for application in compressible and incompressible flows, turbulence, and combustion, focusing on those numerical methods that are suitable to three-dimensional flows.

TA401 2009-368251 978-0-87849-361-6

Progress in high temperature ceramics; special topic volume with invited papers only.

Title main entry. Ed. by Yashwant Mahajan and J.A. Sekhar. (Key engineering materials; v.395)

Trans Tech Publications, ©2009 232 p. \$180.00 (pa)

This volume contains 12 invited papers on ultra-high-temperature ceramics, refractory borides, and oxide ceramics, including their composites, intermetallics, and CMCs. For each system, such as aluminum composites, nitrides and oxynitrides, and carbides, the synthesis, processing, and microstructure-property interrelationships are discussed. Contributors work in science and technology, metallurgy, and materials engineering, in Taiwan, India, and the US.

TA404 978-0-87849-379-1

Advanced techniques for materials characterization.

Tyagi, A.K. et al. (Materials science foundations monograph series; vs.49-51)

Trans Tech Publications, ©2009 513 p. \$269.00 (pa)

A team of Indian chemists, materials scientists, and a metallurgist set out the procedures for characterizing new and advanced materials that researchers in any science can use to record and present data in a format that is recognized and can be used in other sciences. They cover diffraction, spectroscopic, compositional characterization, synchrotron and surface, and microscopic techniques. Among the specific topics are studying nuclear and magnetic structures using neutron scattering, insights from solid state nuclear magnetic resonance into structural aspects of zeolites and oxide glasses, the compositional characterization of surfaces with ion beam analysis, synchrotron radiation, and characterizing nanostructures by transmission electron microscopy. No index is provided.

TA418 2009-027804 978-0-8493-3676-8

Microoptics and nanooptics fabrication.

Title main entry. Ed. by Shanalyn A. Kemme.

CRC Press, ©2010 218 p. \$129.95

Electrical and computer engineers from the University of Delaware-Newark, the Sandia National Laboratories in New Mexico, and other commercial and academic laboratories explain some of the techniques being used or proposed to keep the fabrication of optical components up with—or at least not too far behind—the theoretical proclamations about how small light can be and still work. Some pivoting on a particular component and others on a particular technique, they cover surface-relief diffraction optical elements, plasma etching, analog lithography with phase-grating masks, electron beam lithography, nano-imprint lithography and device applications, planar photonic crystals, and a molded tungsten approach to fabricating three-dimensional photonic crystals.

TA418 978-0-87849-331-9

Nanomaterials; synthesis and applications.

Title main entry. Ed. by Umapada Pal.

Trans Tech Publications, ©2009 242 p. \$166.00 (pa)

New methods for preparing nanostructures are yielding innovative applications. Pal (Institute of Physics, Autonomous University of Puebla, Mexico) compiles peer-reviewed articles on the synthesis and application of nanomaterials, highlighting recent research trends in Mexico. The articles cover the synthesis of nanoparticles (metals, semiconductors, and ceramics), nanocomposites, and other novel nanostructures, and their applications. Some specific areas explored include proton charge transport in nafion nanochannels, optical properties of non-periodic dielectric systems made of nanostructured porous silicon, Fourier electron density maps for nanostructured sol-gel solids, and the effects of morphology on the electronic properties of hydrogenated silicon carbide nanowires. Papers are illustrated with b&w images.

TA418 978-1-60595-000-6

Polymer derived ceramics; from nano-structure to applications.

Title main entry. Ed. by Paolo Colombo et al.

DEStech Publications, Inc., ©2010 476 p. \$209.50

For materials engineers polymers and ceramics were once as different and incompatible as plastic and clay, but sometimes things fall together, and recently scientists have discovered how to combine them into a variety of materials mostly pivoting around silicon, carbon, and oxygen. Not surprisingly, polymer derived ceramics have some rather unique and interesting characteristics, among which is a reluctance to crystallize. In this first book ever on the subject chemists and materials scientists and engineers in industrial and academic laboratories from around the industrialized world offer a broad introduction to the subject. They explain the development of polymer derived ceramics, the synthesis and properties of preceramic polymers, microstructure evolution and characterization, properties, processing and applications, and novel developments for future research.

TA455 978-0-87849-350-0

Advances in ceramic materials.

Title main entry. Ed. by Ping Xiao and Brian Ralph.

Trans Tech Publications, ©2009 147 p. \$138.00 (pa)

Xiao (materials, U. of Manchester, UK) and Ralph (engineering and design, Brunel U., UK) assemble 10 articles describing current research on ceramic materials and developments in ceramic sciences and technology. Coverage encompasses thermal barrier coatings on nickel superalloy substrates; silicon nitride ceramics; the integration of piezoelectric ceramics into microelectrochemical systems; the use of microwaves in processing; ceramic and glass matrix composites containing carbon nanotubes; stresses in multilayered ceramics; nano-scale metrology for the characterization of materials; microstructural modeling; processing, microstructure, and properties of nanograin barium titanate ceramics; and other topics. Contributors work in materials science and engineering and ceramic physics in the UK, US, and Asia.

TA460 2009-923304 978-0-87170-718-5

Fatigue and durability of metals at high temperatures.

Manson, S.S. and G.R. Halford.

ASM International, ©2009 265 p. \$237.00

The second volume in a set on fatigue and durability, this book focuses on high-temperature aspects, with discussion of the treatment of strain-range partitioning using the total strain-range approach and applications of new technology to practical problems in aerospace. Manson (mechanical and aerospace engineering, Case Western Reserve U.) and the late Halford (NASA) discuss the introduction of advanced materials as structural components in severely loaded machines exposed to high temperatures and temperature gradients, and the development of technology of life computation for such components, including the failure mechanism of fatigue, creep, and strain-range conversion.

HYDRAULIC ENGINEERING

TC1645 2009-014172 978-0-521-85952-3

Ocean engineering mechanics; with applications.

McCormick, Michael E.

Cambridge U. Press, ©2010 580 p. \$125.00

Based on his experiences in engineering practice and in the classroom, McCormick (Naval Architecture and Ocean Engineering, U.S. Naval Academy) presents an introduction to water waves and wave-structure interactions for fixed and floating bodies. Introductory chapters discuss linear and nonlinear regular waves and the methods of determining the averaged properties of random waves, then apply this foundation to engineering situations in the coastal zone (including an introduction to shore protection). Other topics include the analytical methods available for the engineering analyses of wave-induced forces and motions of floating and compliant structures in regular and random seas, and an introduction to soil-structure interactions. This book is suitable for both introductory

and advanced courses in ocean engineering mechanics.

ENVIRONMENTAL TECHNOLOGY

TD878 2009-009333 978-0-470-38343-8

Electrochemical remediation technologies for polluted soils, sediments, and groundwater.

Title main entry. Ed. by Krishna R. Reddy and Claudio Cameselle.

John Wiley & Sons, ©2009 732 p. \$150.00

It works like this: a low-intensity electric field is applied to the polluted soil through electrode probes, mobilizing ionic species to migrate towards the electrodes, where they are pumped out of the ground and treated. Scientists and engineers in chemistry, geology, environmental science, and other disciplines discuss the basic principles of the approach; heavy metals and other inorganic pollutants, organic pollutants, and mixed contaminants; electrokinetic barriers; integrated or coupled technologies; mathematical modeling; economic and regulatory considerations; and field application and performance assessment.

TD885 2009-015128 978-1-4200-8382-8

Carbon reduction; policies, strategies, and technologies.

Roosa, Stephen A. and Arun G. Jhaveri.

Fairmont Press, ©2009 277 p. \$125.00

Roosa, who specializes in energy management, carbon reduction technologies, and sustainable development, and Jhaveri, who specializes in energy, environment, sustainability, climate change, governance, and other fields, address the global climate change problem and offer guidelines for defining and applying carbon reduction policies, strategies, and technologies to control and abate the increase of carbon dioxide and other greenhouse gas emissions. They describe environmental impacts, government carbon reduction programs, local policies like the US Mayors Climate Protection Agreement, strategies for green buildings, alternative energy sources, carbon sequestration technologies, corporate programs, industrial and manufacturing technologies, organizational structures and resources, the history of the global environmental movement, and the financial aspects of carbon capture systems, as well as an action plan for carbon reduction. Distributed by Taylor & Francis.

MECHANICAL ENGINEERING & MACHINERY

TJ217 2008-038057 978-0-8493-7553-8

Deterministic learning theory for identification, recognition, and control.

Wang, Cong and David J. Hill. (Automation and control engineering; 29)

CRC / Taylor & Francis, ©2010 195 p. \$139.95

Written for researchers in broad areas of systems and control, such as nonlinear system identification, adaptive control, neural networks control, and temporal pattern recognition, this text by Wang (South China U. of Technology,

China) and Hill (Australian National U., Australia) presents a framework for learning from uncertain dynamic environments such as feedback control of uncertain nonlinear systems and recognition and classification of temporal-dynamical patterns. The framework, called "deterministic learning," is developed using concepts and theories of system identification, adaptive control, and dynamical systems and includes such elements as employment of the localized radial basis function network, satisfaction of a partial persistent excitation condition along a periodic or periodic-like orbit, guaranteed stability of a class of linear time-varying adaptive systems and locally accurate radial basis function network approximation of a partial system model in a local region along the periodic or periodic-like orbit.

TJ810 2009-014967 978-1-4200-7566-3

Solar energy; renewable energy and the environment.

Title main entry. Ed. by Robert Foster et al. (Energy and the environment)

CRC / Taylor & Francis, ©2010 352 p. \$119.95

This textbook for upper level undergraduates and graduate students in engineering, and engineers involved in the design and development of renewable energy, describes solar energy resources, their strengths, weaknesses, and applications, thermal and photovoltaic systems, and the economics involved in using them. Emphasizing practical aspects of solar technology implementation, Foster (engineering, New Mexico State U.) et al. discuss technical fundamentals, the design and implementation of solar water pumping, distillation, detoxification, refrigeration, and village power, and the suitability of photovoltaic power for remote-site applications with small to moderate power requirements.

**ELECTRICAL ENGINEERING,
ELECTRONICS, NUCLEAR ENGINEERING**

TK2945 2008-042210 1-884989-20-9

Nickel-hydrogen batteries; principles and practice.

Zimmerman, Albert H.

Aerospace Press, ©2009 495 p. \$89.95

Zimmerman, a researcher and consultant in aerospace batteries for space programs, provides an overview of nickel-hydrogen cell technology, how it was developed, how and why it works, how to implement it and realize its ultimate capacity, the fundamental principles of operation for key components, and what can go wrong if it is not properly managed. He also discusses performance characteristics, the construction and function of the nickel electrode, models, and the application and practice of using nickel-hydrogen cells in battery power systems.

TK5102 2008-047407 978-0-8493-7941-3

Security of mobile communications.

Boudriga, Nouredine.

CRC / Taylor & Francis, ©2010 612 p. \$99.95

Written for technicians and designers, this work brings

together policies, practices, and guidelines needed to address security issues related to wireless sensor networks, satellite services, mobile e-services, and inter-system roaming and interconnecting systems. It details the major mobile standards for securing mobile communications, and examines the architectures able to provide data confidentiality, authentication, integrity, and privacy in various wireless environments. The book also seeks to define the roles and responsibilities of network operators, service providers, and even customers in securing mobile communications. Boudriga is affiliated with the University of the 7th of November at Carthage, Tunisia.

TK5103 2009-007012 978-1-60566-665-5

Cooperative communications for improved wireless network transmission; framework for virtual antenna array applications.

Title main entry. Ed. by Murat Uysal.

IGI Publishing, ©2010 608 p. \$180.00

Multiple-input-multiple-output communications—also called cooperative communications—were developed in conjunction with multiple-antenna arrays, but here electrical and computer engineers from around the world explain how the approach can also be used in contexts where a gaggle of actual physical antennas is not feasible, such as cellular mobile devices and wireless-sensor and ad-hoc networks. They consider such aspects as power allocation, network coding for multi-hop wireless networks, cross-layer cooperative beamforming, space-time coding for non-coherent cooperative communications, single-carrier frequency domain equalization, applying majorization theory, and architectures for cellular networks. The references provided for each paper are also compiled at the end.

TK5103 2009-004395 978-1-60566-707-2

Optical access networks and advanced photonics; technologies and deployment strategies.

Title main entry. Ed. by Ioannis P. Chochliouros and George A. Heliotis.

Information Science Reference, ©2010 357 p. \$180.00

Contributors from around the world overview emerging optical access network solutions that promise to deliver extremely high data rates to end-users. Coverage encompasses not only technology, but also real-world deployment, business, regulatory, and economic issues. Most chapters explain technical background in relatively simple terms, making the book accessible to a non-technical audience. Material is in sections on current market trends and opportunities for improvement; modern optical technologies and future architectures for broadband access; technical challenges and determinants for further growth; business models and techno-economic evaluations; and the way forward. The book's readership includes postgraduate science and engineering students, academics and researchers, telecommunication engineers and technicians, communication network planners and designers,

ICT business development strategists, and telecommunication market analysts. Chochliouros and Heliotis are affiliated with the Hellenic Telecommunications Organization S.A., Greece.

TK5105 2009-027807 978-1-4398-0680-7

Cloud computing; implementation, management, and security.

Rittinghouse, John W and James F. Ransome.

CRC Press, ©2010 301 p. \$79.95

In computer jargon, 'cloud' refers to the Internet. In this introduction to the 'cloud revolution,' Rittinghouse (Hypersecurity, Houston) and Ransome (Cisco Collaborative Software Group), who hold doctorates in psychology and information systems, respectively, explain the evolution and characteristics of this latest trend in marketplace computing. After clarifying the difference between cloud computing services and virtual data centers, cloud vs. grid computing, and cloud vs. traditional models of software distribution, they discuss the building, management, end user access, and future of secure cloud networks. A Linux-based virtualization practicum and an executive scenario for cloud-based operations are appended.

TK5105 2009-024576 978-1-4200-9050-5

Foundations of Semantic Web technologies.

Hitzler, Pascal et al. (Chapman & Hall/CRC textbooks in computing)

Chapman & Hall/CRC, ©2010 427 p. \$79.95

Written by respected researchers with a deep understanding of the Semantic Web, this text is an in-depth treatment of Semantic Web technologies standardized by the World Wide Web Consortium: RDF and SPARQL for data exchange and querying; RDFS and OWL for expressive ontology modeling; and RIF for rule-based modeling. The book describes methods for specifying, querying, and reasoning with ontological information, and explores more advanced topics such as tools, applications, and engineering aspects. The text supplies readers with many useful pointers for employing Semantic Web technologies in practice, and addresses the forthcoming W3C recommended standards OWL 2 and RIF.

TK5105 2009-021585 978-1-60566-804-8

Semantic enterprise application integration for business processes; service-oriented frameworks.

Title main entry. Ed. by Gregoris Mentzas and Andreas Friesen.

Business Science Reference, ©2010 281 p. \$180.00

For graduate students, academics, researchers, and practitioners in enterprise application integration, semantic web technologies, interoperability, and semantic integration, Mentzas (information management, National Technical U. of Athens, Greece) and Friesen, a researcher in semantic technologies in software engineering, assemble 11 chapters that outline methods that incorporate and streamline processes that allow employees, decision makers, and industry partners to access corporate customer data independent of where it resides. Chapters describe how semantics can be

applied to solve enterprise problems, how software and architectural principles can integrate a set of enterprise computer applications, and methods and tools, theoretical foundations, principles, methodologies, architectures, technical frameworks, and case studies on topics such as cross-organizational business processes, enterprise application architectures and integration, interoperability, light-weight semantic integration, semantic service discovery and web service, the semantic web and the tourism industry, and web service discovery. Contributors work in semantics technology and applications, software research and development, software engineering, informatics and systems, and computer science, in Western Europe and Turkey.

TK5105 2008-047197 978-1-60692-461-7

Wireless networks; research, technology and applications.

Title main entry. Ed. by Jia Feng.

Nova Science Publishers, ©2009 401 p. \$129.00

The coverage problem remains important and fundamental for wireless sensor networks, and is treated here in 14 studies. They consider both area coverage and target coverage, and the degree to which the goals of pervasive Internet and network access have been achieved with community wireless networks. Scientists and engineers from a range of countries discuss such aspects as the successes and failures of the wireless community, linear dispersion codes for wireless communications, a lightweight scheme for node scheduling in wireless sensor networks, cognitive radio wireless networks, an agent-based and network-aware approach to grid resource scheduling, and message authentication for wireless networks based on ant-colony optimization.

TK7870 2008-048655 978-0-521-86283-7

High-speed electronics and optoelectronics; devices and circuits.

Prasad, Sheila et al.

Cambridge U. Press, ©2009 430 p. \$90.00

This reference work focuses on high-speed electronics and optoelectronics. Presented in two parts, the first discusses the devices themselves and the second pertains to circuit applications. The book provides coverage of the concepts and fundamental principles of operation as well as their circuit applications. Key features include: comprehensive coverage of electron devices, and discussions of semiconductor devices fabricated in a variety of material systems. Executive summaries introduce each chapter, and end-of-chapter problems are included to test comprehension of the material. The book is intended for graduate students in electrical engineering, industry professionals, and researchers. Authors are Prasad (emeritus, electrical and computer engineering, Northeastern U.), Schumacher (director, Competence Center on Integrated Circuits in Communications, U. of Ulm), and Gopinath (electrical and computer engineering, U. of Minnesota).

TK7870 978-1-84735-422-8

Polymer electronics—a flexible technology.

Title main entry. Ed. by Francis Gardiner and Eleanor Carter.

Smithers Rapra, ©2009 142 p. \$144.00 (pa)

This volume brings together 12 chapters by researchers from Europe, Asia, and Egypt who discuss current and future developments in polymer electronics technologies and applications. The volume includes discussion of topics such as organic and printed electronics, technical issues in printed electrodes for all-printed thin-film transistor applications, organic light-emitting diodes, highly conductive plastics, additives, the preparation and characterization of novel electrical conductive rubber bands, solar textiles, and intelligent food packaging. The book is aimed at researchers, material suppliers, component fabricators, and electronics manufacturers interested in the areas of photovoltaics and solar energy, displays, intelligent packaging, smart labels, medical electronics, defense and aerospace, and sensors and transducers.

TK7871 978-90-04-16592-2

Electrically conductive adhesives.

Title main entry. Ed. by R. Gomatam and K.L. Mittal.

VSP Publications, ©2008 425 p. \$248.00

Such adhesives are of high interest as substitutes for the environmentally destructive lead-solder interconnects that are now routinely used in microelectronic packaging applications. Fundamentally they are composed of an epoxy or other polymer resin, with an electrically conductive filler, but the combination and proportions of materials can vary considerably. Electrical, mechanical, and chemical engineers and scientists explore recent developments, mechanical durability and reliability aspects, and characterization and properties. Among specific topics are anisotropic conductive adhesives for flip-chip interconnects, aspect ratio and loading effects of multi-wall carbon nanotubes in epoxy, the chemorheology of epoxy/nickel conductive adhesives during processing and cure, and electrical properties of copper-filled adhesives and pressure-dependent conductive behavior of copper particles. There is no index. VSP is a subsidiary of Brill.

TK7871 2008-301441 978-1-84816-223-5

III-nitride devices and nanoengineering.

Title main entry. Ed. by Zhe Chuan Feng.

Imperial College Press, ©2008 462 p. \$146.00

This work focuses on nanoscale science and technologies based on GaN and related materials. It reviews recent research in Group III-Nitrides semiconductor materials, and on characterization, application, and development of the III-Nitrides semiconductor devices and nanoengineering for applications such as light emitting diodes (LEDs), blue laser diodes (LDs), photodetectors, and nano-devices. The book's 15 chapters cover topics such as high pressure bulk crystal growth of (Ga,Al)N, fabrication of GaN light emitting diodes by laser-off technique, high-resolution electron microscopy observations of GaN-based laser diodes, and growth and

development of III-Nitride photodetectors. Other subjects explored are laser diodes grown on bulk GaN substrate, III-Nitride light-emitting devices on patterned sapphire substrates, and recent trends in indium nitride nanomaterials. The book includes b&w images, and can be used as a resource for device design and processing engineers, material growers and evaluators, postgraduates and scientists in electrical and electronic engineering and materials engineering, and newcomers to the GaN field. Feng is affiliated with the National Taiwan University. Distributed by World Scientific.

TK7882 2009-006953 978-1-60566-725-6

Behavioral biometrics for human identification; intelligent applications.

Title main entry. Ed. by Liang Wang and Xin Geng.

Medical Information Science Reference, ©2010 505 p. \$245.00

The opening chapters of this collection introduce the different categories of behavioral biometrics and methodologies for evaluating the security and performance of behavioral biometric systems. Other contributions review recent advances in gait recognition, speaker recognition, handwriting identification, and computer mouse dynamics. Topics of the 19 papers include individual identification from video, ECG and EEG biosignals, Gabor wavelets, gaze-based personal identification, thermal infrared imagery, and game playing tactics. Wang is affiliated with the University of Melbourne and Geng with Southeast University in China.

TK8304 978-0-521-87510-3

Optoelectronic devices; design, modeling, and simulation.

Li, Xun.

Cambridge U. Press, ©2009 361 p. \$115.00

Li (electrical and computer engineering, McMaster U., Hamilton, Ontario, Canada) presents a text designed to bridge the gap between the knowledge of electromagnetic theory, quantum mechanics, and semiconductor physics and optoelectronic device design and modeling. The major topics addressed include the derivation and explanation of governing equations that model the closely coupled physics processes in optoelectronic devices; numerical solution techniques for the governing equations arising from the first section, and how these techniques are jointly applied in device simulation; and real-world design and simulation examples of optoelectronic devices, such as Fabry-Perot and distributed feedback laser diodes, electro-absorption modulators, semiconductor optical amplifiers, superluminescent light emitting diodes, and their monolithic integrations. The text offers researchers, device designers, and graduate students in optoelectronics the numerical techniques to obtain solutions for their own structures.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL574 978-1-56347-983-0

Fundamentals and applications of modern flow control.

Title main entry. Ed. by Ronald D. Joslin and Daniel N. Miller. (Progress in astronautics and aeronautics; v.231)

Amer. Inst. of Aeronautics & Astronautics, ©2009 521 p. \$104.25

Joslin (turbulence, stratified wakes, submarine maneuvering, and ocean energy conversion programs, Office of Naval Research) and Miller, who works in air vehicle sciences and systems for an aeronautics company, assemble 13 chapters that discuss emerging modern flow control technologies and various applications to aerospace platforms. Chapters cover the fundamentals of modern flow control, including history, flow physics, actuators, sensors, modeling/simulation, and instability and control theories; and introduce applications to air vehicle systems, including fixed wing airfoils, turbomachinery, combustion, aeroacoustics, vehicle propulsion integration, and rotorcraft. Contributors are engineers based in the US, Israel, and Spain.

CHEMICAL TECHNOLOGY

TP359 2009928606 978-1-84844-107-1

Innovation, markets and sustainable energy; the challenge of hydrogen and fuel cells.

Title main entry. Ed. by Stefano Pogutz et al.

Edward Elgar Publishing, ©2009 237 p. \$115.00

Fuel cells are devices that convert hydrogen to electricity, with no harmful emissions. In this case study of the hydrogen and fuel cell industry and markets, contributions from Europe, the US, and Japan examine the implications of introducing fuel cells, still in the demonstration phase, into the industrial system. After an overview of hydrogen and fuel cell technologies, the book investigates value chain structure, examines the strategies of relevant industry players and inter-organizational alliances, reports on the development of new markets, and describes policies that support hydrogen and fuel cell technologies in Europe, the US, and Japan. Material will be of interest to academics and researchers focusing on innovation management, sustainability, and environmental management, as well as policy makers and those in the fuel cell and hydrogen community. Pogutz is affiliated with Bocconi University, Italy.

MILITARY & NAVAL SCIENCE

UA23 2009-016484 978-0-313-35233-1

Military doctrine; a reference handbook.

Chapman, Bert. (Contemporary military, strategic, and security issues)

Praeger Security International, ©2009 197 p. \$49.95

Chapman (a government information and political science librarian at Purdue U.) offers a brief analytic overview of the role of military doctrine in the national military policy of the United States following World War II, followed by a guide to the relevant English-language documentary and scholarly literature and research resources for the United States. He covers similar materials concerning a number of other militarily significant nations, as well as organizations including

the United Nations, the North Atlantic Treaty Organization, and the European Union. The guide covers government publications and documents, the monographic scholarly literature, indexes and scholarly journals, and the "grey literature" (dissertations, theses, technical reports, think tank publications, and conference proceedings).<:R>>

UG479 2009-002113 978-0-7546-7726-0

Killer robots; legality and ethicality of autonomous weapons.

Krishnan, Armin.

Ashgate Publishing Co., ©2009 204 p. \$99.95

The advent of autonomous weapons (computerized weapons that do not require any human input for carrying out core missions, including the capability to independently identify targets and trigger themselves) can presage either a progress towards humanizing war or an unprecedented danger to humanity, argues Krishnan (U. of Texas at El Paso), who analyzes the legal and ethical issues that arise from their contemplation. Over the course of six chapters, he discusses the history of autonomous weapons, the military advantages that they may have, current weapons systems under development and possible technological futures of warfare, the compatibility of autonomous weapons with international law and the conventions of war, general ethical positions and issues concerning autonomous weapons and military robotics, and possible regulations for autonomous weapons arms control.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z666 2009-031729 978-1-55570-661-6

Implementing FRBR in libraries; key issues and future directions.

Zhang, Yin and Athena Salaba.

Neal-Schuman, ©2009 154 p. \$75.00 (pa)

Zhang and Salaba (library and information science, Kent State U.) describe the benefits and practical implementation of Functional Requirements for Bibliographic Records (FRBR) standards in libraries. They explain the purpose and background of this user-focused cataloging model meant to better meet user needs in the digital age, the reasons for its introduction, critical issues, its structure and components, and how it impacts and changes description standards, cataloging and metadata practices, and current standard development. They provide examples of successful application and implementation in different types of media, disciplines, and settings, and address current developmental research.

ZA4080 2009-027772 978-1-55570-664-7

The Kovacs guide to electronic library collection development; essential core subject collections, selection criteria, and guidelines, 2d ed.

Kovacs, Diane K.

Neal-Schuman, ©2009 303 p. \$150.00 (pa)

Kovacs, an internet and web trainer and consultant who has degrees in library and information science and instructional technology, provides a guide to strategies, tools, and resources for librarians wanting to develop, expand, or improve their electronic resources. She details basic principles for creating a collection plan, including management,

licensing, and cataloging issues. She then addresses subject areas—ready-reference, government documents, genealogy, business, employment, legal and medical information, math, engineering, education and homework, the arts, the humanities, and biological, physical, earth, social, and computer sciences—and selection processes, evaluation, top resources, and organization criteria for each, along with examples from libraries around the world. Expanded and updated, this edition incorporates new Web 2.0 services and government e-documents. It also covers the integration of the library catalog and library services, has a greater variety and scope of fee-based databases, and has a greater variety of electronic journals and books.



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