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Sci-Tech Book News Reviews

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.

PSYCHOLOGY

BF481 2008-041949 978-0-7546-7382-8
The multitasking myth; handling complexity in real-world operations.
Loukopoulos, Loukia D. et al. (Ashgate studies in human factors for flight operations)
Ashgate Publishing Co., ©2009 188 p. $99.95
Drawing on recent research in prospective memory and on a much longer history of studies of the basic mechanisms of attention memory, three human factors researchers with the National Aeronautical and Space Administration (NASA) offer a general account of the cognitive challenges posed by multi-tasking and why it is error-prone. They argue that forgetting to perform one crucial task among several, often with disastrous consequences, is rarely due to personal failure of the individual who forget; rather it is the outcome of the interaction of the intrinsic nature of human cognitive processes with task demands, an individual's experience, competing goals, and organizational factors. Their case studies come from flight operations.

GEOGRAPHY, HYDROLOGY, ENVIRONMENT

G70 2008-030228 978-1-4200-5512-2
Assessing the accuracy of remotely sensed data; principles and practices, 2d ed.
Congalton, Russell G. and Kass Green.
CRC / Taylor & Francis, ©2009 183 p. $99.95
Congalton (remote sensing and GIS, U. of New Hampshire) and Green, a consultant on geospatial strategy, technology, and policy issues, explain how to assess the accuracy of maps derived from remotely sensed data. They focus on thematic accuracy, and explain both design and implementation. This edition contains three new chapters, on fuzzy accuracy assessment, positional accuracy, and a case study related to mapping land cover and land use in the Florida panhandle, which reviews all the assessment methods discussed in the book. A complete presentation of how to assess the positional accuracy of a map has been added along with a discussion of its impact on thematic accuracy. The chapter on map change detection has been expanded to include more on special sampling issues.

G70 2009-001337 978-0-8194-7534-3
Fundamentals of polarimetric remote sensing.
Schott, John R. (Tutorial texts series; v.TT81)
SPIE, ©2009 244 p. $68.00 (pa)
This book takes a systems approach to the physical processes involved in the formation, collection, and analysis of polarimetric remote sensing data in the visible through longwave infrared spectrum. Emphasis is on earth observation at human scales. The book begins with a review of the polarized nature of electromagnetic energy and radiometry, then looks at ways to characterize a beam of polarized energy (Stokes vectors) and polarized energy matter interactions (Mueller matrices). The polarized bidirectional reflectance distribution function (pBRDF) is then introduced. This paves the way for the development of a governing equation for radiometric propagation of polarimetric energy. Methods for polarimetric image formation, processing, and display are described, as are methods for modeling and simulation of both reflective and emissive polarimetric image formation of synthetic scenes. In keeping with the tutorial nature of the series, there is an emphasis on the use of graphical and illustrative material to explain concepts, with numerous b&w images and tables of reference data. The text is targeted at those with a quantitative understanding of remote sensing who need an introduction to polarimetric signals as they relate to remote sensing. Schott teaches imaging science at the Rochester Institute of Technology.

GE45 2008-048946 978-1-4200-5549-8
Representing, modeling, and visualizing the natural environment.
Title main entry. Ed. by Nick Mount et al. (Innovations in GIS)
CRC / Taylor & Francis, ©2009 405 p. $139.95
State-of-the-art developments in geographic information systems (GIS) and their ability to accurately capture natural environments are discussed in this textbook for students and researchers, with representation, modeling and visualization approaches covered in a single volume. Editors Mount (geographical information science, U. of Nottingham, UK), Harvey (river management and restoration, U. of Nottingham, UK), Aplin (geographical information science, U. of Nottingham, UK) and Priestnall (geographical information science, U. of Nottingham, UK) have gathered the latest research from scholars and

experts in the field on the GIS technologies used to create both 2D and 3D representations of the natural environment. Keynote papers cover such topics as developing ontologies from a domain expert perspective, the development of an algebra for terrain-based flow analysis and the visualization of species distributions.

RECREATION, LEISURE, SPORT

GV1469 2008-943635 978-0-7695-3588-3
Games and virtual worlds for serious applications; proceedings.
International Conference VS-GAMES (2009: Coventry, UK)
Ed. by Genaro Rebolledo-Mendez et al.
Computer Society Press, ©2009 234 p. $199.00 (pa)
This volume contains the proceedings of the First International Conference in Serious Games and Virtual Worlds, held at the U. of Coventry, UK, in March 2009. Thirty-five papers and posters and a keynote speech discuss the use of games and virtual worlds for serious applications in education, training, and health and environmental fields. They describe new methodologies, frameworks, and theories that can be used to support development and analyze the efficacy of these games and virtual worlds. Coverage includes emotionally responsive robotic avatars, using games to improve student engagement, evaluation methodologies, games for personal fire safety skills or emergency medical procedures, using VoIP to communicate in war games, and interactive storytelling for children. Paper authors work in computer and information science, engineering, health and social sciences, business, and other fields around the world. Only an author index is provided.

HA30 2008-926086 978-1-84787-902-8
Modern regression techniques using R; a practical guide for students and researchers.
Wright, Daniel B. and Kamala London.
Sage Publications, ©2009 204 p. $99.95
Drawing on a workshop they presented to the legal psychology group at Florida International University in 2006, Wright and London introduce several useful extensions to the basic regression model, without too much mathematics but with several pictures and some of the basic references. They also introduce some facilities of the freeware package R, which works like syntax in many other statistics packages, they say, but is more flexible, has more procedures, and is cheaper. They begin with the software, citing sources for deeper study. Then, after review basic regression, they treat seven extensions in turn, providing both a description and the analysis of some data for each.

HC79 2008-052071 978-1-4200-8666-9
The green and virtual data center.
Schulz, Greg.
CRC / Taylor & Francis, ©2009 376 p. $79.95
Cutting across various IT data technology domains, this book discusses the interdependencies that need to be supported to enable a virtualized, energy-efficient, economical, and environmentally friendly data center. Part I looks at IT data center economic and environmental issues, and defines what constitutes a green data center. Part II examines elements of virtual data centers, including infrastructure resource management and measurements. Part III reviews various technologies for enabling a green and virtual data center, and Part IV outlines steps for putting together a green and virtual data center. Checklists and a glossary are included. The book has been written with several audiences in mind, including IT analysts, administrators, and architecture. With its clear writing style, other audiences for the book includes manufacturers and sales, marketing, support, and engineering organizations, as well as public relations, investors, and media professionals associated with IT technologies and services. Schulz is founder of a technology industry consultancy focusing on data infrastructure.

PRODUCTION, INDUSTRY, COMMERCE

HD30 2009-000669 978-1-4200-5285-5
Information security management metrics; a definitive guide to effective security monitoring and measurement.
Brotby, W. Krag.
Auerbach Publications, ©2009 223 p. $79.95
Information security training consultant Brotby has 20-plus years of experience in the computer security industry. He shares that knowledge in a text for those involved in developing and managing organization information risk. Coverage includes an overview of the current state of information security, governance, and the metrics imperative; a summary of current diverse options for measures, metrics, and monitoring; an exploration of the attributes of and criteria for good metrics; what can be measured and how; processes and methods for developing effective security management metrics; and a detailed, practical approach to meet strategic, management, and operational metrics requirements. Distributed by Taylor & Francis.

HD69 2008-038297 978-1-4200-7205-1
Project management of complex and embedded systems; ensuring product integrity and program quality.
Pries, Kim H. and Jon M. Quigley.
CRC / Taylor & Francis, ©2009 355 p. $89.95
Quigley, the manager of an electrical/electronics systems and verification group, has joined with Pries, a director of product integrity and reliability for an electronics company, to write this field manual for project managers who are working on embedded products "from concept to production." The authors define the role of the project manager and discuss each stage of the project including product development, process development, release to production, failure reporting, corrective actions and product support. Case studies are used from such companies as General Motors and the US Department of Defense to illustrate these development methods.

HT166 2008-026910 978-1-4200-5989-2
Modelling urban development with geographical information systems and cellular automata.
Liu, Yan.
CRC / Taylor & Francis, ©2009 188 p. $119.95
Liu (National Institute of Education, Nanyang Technological U., Singapore) shows researchers and planners how to use geographical information systems and cellular automata to model urban development. She describes a simulation model that was developed based on the principles of cellular automata that also incorporates the fuzzy set and fuzzy logic approach. She demonstrates its application simulating the spatial and temporal processes of urban development from 1976 to 2031 in Sydney, Australia, and includes discussion of physical constraint, transportation network, and urban planning factors.

LB1028 2009-900398 978-0-7695-3609-5
Education technology and computer; proceedings.
International Conference on Education Technology and Computer (2009: Singapore)
Computer Society Press, ©2009 351 p. $208.00 (pa)
An April 2009 conference brought together researchers, scientists, practitioners, and engineers from around the world to share research results in core areas of educational technology and computers. Papers from the conference are presented here, not organized by topic. Some general educational technology areas covered include students' interactions in online asynchronous discussion forums, e-portfolios for lifelong learning, group learning based on game theory, blogs as instructional tools for student writing, and the role of virtual communities in a Web 2.0 world. Papers on technical aspects predominate, explaining research on tools such as a language interpreter based on reusable components, a smart motion detection surveillance system, a security service for collaborative learning environments, and noise reduction of video sequences using detection methods. There are also papers that aren't related to educational technology, on topics such as fatigue life prediction of served aircraft aluminum alloy structure, numerical simulation of corrosion fatigue crack propagation, and newspaper vendor sales prediction using artificial neural networks. There is no subject index.

LB1028 2008-942683 978-0-7695-3557-9
Education technology and computer science; proceedings; 3v.
International Workshop on Education Technology and Computer Science (2009: Wuhan, Hubei, China) Ed. by Zhengbing Hu and Qintang Liu.
Computer Society Press, ©2009 3392 p. $715.00 (pa)
Contained in 3 massive volumes, the 780 papers of this proceedings were presented at the First International Workshop on Education Technology and Computer Science, held in March 2009 in Wuhan, China. The papers present the contributors' research in the theory and practice of virtual learning, online education, and distance education, with a focus on the myriad technical issues related to them. A small sample of topics includes curriculum reform of computer operating system, Bluetooth data acquisition system based on ARM, video quality assessment based on spatial-temporal distortion, and process oriented analysis for software automation. Each paper includes an abstract and list of references as well as visual materials, tables, models, and code. An author index is provided. Sadly, there is neither a subject index nor any organization of the papers, which are not grouped by topic, title, workshop, nor other classification scheme.

SCIENCE (GENERAL)

Q172 2008-038183 978-1-4200-7900-5
Chaotic modelling and simulation: analysis of chaotic models, attractors and forms.
Skiadas, Christos H. and Charilaos Skiadas.
CRC / Taylor & Francis, ©2009 349 p. $89.95
This reference covers the main models developed in chaos theory, and includes new extensions and variations. The text, supported by more than 500 graphs and illustrations, details how to design, estimate, and test a variety of models. Authors Christos Skiadas (Technical U. of Crete) and Charilaos Skiadas (Hanover College) focus on classical forms and attractors and new simulation methods and techniques. A sampling of topics includes: the Delay logistic model, three-dimensional and higher-dimensional models, non-chaotic systems, rotations, shape and form, chaotic advection, and chaos in galaxies and related simulations. The book will interest professionals working in areas of science and technology that include modeling of systems.

Q180 2008-042244 978-1-4129-7189-8
Conducting research literature reviews; from the Internet to paper, 3d ed.
Fink, Arlene.
Sage Publications, ©2010 253 p. $49.95 (pa)
Fink (medicine and public health, U. of California-Los Angeles) offers graduate students in the social and health sciences and business how to identify, interpret, and analyze the published and unpublished research literature. Among the specific aspects she addresses are identifying valid online bibliographic and article databases, using Boolean operators to refine a search, organizing the research literature by using bibliographic software, preparing a structured abstraction form, synthesizing and reporting results as part of proposals and papers or as a stand-alone report, evaluating qualitative research studies, and understanding and evaluating meta-analysis research. No dates are mentioned for previous editions, but this third incorporates recent technical developments, adds more examples, and links to a web site.

Q387 2008-927475 1-58603-871-0
Formal ontologies meet industry.
Title main entry. Ed. by Stefano Borgo and Leonardo Lesmo. (Frontiers in artificial intelligence and applications; v.174)
IOS Press, ©2008 157 p. $116.00
The goal of a formal ontology is to provide a domain- and application- independent view of reality for modeling knowledge and dealing with the semantic dimensions of information that has indefinite expandability, content and context independence, and the ability to accommodate different levels of granularity. In this volume, Borgo (Laboratory for Applied Ontology, Instituto di Scienze e Technologie della Cognizione, Italy) and Lesmo (informatics, U. di Torino, Italy) present 15 papers from the Third International Workshop on Formal Ontologies Meet Industry, held in Italy in June 2008. Among the topics addressed by the papers are the role of a formal pragmatics in business ontology, utilizing ontologies for petrochemical applications, implicit metadata generation on the semantic desktop using task management as example, using background knowledge and context knowledge in ontology mapping, application scenarios in road traffic management of ontology-driven situation awareness systems, ontological domain coding for cultural heritage mediation, an ontology for environmental risk evaluation and health and safety risk evaluation for construction, and relationship discovery ontology in asymmetric warfare.

MATH, COMPUTERS

QA21 978-0-88385-569-0
Who gave you the epsilion?; and other tales of mathematical history.
Title main entry. Ed. by Marlow Anderson et al. (Spectrum series)
Mathematical Assn. of America, ©2009 431 p. $65.50
The Association has begun reprinting some classic articles on the history of mathematics that it has published over the past century and more. The first anthology, *Sherlock Holmes in Babylon*, carried the field from earliest times up to Euler in the 18th century. The saga surged forward here into the 19th and 20th centuries. The 41 articles cover analysis; geometry, topology, and foundations; algebra and number theory; and surveys. Each section is bracketed with a foreword and an afterword to place the articles in the context of current research. Those who answered the title question with a Greek god (instead of Cauchy, of course) have wandered into the wrong aisle. Other topics include the history of the parallel postulate, the development of logics between the two World Wars, the foundation period in the history of group theory, and a popular account of some new fields of thought in mathematics.

QA76.57 2008-030775 978-1-60566-262-6
Handbook of research on secure multimedia distribution.
Title main entry. Ed. by Shiguo Lian and Yan Zhang.
Information Science Reference, ©2009 587 p. $265.00
This handbook provides answers to questions on the design of secure multimedia distribution systems. It addresses a variety of issues related to the protection of digital multimedia content, digital rights management systems, video watermarking and authentication techniques, and various applications. The book's 27 chapters are written by international contributors in computer science, telecommunication engineering, and information management. Major themes include digital rights management for streaming media and mobile communication, secure video surveillance systems, wireless video transmission, copyright protection in mobile multimedia devices, and image steganography. Lian is affiliated with France Telecom R&D (Orange Labs), Beijing, China. Zhang is affiliated with Simula Research Laboratory, Norway.

QA76.57 2008-039398 978-1-58488-966-3
Multimedia data mining; a systematic introduction to concepts and theory.
Zhang, Zhongfei and Ruofei Zhang. (Chapman & Hall/CRC data mining and knowledge discovery series)
Chapman & Hall/CRC, ©2009 293 p. $89.95
In the first full-length book on the topic, Zhongfei Zhang (computer science, State U. of New York) and Ruofei Zhang, a computer scientist and technical manager, introduce the field of multimedia data mining, its definition, theory, and applications. They discuss feature representation, knowledge representation, statistical theory and techniques, and soft computing techniques, and application examples such as image search and mining, image annotation, video search and mining, and audio classification. Also discussed are semantic repository training and concept discovery methods. The book is intended for practitioners, engineers, researchers, and advanced undergraduate and graduate students.

QA76.58 2008-029295 978-1-4200-6486-5
Process algebra for parallel and distrubuted processing.
Title main entry. Ed. by Michael Alexander and William Gardner. (Chapman & Hall/CRC computational science series)
CRC / Taylor & Francis, ©2009 415 p. $99.95
This book showcases recent applications of process algebras by researchers from diverse parts of the international computer science community. Contributions are organized in sections on parallel programming, distributed systems, and embedded systems. The first section presents a parallel algorithm for the Cell Broadband Engine processor of Sony, Toshiba, and IBM. It also develops a runtime environment to use with different parallel platforms. The next section of the book presents a process algebra that targets distributed applications, and introduces the Channel Ambient Machine for

mobile applications. The final section combines state-based Z with the event- based process algebra CSP in a formal methodology called Circus. The book will be of interest to students of process algebras, to practitioners who are using process algebras, and to developers who are looking for fresh approaches to software engineering in the face of concurrency. Alexander holds degrees in electrical engineering, business administration, and economics. Gardner teaches in the Department of Computing and Information Science at the University of Guelph, Canada.

QA76.59 2008-037391 978-1-60566-054-7
Mobile computing; concepts, methodologies, tools, and applications; 6v.
Title main entry. Ed. by David Taniar.
IGI Publishing, ©2009 3633 p. $1,950.00
This impressive 6-volume work presents over 300 chapters by over 400 contributors that detail projects and research they have carried out in various applications of mobile computing. Both practical and theoretical essays are included, written to be accessible to undergraduate students as well as researchers and business professionals. Mobile devices, mobile commerce, mobile learning, security, and implementation are some of the main themes. A sampling of chapter topics includes environments for mobile learning, protection of mobile agent data, semantic web services for smart devices based on mobile agents, design of mobile television in Europe, and relevance of mobile computing in medicine. Two sections are devoted to organizational and social implications and managerial impact, with topics that include cross-cultural comparison between the UK and Sudan, mobile phone and autonomy, and strategy aligned process selection for mobile customer services. The contributors are academics and researchers at institutions worldwide.

QA76.75 2009-002140 978-1-4200-6467-4
Requirements engineering for software and systems.
Laplante, Phillip A. (Auerbach series on applied software engineering)
CRC / Taylor & Francis, ©2009 241 p. $89.95
Prior to his career in academics, Laplante (software engineering, Pennsylvania State U.) spend some eight years as a software engineering and project manager in avionics, CAD, and software test systems, and directed business development for a software consulting firm; he has authored or edited 24 books and numerous journal articles, reviews, and editorials. Based on a Penn State course taught by the author, this text provides a review of the theoretical and practical aspects of discovering, analyzing, modeling, validating, testing, and writing requirements for systems of all kinds, particularly software-intensive systems. Incorporating a variety of formal methods, social models, and modern requirements writing techniques useful to practicing engineers, the text is suitable for professional software engineers, systems engineers, and senior undergraduate and graduate students in these fields.

QA76.75 2008-027309 978-0-7637-5420-4
Software architecture and design illuminated.
Qian, Kai et al.
Jones & Bartlett, ©2010 387 p. $69.95 (pa)
The new standards for baccalaureate software engineering education require that software architecture and design be taught as part of the core curriculum. Qian (Southern Polytechnic State U.), Fu (Hofstra U.), Tao (Pace U.), Xu (Kennesaw State U.), and Díaz-Herrera (Rochester Institute of Technology) present a textbook for use in upper-level undergraduate and graduate students courses, and as a reference text for software engineering courses and for software industry professionals. Coverage includes an introduction to the general concepts and guidelines; the object-oriented software

design methodology; detailed explanation of all architectural styles, including data flow, data-centered, hierarchical, implicit asynchronous communication, interaction-oriented, distributed, and component-based architectures; and a comprehensive case study integrating heterogeneous architectural styles.

QA76.758 2009-002434 978-0-07-160547-2
Software & systems requirements engineering; in practice.
Berenbach, Brian et al.
McGraw-Hill, ©2009 321 p. $59.99
Berenbach (technical manager, Siemens Corporate Research), Paulish (technical staff, Siemens Corporate Research), Kazmeler (vice president, Software Engineering Service, Siemens) and Rudorfer (RE Global Technology Field, Centers of Competence) describe proven software engineering techniques, such as SSRE methods and modeling procedure, for researchers and developers who need to create products in a faster, cheaper and more reliable manner. The authors provide tips on managing project objectives and user needs through the use of models, system tests and compliance verification. This volume also describes state-of-the-art techniques such as deriving and generating test cases from UML activity diagrams and handling RE for globally distributed software products and systems.

QA76.76 2008-033935 978-1-60566-256-5
Handbook of research on multi-agent systems; semantics and dynamics of organizational models.
Title main entry. Ed. by Virginia Dignum.
Information Science Reference, ©2009 265 p. $265.00
This work represents the maturation of the last 50 years of research on applying models of human organizations to inform an understanding of artificial organizations. International contributors in computer science and artificial intelligence overview current work in agent organizations from several perspectives. The book is divided into six sections, each focusing on a different aspect of multi-agent organizations: methodologies and frameworks for agent organizations, formal approaches for agent organizations, interactions in organizations, norms and institutions, organizational dynamics, and applications. Some specific topics discussed include a declarative semantics for describing agent societies, communications for agent- based human team support, and a formal Petri net-based model for team monitoring. Dignum is affiliated with Utrecht University, The Netherlands.

QA76.76 978-0-7656-2352-2
Systems analysis and design; techniques, methodologies, approaches, and architectures.
Title main entry. Ed. by Roger H.L. Chiang. (Advances in management information systems; v.15)
M.E. Sharpe, Inc., ©2009 240 p. $199.95
This book gathers work on approaches underlying system analysis and design (SA&D), such as structured development, object orientation, and sociotechnical design. It examines specific methods relying on these approaches, and describes techniques for developing systems using these methods. The distinct architectural principles for designing complex artifacts in the field of information systems are discussed and exemplified in the context of the varied requirements of system stakeholders. Work is presented in sections on techniques for systems engineering and requirements elicitation, methodology foundation and evolution of systems analysis and design, agent-oriented systems analysis and design methodologies, and new approaches and architectures for information systems development. Some areas discussed include flow-service-quality systems engineering, iteration in systems analysis and design, and the transition to agile software development in a large-scale project. The book includes online access (online access can also be purchased separately).

QA76.9 2008-922611 978-1-58603-847-2
Building and using datasets on armed conflicts; proceedings.
NATO Advanced Research Workshop on Indicators and Databases for Risk Prevention (2007: Grenoble, France)
Ed. by Mayeul Kauffman. (NATO science for peace and security series; E, Human and societal dynamics; v.36)
IOS Press, ©2008 189 p. $161.00
Kauffman (École de la paix, France) presents 11 papers that explore the problem of collecting and operationalizing data that will allow for robust theory-building and theory-testing for understanding armed conflict. Opening contributions discuss the purpose of data collection by exploring the scientific requirements of data creation, the use of data diversity to test the robustness of theory, and the history of the creation and use of datasets by a French non-governmental organization that seeks to influence French government policy. Others discuss issues concerning concept definition and data building, including varied definitions of armed conflict, the definitional problems in building a database on hostage-barricade terrorism and abductions, and the influence of temporal considerations in finding definitional clarity in the development of conflict prevention indicators. A final set of papers discuss the mutually reinforcing relationship between openness and reliability in the data building process, the process of merging data sets, the methodology and rationale behind the ACLED (Armed Conflict Location and Event Data) Data Project, and the transformation of data sets into intelligible graphics.

QA76.9 2008-52439 978-1-60566-326-5
Cyber security and global information assurance; threat analysis and response solutions.
Title main entry. Ed. by Kenneth J. Knapp.
Information Science Reference, ©2009 434 p. $195.00
Of interest to academics and practitioners in computing and security, this collection of current international work explores solutions to problems

in cyber security from both national and global perspectives. Chapters are in sections on risk and threat assessment, organizational and human security, emergency response planning, and security technologies. Specific subjects addressed include an attack graph-based approach for threat identification in an enterprise network, managing identity fraud, information attributes and their relative significance during catastrophic events, and introduction, classification, and implementation of honeypots. The underlying premise of the book stresses the global nature of cyber security problems. Each chapter has gone through a double blind review, with contributors responding to comments from at least three external reviewers. A detailed table of contents gives summaries of each chapter. Knapp is affiliated with the US Air Force Academy.

QA76.9 2008-050947 978-1-4200-8887-8
Human-computer interaction; designing for diverse users and domains.
Title main entry. Ed. by Andrew Sears and Julie A. Jacko. (Human factors and ergonomics)
CRC / Taylor & Francis, ©2009 265 p. $89.95
This is the third volume of a four-volume handbook dealing with the field of human-computer interactions, edited by Sears (information systems, U. of Maryland Baltimore County) and Jacko (director, Institute for Health Informatics, U. of Minnesota). It addresses design issues related to user and domain diversity. It includes 13 chapters on gender issues, design for older users and children, physical and mental/perceptual disabilities and design, design for functionally illiterate populations, and computing technologies for deaf and hard of hearing users. It also discusses design issues for healthcare, games/entertainment, motor vehicle, and aerospace domains.

QA76.9 2008-050945 978-1-4200-8890-8
Human-computer interaction; development process.
Title main entry. Ed. by Andrew Sears and Julie A. Jacko. (Human factors and ergonomics)
CRC / Taylor & Francis, ©2009 337 p. $89.95
This is the final volume of a four-volume handbook dealing with the field of human-computer interactions, edited by Sears (information systems, U. of Maryland Baltimore County) and Jacko (director, Institute for Health Informatics, U. of Minnesota). It includes 15 chapters addressing requirements specification, design and development, and testing and evaluation activities. Specific topics include task analysis, contextual design, personas, scenario-based design, participatory design, and evaluation techniques such as usability testing and survey design.

QA76.9 2008-049135 978-1-4200-8885-4
Human-computer interaction; design issues, solutions, and applications.
Title main entry. Ed. by Andrew Sears and Julie A. Jacko. (Human factors and ergonomics)
CRC / Taylor & Francis, ©2009 363 p. $89.95
This is the second volume of a four-volume handbook dealing with the field of human-computer interactions, edited by Sears (information systems, U. of Maryland Baltimore County) and Jacko (director, Institute for Health Informatics, U. of Minnesota). Sixteen chapters address a range of design issues, including visual design principles for usable interfaces, global/intercultural user interface design, multimedia user interface design, conversational speech interfaces, multimodal interfaces, adaptive interfaces and agents, mobile interaction design, tangible user interfaces, reducing cognitive complexity, information visualization, groupware and computer-supported cooperative work, human-centered design of decision support systems, online communities, virtual environments, and privacy and security.

QA76.9 2008-049134 978-1-4200-8881-6
Human-computer interaction; fundamentals.
Title main entry. Ed. by Andrew Sears and Julie A. Jacko. (Human factors and ergonomics)
CRC / Taylor & Francis, ©2009 331 p. $89.95
This is the first volume of a four-volume handbook dealing with the field of human-computer interactions, edited by Sears (information systems, U. of Maryland Baltimore County) and Jacko (director, Institute for Health Informatics, U. of Minnesota). It contains 16 chapters discussing fundamental issues including, for humans, perceptual-motor interaction, human information processing, mental models, emotion, cognitive architecture, task loading and stress, motivation and persuasion, and human error identification and, for computers, input technologies and techniques, sensor- and recognition-base input, visual displays, haptic interfaces, nonspeech auditory output, network-based interaction, wearable computers, and design of computer workstations.

QA273 2008-033436 978-1-4200-8743-7
The Weibull distribution; a handbook.
Rinne, Horst.
CRC / Taylor & Francis, ©2009 784 p. $99.95
Since Waloddi Weibull presented his distribution to the international scientific community in 1951, hundreds of authors around the world have contributed to its development. Compiling findings from dozens of scientific journals and hundreds of research papers, Rinne (economics and management science, Justus-Liebig-University, Giessen, Germany) examines the origin and statistical properties of the Weibull distribution, and related distributions. The author also presents various approaches to estimate the parameters of the Weibull distribution under all possible situations of sampling data, as well as approaches to parameter and goodness-of-fit testing. The text is intended as a reference for those who have to model statistical data coming from various fields, particularly the life sciences and the engineering sciences, and assumes the reader has a basic knowledge of calculus, probability theory, and statistical theory.

QA372 2008-050784 978-1-4200-8248-7
Advanced differential quadrature methods.
Zong, Zhi and Yingyan Zhang. (Chapman & Hall/CRC applied mathematics and nonlinear science series)
CRC / Taylor & Francis, ©2009 339 p. $99.95
Nonlinearity, discontinuity, multiple scales, singularity, and irregularity continue to infest computational science and engineering, and only numerical methods seem to be effective against them. Of these, differential quadrature methods have displayed high accuracy, straightforward implementation, and generality in a variety of problems, and so are becoming very popular. Zong (Daliana U. of Technology, China) and Zhang (National U. of Singapore) introduce readers to the limitations of the direct differential quadrature methods, then formulate several new methods and apply them to problems that are beyond the capabilities of the direct method. This is the first new development in differential quadrature in many years, they say. Readers are not expected to be familiar with the physical problems used as examples, only to understand the fundamentals of calculus, ordinary and partial differential equations, and numerical methods.

QA377 2008-048317 978-0-8218-4784-8
Layer potential techniques in spectral analysis.
Ammari, Habib et al. (Mathematical surveys and monographs; v.153)
American Mathematical Society, ©2009 202 p. $69.00
Written for researchers and students working with partial differential equations, integral equations and inverse problems, this textbook provides an asymptotic theory for eigenvalue problems that can be applied to band gap structures and the optimal design of photonic and phononic crystals. Ammari (Director of Research, CNRS, Institute Langevin, LOA), Kang (mathematics, Inha U., Korea) and Lee (mathematical sciences, Seoul National U., Korea) review the Gohberg and Sigal Theory before presenting eigenvalue perturbation problems and applications for Laplacian and Lamé systems. Engineering and physics researchers may also find these theories useful when dealing with layer potential techniques.

PHYSICS

QC173 2008-040940 978-1-4200-6827-6
Aperiodic structures in condensed matter; fundamentals and applications.
Barber, Enrique Maciá. (Series in condensed matter physics)
CRC / Taylor & Francis, ©2009 443 p. $129.95
Aperiodic structures are proving to be invaluable in the creation of semiconductors, memory storage and nanotechnology. Barber (Universidad Complutense de Madrid, Spain) also finds them beautiful. His fascination with the patterns within the structures is evident in this introduction to the field. Intended for those with a thorough grounding in physics and mathematics, the book traces the dawning of awareness of these forms found in nature through quasicrystals, Fibonacci superlattices and, of course, the DNA double helix. He also discusses applications in optics, materials science and biophysics. Barber closes with a survey of mathematical tools necessary in the exploration of this ever-widening field.

QC176 2008-042181 978-1-4200-7265-5
Magnetic anisotropies in nanostructured matter.
Weinberger, Peter. (Series in condensed matter physics)
CRC / Taylor & Francis, ©2009 310 p. $119.95
Weinberger (computer materials science, Vienna Institute of Technology, Austria) presents engineers with this summary of the theoretical means to describe magnetic anisotropies and interlayer exchange coupling in nanosystems. Topics covered in the 19 chapters include: magnetic anosotropy energies, exchange and Dzyaloshinskii-Moriya interactions, temperature- dependent effects, spin dynamics, and how methods of describing electric and magneto-optical properties are applied to magnetic nanostructured matter.

QC367 2008-037129 978-0-8493-3760-4
Handbook of optical metrology; principles and applications.
Title main entry. Ed. by Toru Yoshizawa.
CRC / Taylor & Francis, ©2009 730 p. $139.95
This handbook for researchers, engineers, and students compiles current research and applications on optical metrology. Part I, on fundamentals of optical elements and devices, covers light sources, lenses and prisms, optoelectronic sensors, and optical- mechanical elements. Part II explains fundamental principles and techniques for metrology, in chapters on areas including propagation of light, interferometry, holography, speckle methods, and Moire metrology. Part III describes practical applications in areas including three-dimensional shape measurement, fringe analysis, photogrammetry, optical thin film and coatings, and film surface and thickness profilometry. Yoshizawa is affiliated with the Department of Biomedical Engineering at Saitama Medical University.

QC611 2008-030738 978-1-4200-7281-5
Ultrafast dynamics and laser action of organic semiconductors.
Title main entry. Ed. by Zeev Valy Vardeny.
CRC / Taylor & Francis, ©2009 319 p. $129.95
This book reviews recent work in ultrafast photophysics and laser action in the class of pi-conjugated organic semiconductors. Editor Vardeny (physics, University of Arizona) has included perspectives from both sides of the debate on whether the excited state in organic semiconductors is band-like, with electrons and holes in conduction and valence bands similar to regular semiconductors, or whether the photogenerated geminate electron-holes are bound together to form tightly bound excitons with large binding energy. The first four chapters examine the interplay of charge (polarons) and neutral (excitons) photoexcitations in pi-conjugated polymers,

oligomers, and molecular crystals in the time domain of 100 fs-2 ns. The book's other two chapters summarize the state of the art in laser action in organic semiconductors, emphasizing the existence of five different types of laser action phenomena. Each laser action type is discussed and examples are provided. Optoelectronic applications using laser action are detailed.

QC718 2008-039817 978-1-60692-232-3
Physics and technology of high current discharges in dense gas media and flows.
Rutberg, Philip.
Nova Science Publishers, ©2009 214 p. $89.00
The book is dedicated to research results and technical applications in the field of dense low-temperature plasma. Three chapters cover high-current discharges in dense and super dense gas environments, investigation of high-current discharges in gas environments, and pulse electric discharges in liquids. New technologies described include hyper-acceleration on the basis of electric discharge and combined units, devices for bactericidal water treatment, and the generation of charged oxide nanoparticles and their applications in biology, genetics, and oncology. Chapter abstracts, introductions, and conclusions are included, along with b&w photos, images, and illustrations. Rutberg is affiliated with the Institute for Electrophysics and Electric Power (RAS), St. Petersburg, Russia.

QC763 2008-029606 978-0-470-25882-8
Electron paramagnetic resonance; a practitioner's toolkit.
Title main entry. Ed. by Marina Brustolon and Elio Giamello.
John Wiley & Sons, ©2009 539 p. $125.00
Electron paramagnetic resonance or electron spin resonance is similar to nuclear magnetic resonance, but with the focus on electron spins instead of the spins of atomic nuclei. In this work, Brustolson (physical chemistry, U. degli Studi di Padova, Italy) and Giamello (inorganic chemistry, U. degli Studi di Torino, Italy) present 13 chapters that are intended to collectively provide a broad map of the field and its directions. The volume begins with an introduction to basic principles, experimental methods, and applications, followed by chapters on electron paramagnetic resonance spectroscopy in the liquid phase, pulsed electron paramagnetic resonance, electron paramagnetic resonance spectra in the solid state, and *ab initio* modeling. The remaining chapters discuss applications, covering spin trapping, radiation produced radicals, electron paramagnetic resonance in biochemistry and biophysics, electron paramagnetic resonance detection of radicals in biology and medicine, electron paramagnetic resonance applications to catalytic and porous materials, and electron paramagnetic resonance of charge carriers in solids.

CHEMISTRY

QD8 2008-030749 978-1-4200-7649-3
Chemical information mining; facilitating literature-based discovery.
Title main entry. Ed. by Debra L. Banville.
CRC / Taylor & Francis, ©2009 193 p. $99.95
Banville, a scientific information analyst working in drug discovery, presents techniques for choosing and using text-mining tools for scientific research, focusing on information extraction issues and the value of available solutions to academic and commercial scientists. After introducing the drivers behind chemical text mining, the book discusses chemical semantics, and describes tools that identify and convert chemical names and images to structure-searchable information. It explains natural language processing, name entity recognition concepts, and semantic web technologies. Current trends in the field are also explored. A final section looks at the place of information mining in the research needs of life scientists. Full-page b&w screen shots (with one page in color) are included.

QD75 2008-031581 978-1-4200-5947-2
Introduction to multivariate statistical analysis in chemometrics.
Varmuza, Kurt and Peter Filzmoser.
CRC / Taylor & Francis, ©2009 321 p. $119.95
This introductory volume presents the most important multivariate statistical methods for analyzing chemical data. Varmuza (chemometrics, Vienna U. of Technology, Austria) and Filzmoser (statistics, Vienna U. of Technology) reflect the practical approach of chemometrics and the formal approach of statistics as they address methods such as multivariate data analysis, principal component analysis, calibration, regression analysis, classification methods, clustering, and preprocessing, and apply them to real data examples from chemometrics. They use the R software environment. The book is aimed at chemometricians, scientists and practitioners in other areas, and statisticians.

QD502 978-3-527-32344-9
Strained metallic surfaces; theory, nanostructuring and fatigue strength.
Levitin, Valim and Stephan Loskutov.
Wiley-VCH, ©2009 250 p. $145.00
Levitin (research, National Technical U. of Ukraine) and Loskutov (physics, National Technical U. of Ukraine) discuss the surface science of metals and related fundamentals with practical applications, specifically in fatigue performance. The authors combine theory, experimental techniques, examples, and modeling to provide a strong understanding of the intricacies of surfaces and their differences to bulk materials. The monograph also traces the steps required in macroscopic metallic components and surface nanostructuring. Numerous graphs and other illustrations support the clearly-written text. The book is intended for students as well as engineers and researchers.

QD555 2008-431456 978-0-85404-550-1
Spectroelectrochemistry.
Kaim, Wolfgang and Axel Klein.
Royal Soc. of Chemistry, ©2008 236 p. $169.99
Kaim (inorganic chemistry, U. of Stuttgart), Klein (chemistry, U. of Cologne), and 14 contributors discuss the combining of reaction-oriented electrochemistry and species-focused spectroscopy to identify unknown species formed as intermediates or products in a redox reaction. Noting that neither method alone may be appropriate for that purpose, the authors explore the use and development of the combined methodology. The variety of reactions and materials included are supported and complemented by concise interpretations of results in understanding redox reactions. The reference includes numerous illustrations and extensive references. It is intended for both experts and newcomers to the field, as well as scientists from other areas of chemistry with an understanding of electrochemistry. It is distributed in the U.S. by Springer-Verlag.

BIOLOGY

QH324 2008-934788 978-1-934115-02-2
Bioinformatics for systems biology. (CD-ROM included)
Title main entry. Ed. by Stephen Krawetz.
Springer, ©2009 639 p. $139.00
Bioinformatics enables the integration of information from different datasets in the biological sciences. This book/CD-ROM reference text supports the training of biologists and computer scientists in an interdisciplinary environment. Part I provides the computer scientist with an introduction to the underlying principles of cell biology, and Part II introduces the biologist to tools for statistical analysis of large datasets. Parts III and IV cover transcriptome analysis and structural and functional sequence analysis. Parts V and VI give instructions for literature mining and for using genomic databases, with chapters on specific tools such as PubMed, BiblioSphere, iHOP, KEGG, EMAGE, and Ensembl. Part VII shows how to relate information from databases to biological networks. The book's final section describes applications of bioinformatics in metabolomics, functional genomics, and personalized medicine. B&w images and screenshots, plus a few in color, are included in the book; the companion CD-ROM contains images from the book in color, which can be used for slides in lectures and presentations. The text is for students, educators, and researchers in life sciences, computational biology and mathematics.

QH324 2008-942271 978-1-934115-64-0
Systems biology.
Title main entry. Ed. by Ivan V. Maly. (Methods in molecular biology)
Humana Press Inc., ©2009 500 p. $110.00
Editor Maly (computational biology, U. of Pittsburgh) has assembled this textbook on systems biology for researchers and students who need to master the mathematics and engineering required to make predictions and inferences from molecular data. Expert contributors explain the theoretical basis behind systems biology methods such as the analysis of biomolecular systems, spatial analysis and control of cellular processes and methods for larger-scale systems analysis. Emphasis is placed on a smooth transition between laboratory results and systems-biological research techniques, and a practical evaluation of the most common pitfalls in data analysis is also presented.

QH506 2008-038134 978-1-4200-6119-2
Introduction to molecular biology, genomics, and proteomics for biomedical engineers.
Northrop, Robert B. and Anne N. Connor. (Biomedical engineering series)
CRC / Taylor & Francis, ©2009 453 p. $99.95
This introductory text outlines concepts in molecular biology, genomics, and proteomics for one-semester courses taken by biomedical, electrical, and chemical engineers. Northrup, a retired professor of electrical and systems engineering at the U. of Connecticut, and Connor, a writer, researcher, and analyst for a medical nonprofit organization, explains the biochemical relations that permit life to exist and how they may be modeled and manipulated in genomic-based medicine and genetic engineering. Topics such as stem cell research, genetic diseases, cloning, genetically modified organisms, parthenogenesis, and chimeras are included, as are ethical problems and reviews of basic and cell biology. Knowledge of college algebra, basic calculus, ordinary differential equations, and linear algebra is assumed, as well as experience in college courses on chemistry, cell biology, or human physiology and anatomy.

MEDICINE (GENERAL & PUBLIC ASPECTS)

R119 2008-040451 978-1-60566-332-6
Mobile health solutions for biomedical applications.
Title main entry. Ed. by Phillip Olla and Joseph Tan.
Medical Information Science Reference, ©2009 347 p. $225.00
Featuring contributors from 11 different countries, this book presents current work on mobile health applications and technologies and patient monitoring and wearable devices. The first section of the book presents case studies highlighting the successes and challenges of mobile health projects, with chapters on topics such as accessing an existing virtual electronic patient record with a secure wireless architecture, and mobile nutrition tracking for patient populations with low literacy skills. The second section presents research on wearable monitoring devices incorporating ambient displays, wireless networks, and mobile phones. The final section of the book focuses on context aware systems for use in mobile health applications, with work on topics such as patient consent and task distribution. The book will be of interest to healthcare providers and practitioners, as well

as device and system developers and vendors. Olla is affiliated with Madonna University. Tan is affiliated with Wayne State University.

R857 2008-941063 978-1-60327-566-8
Biosensors and biodetection; methods and protocols; v.1: Optical-based detectors.
Title main entry. Ed. by Avraham Rasooly and Keith E. Harold. (Methods in molecular biology; v.503)
Humana Press Inc., ©2009 452 p. $110.00
Rasooly (FDA Center for Devices and Radiological Health, Maryland; National Cancer Institute) and Herold (bioengineering, U. of Maryland, College Park) present a two-volume work (Nos. 503 and 504) describing the basic types and elements of biosensors from a methods point of view, with enough technical detail so informed readers can understand the technology and be able to build similar devices. Volume 503 contains 25 chapters by 63 international academics, researchers, and industry specialists dealing with both direct and indirect style sensors in optical-based detectors, and includes methods involving surface plasmon resonance, interferometric sensors, CCD based detectors, and spectrometers. Each chapter includes an introduction, lists of materials, step-by-step protocols, and tips on troubleshooting and avoiding known pitfalls. Electrochemical and mechanical detectors, lateral flow, and ligands for biosensors are covered in Volume 504. For engineering, chemical, and physical science researchers, and bioengineering, biomedical engineering, and biology faculty and students.

R857 2008-941063 978-1-60327-568-2
Biosensors and biodetection; methods and protocols; v.2: Electrochemical and mechanical detectors, lateral flow and ligands for biosensors.
Title main entry. Ed. by Avraham Rasooly and Keith E. Harold. (Methods in molecular biology; v.504)
Humana Press Inc., ©2009 464 p. $110.00
Rasooly (FDA Center for Devices and Radiological Health, Maryland; National Cancer Institute) and Herold (bioengineering, U. of Maryland, College Park) present a two-volume work (Nos. 503 and 504) describing the basic types and elements of biosensors from a methods point of view, with enough technical detail so informed readers can understand the technology and be able to build similar devices. Volume 504 contains 24 chapters by 68 international academics, researchers, and industry specialists dealing with direct measurement sensors, indirect methods, ligands, and related technologies, including methods involving electrochemical detectors, recognition ligands, antibodies, aptamers, and peptides. Each chapter includes an introduction, lists of materials, step-by-step protocols, and tips on troubleshooting and avoiding known pitfalls. Direct and indirect style sensors in optical-based detectors are covered in Volume 504. For engineering, chemical, and physical science researchers, and bioengineering, biomedical engineering, and biology faculty and students.

R857 2008-050005 978-1-60566-314-2
Handbook of research on advanced techniques in diagnostic imaging and biomedical applications.
Title main entry. Ed. by Themis P. Exarchos et al.
Medical Information Science Reference, ©2009 569 p. $265.00
This handbook is intended for experienced researchers, graduate students, computer engineers, and medical practitioners working in the field of medical image analysis and information technologies in biomedicine. It presents current international research findings in biomedical imaging and in diagnostic and decision support methodologies, with coverage ranging from theoretical and algorithmic problems to successful biomedical image-guided, decision-support systems. The first section introduces advanced image-based decision- support applications, and overviews computational methods and tools applied in decision-support systems. The second section presents novel methods in the field of biomedical imaging, looking at areas such as 3D quantitative radionuclide dosimetry and infrared imaging. The third section describes approaches to image processing and their medical applications, with chapters on areas such as anomaly detection in medical image analysis and segmentation methods in ultrasound images. A detailed table of contents gives summaries of each chapter. The editors are affiliated with the University of Ioannina, Greece.

R858 2008-028366 978-1-60566-218-3
Data mining and medical knowledge management; cases and applications.
Title main entry. Ed. by Petr Berka et al.
Medical Information Science Reference, ©2009 440 p. $225.00
Berka (University of Economics, Czech Republic) collects case studies in which advanced data mining and knowledge management solutions are used in biomedical research. Material in the first section, on theoretical aspects, discusses basic notions of data mining and knowledge management with respect to medicine. The second section presents general applications in areas such as biomedical image registration and fusion, biomedical signal processing, and quality assessment of medical web sites. The third section of the book presents the results of several case studies of data mining applied to various specific medical problems, such as gene expression mining, Gaussian-stacking multiclassifiers for human embryo selection, and data mining in atherosclerosis risk factor data. The book will be of interest to researchers and students in computer science and medicine, and to physicians and managers in the healthcare industry. Medical Information Science Reference is an imprint of IGI Global.

R858 2008-043763 978-1-60566-274-9
Information retrieval in biomedicine; natural language processing for knowledge integration.
Title main entry. Ed. by Violaine Prince and Mathieu Roche.
Medical Information Science Reference, ©2009 432 p. $225.00
Written for researchers and practitioners in the field of biomedicine, this collection of research articles stressed the need for broader applications of natural language processing (NLP) for a more fluid exchange of information in the field. Editors Prince and Roche (computer science, U. Montpellier 2, France) have collected research studies that explore how NLP works at a lexical, sentence and segment level, especially in applications such as text mining and medical information retrieval systems. A group of papers explores the latest IR software in biomedicine, and how these applications use collective intelligence analysis and language engineering. Medical Information Science reference is an imprint of IGI Global.

RA971 2008-054089 978-1-55648-359-2
The engaged workforce; proven strategies to build a positive health care workplace.
Manion, Jo.
AHA Press, ©2009 450 p. $86.00 (pa)
Manion is a best-selling author, consultant and former nurse, and she has written this guide to creating positive work cultures for leaders and managers who need to cultivate a more committed and engaged attitude within a workforce. The author uses research in the fields of organizational development, business and psychology to develop strategies for creating a feel of "community" among co-workers, encouraging innovation and performance and focusing on results. The author also reviews special challenges within workplace environments such as age and cultural diversity.

TECHNOLOGY (GENERAL)

T57 2008-009818 978-1-4200-7283-9
Human factors in simulation and training.
Title main entry. Ed. by Dennis A. Vincenzi et al.
CRC / Taylor & Francis, ©2009 450 p. $99.95
For human factors professionals, Vincenzi, a research psychologist at the Naval Air Warfare Center Training Systems Division, et al. assemble 21 chapters that cover human factors issues in using simulation tools and training. Contributors working in technology, psychology, engineering, cognitive science, and aviation in the military and at universities and companies in the US discuss the application of human factors principles in generating, facilitating, and improving simulation, and how simulation itself can address human factors issues such as training, design, evaluation, testing, and visualization. Theory and application are covered, as are areas such as traditional training, augmented reality, virtual reality, surface ships, submarines, naval and commercial aviation, space, and issues such as fidelity, interfaces and control devices, transfer of training, simulator sickness, and effects of motion.

T57 2009-003648 978-1-58488-076-9
Optimal design for queuing systems.
Stidham, Shaler.
Chapman & Hall/CRC, ©2009 371 p. $89.95
This textbook on the optimal design of queueing systems is aimed at engineers who need to set parameters such as arrival and service rates before queues are put into operation. Stidham (statistics and operations research, U. of North Carolina at Chapel Hill) introduces the design models common to queueing systems before discussing optimal arrival rates in single-class and multi-class queues, dynamic adaptive algorithms, optimal service rates and multi-facility systems. Both single-class and multi-class network models for queues are described, as are scheduling systems for single-server queues.

T58 2008-047748 978-1-60566-334-0
Standardization and digital enclosure; the privatization of standards, knowledge, and policy in the age of global information technology.
Schoechle, Timothy D.
Information Science Reference, ©2009 358 p. $165.00
According to the author, an oppositional discourse has emerged within the fields of law and public policy, concerning the privatization, or "enclosure," of ideas—analogous to the land enclosure movement in 16th century England—and the expansion of intellectual property rights, resulting in the "fencing off" of the intellectual commons. Schoechle (University of Colorado) uses the enclosure discourse as an interdisciplinary framework for examining the debate over the privatization of international technical standards. His study, which draws on a theoretical perspective of political economy and theories of the public sphere, applies methods of discourse analysis and historiography in examining the international standards system and the vast array of traditional standard setting organizations and emerging industry consortia. He argues that key terms used in the discourse on standards and standardization, such as "open," "public," and "private," are often ill-defined and conflicting. About 100 pages of appendices provide reports and a glossary. The book's readership includes academics, policymakers, and practitioners interested in such issues as technical innovations, access to information and media, intellectual property, and emerging industrial economic development.

ENGINEERING (GENERAL, CIVIL)

TA165 2009-323096 978-981-283-597-0
Sensors and microsystems; proceedings.
Italian Conference on Sensors and Microsystems (13th: 2008: Rome, Italy) Ed by C. Di Natale et al.
World Scientific, ©2009 544 p. $148.00
This book is a collection of almost 90 papers presented during the 13th Italian Conference

on Sensors and Microsystems held in Rome, Italy, in February 2008. Topics focused on space applications and nanotechnology and include: biosensors, biosensing technologies, gas sensors, chemical sensors array, sensors for living functions monitoring, physical sensors, applications of optical sensors and optical sensors technologies, and sensors for energy management and production. The collection was edited by D'Amico, Di Natale, and Martinelli (electronic engineering, U. of Rome), and Paolesse (chemical science and technology, U. of Rome).

TA168 2008-022872 978-1-4200-8753-6
Designing complex systems; foundations of design in the functional domain.
Aslaksen, Erik W. (Complex and enterprise systems engineering)
CRC / Taylor & Francis, ©2009 164 p. $69.95
Aslaksen has 40 years of experience in the systems engineering field, and he has written this textbook for students and fellow practitioners who need to develop a rigorous set of standards for design methodologies. The author explains the purpose and features of design and development protocols while applying the concepts of value, performance and function. The interactions and properties of systems are also discussed using stochastic system performance models and first-level elements. Failure, repair and maintenance issues are also analyzed.

TA168 2008-019820 978-1-4200-6588-6
Systems of systems engineering; principles and applications.
Title main entry. Ed. by Mo Jamshidi.
CRC / Taylor & Francis, ©2009 480 p. $129.95
The need for improved system integration between the elements of an overall larger technological system—a space station, for example—has sparked the development of system of systems (SoS) as a solution for achieving interoperability and superior coordination between heterogeneous systems. This book provides engineers with a reference in this emerging field, which is being embraced by engineering giants such as Boeing and Lockheed Martin. The book covers the complete range of SoS topics, including modeling, simulation, architecture, control, communication, optimization, and applications. It also offers insight into applications in national security, transportation, energy, and defense, as well as healthcare, the service industry, and information technology. Jamshidi teaches at the University of Texas-San Antonio.

TA190 2008-032892 978-1-4200-7512-0
Configuration management; implementation, principles, and applications for manufacturing industries.
Sorrentino, Joseph.
CRC / Taylor & Francis, ©2009 105 p. $69.95
Sorrentino, a consultant for lean principles in manufacturing industries, has designed this book for project managers and industrial engineers who need to move away from supply chain strategies and adopt a new management approach that ensures products are maintained throughout their life cycles. The author uses case studies, checklists and tables to illustrate these "configuration management" principles, and explains how materials, composition and processing should be driven by design as opposed to "the unpredictable whims of end-users." The author also discusses the concept of "lost tribal wisdom," and how the quest for continual improvements can lead to a forfeit of a company's knowledge base.

TA330 978-1-904868-63-7
Advances in mathematical problems in engineering aerospace and sciences.
Title main entry. Ed. by S. Sivasundaram. (Mathematical problems in engineering and aerospace sciences)
Cambridge Scientific Publisher, ©2008 334 p. $110.00
Scientists and engineers present research papers on new ideas, results, and direction in aviation and aerospace. Their topics include spiral curvilinear orthogonal coordinates in the context of aerodynamics, linear and nonlinear analysis for optimal pursuit in space, applying multi-variate methods for controlling and estimating satellite flexible parameters, an analytical description of the three-dimensional swing-by, a predictor-tunnel display for precision flight-path control, active noise reduction in an aircraft cabin, the non-Markovian approach to valuating and hedging European contingent claims on power with spikes of Pareto distributed magnitude, and orbital transfer maneuvers propulsed by low thrust.

TA342 2008-038005 978-0-898716-68-9
Introduction to derivative-free optimization.
Conn, Andrew R. et al. (MPS-SIAM series on optimization; v.8)
SIAM, ©2009 277 p. $73.00 (pa)
Derivative-free optimization, a class of nonlinear optimization techniques useful when derivatives are unavailable or unreliable, have applications in fields including computer circuit design, engineering design, finance, operations research, and medicine. In this volume for the Society for Industrial and Applied Mathematics and the Mathematical Programming Society, Conn (IBM Thomas J. Watson Research Center, Yorktown Heights, New York), and colleagues at the Center and the U. of Coimbra, Portugal, present a unified view of recent developments in derivative-free optimization. After introducing core concepts, they present examples of problem frameworks and algorithms. Other topics discussed include surrogate modeling and optimization extensions. The text includes chapter exercises and a list of software packages developed for derivative-free optimization.

TA357 2008-036309 978-0-7844-0957-2
Verification and validation of 3D free-surface flow models.
Title main entry. Ed. by Sam S.Y. Wang et al.
Am. Society of Civil Engineers, ©2008 486 p. $120.00 (pa)
Published by the American Society of Civil Engineers, this text provides a rigorous and systematic verification and validation process for computational modeling. These models have been in greatly increasing demand in the fields of engineering, design and construction, legislation, land management, and others. The outcome has been that a number of models have been developed quickly without the requisite scientific confirmation and certification. The process described in this book is intended to combat that trend. Topics include: methodology and terminology, solutions for mathematical verification, mathematical verification with prescribed or manufactured solutions, the systematic model verification and validation procedure, systems analysis considerations, and more. The reference includes contributions from 29 authors, including editors Wang (National Center for Computational Hydroscience and Engineering, U. of Mississippi), Roache (consultant), Schmalz (National Oceanic and Atmospheric Administration), Jia (National Center for Hydroscience and Engineering, U. of Mississippi), and Smith (U.S Geological Survey).

TA367 2008-034102 978-0-8247-5830-1
Ultrasonics; data, equations, and their practical uses.
Title main entry. Ed. by Dale Ensminger and Foster B. Stulen.
CRC Press, ©2009 496 p. $139.95
Ensminger and Stulen (both ultrasonics and acoustics with Battelle Memorial Institute, Ohio) present data and functions for understanding and using ultrasonic energy. Chapter topics include: oscillatory motion and wave equations; ultrasonic horns, couplers, and tools; advanced designs of ultrasonic transducers and devices using finite element analysis; magnetostriction; pneumatic transducer design data; mechanical effects of ultrasonic energy; therapeutic and diagnostic imaging; and criteria for choosing ultrasonics, among others.

TA418 2008-036386 978-1-4200-9256-1
Functionally graded materials; nonlinear analysis of plates and shells.
Shen, Hui-Shen.
CRC / Taylor & Francis, ©2009 266 p. $149.95
This textbook is the first devoted to the subject of geometrically nonlinear response of inhomogeneous isotropic and functionally graded plates and shells, giving students and researchers in the field of mechanical and materials engineering an introduction to the governing equations of FGMs. Shen (applied mechanics, Shanghai Jiao Tong U., China) explores the postbuckling, nonlinear bending and nonlinear vibration response to FGM plates through transverse static loads, heat conduction, piezoelectric actuators and thermal, electrical and mechanical loads. 15 appendices list the equations that relate to the exercises and problems described in the text.

TA418 2007-050452 978-1-60456-300-9
Nanomaterials; new research developments.
Title main entry. Ed. by Egor I. Pertsov.
Nova Science Publishers, ©2008 348 p. $129.00
Pertsov (no credentials are provided) presents eight chapters, with an additional five brief research summaries, on developments in the field of nanomaterials research. Chapter topics include: advances in development and applications of nanofiber materials, resistive chemical sensors from metal oxides nanocrystals synthesized in organic solvents, nanoparticles and enzymes, electrochemical synthesis of colloidal gold nanoparticles, and acrylic bone cements incorporated with montmorillonite.

TA455 978-0-470-34497-2
Advances in ceramic armor; proceedings.
International Conference on Advanced Ceramics and Composites (32d: 2008: Daytona Beach, FL) Ed. by Lisa Prokurat Franks.
John Wiley & Sons, ©2009 230 p. $75.00
This volume collects 19 papers from Ceramic Armor Symposium of the 32nd International Conference and Exposition on Advanced Ceramics & Composites, held January/February 2008, which brought together modelers, experimentalists, processors, testers, fabricators, manufacturers, managers, and ceramists to discuss ceramic armor. The papers are presented in sections on transparent glasses and ceramics, opaque ceramics, and novel evaluation and characterization. Some examples of specific topics discussed include mesomechanical constitutive relations for glass and ceramic armor, optimizing transparent armor design subject to projectile impact conditions, advances in ballistic performance of commercially available Saint-Gobain sapphire transparent armor composites, instrumented Hertzian indentation study of two commercial silicon carbides, quantitative characterization of localized amplitude variations in silicon carbide ceramics using ultrasound c-scan imaging, portable microwave scanning technique for nondestructive testing of multilayered dielectric materials, and automated nondestructive evaluation system for hard armor protective inserts of body armor.

TA579 2008-017336 978-1-4200-5142-1
Topographic laser ranging and scanning; principles and processing.
Title main entry. Ed. by Jie Shan and Charles K. Toth.
CRC / Taylor & Francis, ©2009 590 p. $129.95
The 19 articles collected here by Shan (photogrammetry, Wuhan U., China) and Toth (geoinformation, U. of Budapest, Hungary) summarize fundamentals of and current research in the use of LiDAR technology for topographic mapping, as well as data collection therein. The intended readership includes students and

researchers in geomatics, deodesy, natural resources, urban planning, computer vision, and computer graphics. Chapter topics include: terrestrial laser scanners, LiDAR systems and calibration, georeferencing component, strip adjustment and registration, management of LiDAR data, forest inventory using small-footprint airborne LiDAR, feature extraction in urban areas, and a data-driven method for modeling 3D building objects using a binary space partitioning tree, among others.

TA645 2008-037638 978-0-415-47145-9
Dynamics of structure and foundation; a unified approach; 1: Fundamentals.
Title main entry. Ed. by Indrajit Chowdhury and Shambhu P. Dasgupta.
CRC / Taylor & Francis, ©2009 861 p. $229.95 (pa)
This is the first volume of a two-volume set designed as a reference for academics and professionals in civil and structural engineering. Covering theories and formulations, it focuses on a unified approach for dealing with dynamic soil-structure interaction, and addresses geotechnical considerations for dynamic soil-structure interaction. Chapters cover the theory of elasticity and numerical methods of engineering, basics of lumped parameter vibration, soil-structure systems under statistical conditions, and concepts in structural and soil dynamics. The two-volume set will be useful as a reference for professionals involved in earthquake or dynamic analysis or the design of machine foundations in the oil, gas, and energy sector. The books can also be used in advanced courses in structural dynamics, soil dynamics, analysis and design of machined foundations, and earthquake engineering. Chowdhury is affiliated with Petrofac International Ltd., United Arab Emirates. Dasgupta is affiliated with the Department of Civil Engineering at the Indian Institute of Technology.

TA1520 2008-037499 978-1-60456-980-3
Modeling of photonic devices.
Passaro, Vittorio M.N.
Nova Science Publishers, ©2009 414 p. $89.00
All 13 chapters in this collection were written by members of the Photonoics Research Group at Politecnico di Bari in Italy. The opening lengthy chapter reviews integrated optical circuits and devices for optical signal processing and sensing, and describes applications in microwave photonics, optical telecommunications, space engineering, biochemistry, and medicine. Other topics include slot and hollow waveguides, directional couplers, ring resonators, silicon modulators, diffraction gratings, silicon-on-insulator waveguides, Bragg gratings, and multi-quantum-well solar cells.

TA1650 2008-040441 978-1-60566-216-9
Automated face analysis; emerging technologies and research.
Daijin, Kim and Jaewon Sung.
Medical Information Science Reference, ©2009 437 p. $225.00
Automated face analysis techniques have been applied to fields including biometrics, security and surveillance, clinical psychology and psychiatry, and human-computer interaction. This book surveys recent research in areas of the field such as face and eye detection, face modeling, and facial expression recognition, as well as related subjects such as hand-gesture and body-gesture recognition. Each chapter provides introductory theoretical background, reviews techniques, presents experimental results, and considers future research directions. Appendices summarize databases and demonstration systems useful for research. The book is intended for students and practitioners who plan to work in the automated facial analysis field, and for scientists and engineers working in related research fields such as image processing, computer vision, computer graphics, and the computer game industry. The editor is affiliated with Pohang University of Science and Technology, Korea. Medical Information Science Reference is an imprint of IGI Global.

TA1677 2008-044198 978-0-8493-7604-7
Applications of laser-plasma interactions.
Title main entry. Ed. by Shalom Eliezer and Kunioki Mima. (Series in plasma physics)
CRC Press, ©2009 282 p. $129.95
Eliezer (plasma physics, Soreq Nuclear Research Center, Israel) and Mima (laser engineering, Osaka U., Japan) have edited this textbook on recent advances in high- power laser technologies that have yielded new applications, higher power and possibly a solution for alternative energy. Featuring the contributions of leading researchers and scientists in laser-plasma interaction, this book for students and practitioners explains the basic technologies behind the production of inertial fusion energy and novel particle accelerators used for these lasers. Innovative applications are described for these interactions such as high-power x-ray sources, nuclear physics and the study of matter under extreme conditions. A section is devoted to femtosecond lasers and how they are used in the fields of materials processing and nanoparticles.

TA1677 2008-041170 978-1-4200-6854-2
Laser safety; tools and training.
Title main entry. Ed. by Ken Barat. (Optical science and engineering; v.141)
CRC / Taylor & Francis, ©2009 377 p. $139.95
Barat (of the Lawrence Berkeley National Laboratory, California) addresses the fundamental strategies for evaluating the hazards of any laser procedure and complying with documented laser safety standards. The 24 chapters cover topics that include: who is responsible for laser safety, how to do a complete laser hazard evaluation, documentation of laser safety, optics,

diffraction gratings for high-intensity laser applications, web-based laser safety training for adults, on-the-job training, the maximum permissible exposure, accident investigation, room access interlocks and access controls, laser eyeware, and laser shutters, among others.

HYDRAULIC ENGINEERING

TC409 2008-044085 978-1-4200-6913-6
Geographic information systems in water resources engineering.
Johnson, Lynn E.
CRC / Taylor & Francis, ©2009 298 p. $119.95
Written for engineers and planners, this volume outlines the advanced applications of geographic information systems (GIS) in the sub- fields of water resource engineering. It covers the nature of GIS, how it is used to develop and analyze geographic data, differentiating between types of data and GIS, and summarizing development and database concepts, including primary field-data collection and methods of interpretation of analysis. Johnson (civil engineering, U. of Colorado, Denver) then details concepts and applications in surface water hydrology, groundwater hydrology, water supply and irrigation systems, wastewater and stormwater systems, floodplain management, water quality, water resource monitoring and forecasting, and river basin planning and management. Co-published with IWA. IWA in the UK now publishes many reports formerly published by AWWA Research Foundation (Denver).

TC423 2008-036680 978-0-7844-0992-3
Navigation engineering practice and ethical standards.
Title main entry. Ed. by William H. McAnally. (ASCE manuals and reports on engineering practice; no.116)
Am. Society of Civil Engineers, ©2009 110 p. $79.00 (pa)
The US Army Corps of Engineers has had responsibility for building and maintaining inland waterways in the country until the recent spate of outsourcing government services to profit-seeking companies. Design philosophy and criteria were handed down within the Corp from senior to junior engineers who had little reason to write them down, and much of what was written was eliminated in the deregulation frenzy of the 1980s and 1990s. Here a committee of the Society strives to create or recreate some basic principles of engineering ethics, philosophy and goals, design conditions and assumptions, criteria for designing project features such as locks and jetties, the design process, sustainable developments, and tools to ensure safe design and operation. The manual also discusses the Corps' management of waterways, and the contribution of the US Coast Guard and the National Oceanic and Atmospheric Administration. to waterways.

ENVIRONMENTAL TECHNOLOGY

TD193 2008-431414 978-0-85404-957-8
Environmental forensics.
Title main entry. Ed. by R.E. Hester and R.M. Harrison. (Issues in environmental science and technology; v.26)
Royal Soc. of Chemistry, ©2008 175 p. $99.00
Editors Hester (emeritus, chemistry, U. of York), Harrison (environmental health, U. of Birmingham), and 16 contributors provide a comprehensive collection of articles on the primary techniques and areas in which environmental forensics are being used. A blend of analytical and environmental chemistry, environmental forensics has become a growing field because of growing concerns regarding the health of the natural world, pollutants, and their sources. Some of the key topics included are: source identification issues, microbial techniques, metal contamination and methods of determining liability, molecular biological methods, hydrocarbon fingerprinting techniques, and the role of environmental forensics in groundwater contamination. The book also addresses specific pollutants and long-term pollutants in depth. It is distributed in the U.S. by Springer-Verlag.

TD794 2008-033199 978-1-60456-831-8
Recycling; new research.
Title main entry. Ed. by Christian S. Gallo and Lorenzo F. Rossi.
Nova Science Publishers, ©2009 328 p. $169.00
These research articles on recycling practices focus on continued wastefulness in developed countries and increased efforts to establish national mindsets and infrastructures for conservation. Editors Gallo and Rossi (no affiliations listed) have enlisted the help of experts in economics, agriculture and environmental engineering to cover such topics as the recycling and reuse of high-purity water, the recycling and recovery of waste acids from industrial manufacturing and recycling practices for scrap lithium batteries. These papers are recommended for engineers and researchers in the field due to their highly technical nature.

MECHANICAL ENGINEERING & MACHINERY

TJ843 978-1-4200-9514-2
Basic fluid mechanics and hydraulic machines.
Husain, Zoeb et al.
CRC Press, ©2009 234 p. $99.95
Hussian (turbo machine, Leningrad Polytechnic Institute, Russia), Abdullah (mechanical engineering, U. Sains, Malaysia) and Alimuddin (mechanical engineering, U. Sains, Malaysia) offer this specialized textbook on fluid mechanics for engineers who deal with hydraulic machines and power plants. The authors use solved problems, examples and solutions to illustrate the various types of power plants, noting the advantages and disadvantages of steam and gas turbines. Pelton, Francis, Propeller and

Kaplan turbines are also explained in detail.

TJ1075 2008-023825 978-0-8031-7006-3
Physics and chemistry of micro-nanotribology.
Title main entry. Ed. by Jianbin Luo et al.
ASTM International, ©2008 273 p. $117.00 (pa)
Editors Luo (tribology, Tsinghua U., China), Hu (tribology, SKLT Tsinghua U., China) and Wen (mechanical manufacture, Tsinghua U., China) have enlisted help from experts on micro-nanotribology, the measurement and investigation of thin film lubrication (TFL), in this textbook for students and researchers. Contributors describe the measuring techniques and theoretical modeling used in TFL research, and explain the mechanisms for boundary lubrication and friction, gas lubrication in nano-gaps and mixed lubrication at the micro-scale. Current tribology applications are also reviewed, such as magnetic recording systems and ultra-smooth surface polishing.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK5103 2008-015660 978-1-4200-6420-9
Cognitive radio networks.
Title main entry. Ed. by Yang Xiao and Fei Hu.
CRC / Taylor & Francis, ©2009 478 p. $89.95
Cognitive radio networks (CRNs) allow unlicensed users access to licensed bands without interfering with existing users. This book presents the latest technologies for CRNs and considers future developments. Coverage encompasses spectrum sensing, spectrum handoff, spectrum sharing, and CRN routing schemes. Material is presented in sections on the physical layer, medium access control, the routing layer, and cross-layer considerations. A final section examines advanced topics such as ultra-wideband systems, system control in CRNs, and analytical models for multihop CRNs. Xiao is affiliated with the Department of Computer Science at the University of Alabama. Hu teaches in the Electrical and Computer Engineering Department at the University of Alabama.

TK5103 2008-035719 978-0-8247-5381-8
Near-earth laser communications.
Title main entry. Ed. by Hamid Hemmati. (Optical science and engineering; 142)
CRC Press, ©2009 386 p. $139.95
Thirteen international academics and researchers contribute 12 chapters providing electrical engineering students, researchers, and professionals with an introduction to the basics of laser satellite communications, with an emphasis on device technology, implementation techniques, and system trades. Coverage includes an introduction to near-earth laser communications technology; systems engineering and design drivers; pointing acquisition and tracking; flight laser transmitters for coherent and direct detection; the flight optomechanical assembly; coding and modulation for free-space optical communications; photodetectors and receivers as applicable to both the flight and ground transceivers; implications of the atmospheric channel on laser beam propagation for downlinks and uplinks; the ground terminal, with examples from recent successful flight links; reliability and flight qualification; approaches and configurations for cross-links and optical networking; and ongoing activities and future directions.

TK5105 2008-012104 978-0-8493-9250-4
Converging NGN wireline and mobile 3G networks with IMS.
Copeland, Rebecca.
CRC / Taylor & Francis, ©2009 484 p. $89.95
Copeland, a telecom consultant who specializes in Next-Generation Networks (NGN), SIP applications, and IMS, presents an overview of the methods, functions, network elements, and interfaces involved in converging NGN wireline and mobile 3G (Third Generation) networks with IMS. She describes IMS principles, market trends, technological innovations, migration issues, and global standards, followed by discussion of converged session control and multimedia handling with ID management, service profiles, event and applications triggering, and admission procedures for different types of access networks. Also covered are IP charging mechanisms, quality of service control, security, border control, and legacy services. Each chapter begins with a description of the main principles, from the generic technology to the new IMS principles devised to control the specific aspect discussed. Different specifications and terminology for NGN TISPAN and 3GPP are included. The book is aimed at those in telecommunications.

TK5105 2005-942288 978-0-7695-3568-5
Cybersecurity applications and technology; proceedings.
Cybersecurity Applications and Technology Conference for Homeland Security (2009: Washington, D.C.)
Computer Society Press, ©2009 332 p. $197.00 (pa)
A March 2009 conference highlighted significant initiatives of the Department of Homeland Security (DHS) Science and Technology (S&T) Directorate's Cyber Security program. This book contains papers and extended abstracts from the conference. The book begins with several pages of short descriptions of DHS S&T research programs and topic areas. Papers from the conference are presented in sections according to these same programs and topic areas: domain name system security, secure protocols for the routing infrastructure, Cyber Defense Technology Experimental Research (DETER), Protected Repository for the Defense of Infrastructure against Cyber Threats (PREDICT), broad agency announcement 04-17, broad agency announcement 07-09, small business innovation research, the Rapid Technology Application Program (RTAP), and other funded research. The book will be of interest to government units, developers of information technology and security systems, and the commercial industry that generates products for government information systems. There is no subject index.

TK5105 978-1-59693-190-9
Enterprise information security and privacy.
Title main entry. Ed. by C. Warren Axelrod et al.
Artech House, ©2009 231 p. $99.00
Specialists in information security with companies that sell such security or companies that buy it, explain and question current and traditional approaches in order to determine their weaknesses and strengths and to suggest paths to overcome their deficiencies. Because they are working in the trenches, their ideas tend to be concrete rather than ethereal. Among the topics are privacy roles and responsibilities, information classification, replacing risk-based security, the economics of loss, legal and regulatory obligations, financial services, transportation security, and academia.

TK5105 2008-275495 978-1-933988-29-0
GWT in practice.
Cooper, Robert et al.
Manning Publications Co., ©2008 357 p. $44.99 (pa)
While this practical guide for Java developers working with the Google Web Toolkit (GWT) includes some introductory information, it is intended for readers with basic background on GWT and the Java EE environment, and does not offer a complete introduction to all the classes and libraries included with GWT. Early chapters offer a quick introduction to GWT tools and concepts, and later chapters present a series of practical examples laid out in a problem, solution, and discussion format. Special attention is paid to the problem of integrating GWT with other Java EE applications and services. The book concludes with a hands-on sample application pulling all of the information together. Code samples are available from a web site. Readers should have working knowledge of HTML and CSS, and the browser DOM. Some experience with JavaScript or Ajax is also beneficial. The authors are Atlanta-based Java EE developers. The book is distributed in the US and Canada by O'Reilly.

TK6570 2008-037980 978-1-60566-298-5
Auto-identification and ubiquitous computing applications; RFID and smart technologies for information convergence.
Title main entry. Ed. by Judith Symonds et al.
Information Science Reference, ©2009 327 p. $195.00
This book presents leading examples of radio frequency identification (RFID) research being developed for part identification and health systems, and examines the data convergence required for the technology to be used effectively. The leading chapter gives an overview of the development of RFID. Sections then cover identification systems, uses in health areas such as assisted living and emergency management, and data and convergence issues. A final section of six readings provides further information on RFID applications, with examples from library management systems, a mobile computing framework for passive RFID detection systems in health care, and semantic-based Bluetooth-RFID interaction for advanced resource discovery in pervasive contexts. A detailed table of contents gives summaries of each chapter. Contributors are from New Zealand, Europe, Australia, Asia, and the US. Symonds is affiliated with Auckland University of Technology, New Zealand. The book's readership includes researchers and advanced students.

TK6580 2008-051280 978-1-4200-5497-2
Polarimetric radar imaging; from basics to applications.
Lee, Jong-Sen and Eric Pottier. (Optical science and engineering; 143)
CRC / Taylor & Francis, ©2009 398 p. $129.95
This textbook for engineers and engineering students discusses the fundamentals and applications of polarimetric radar imaging, and how recent satellite advances in the field have yielded a large amount of data on the environment of our planet. Lee (space and remote sensing research, National Central U., Taiwan) and Pottier (electronics and telecommunications, U. of Rennes 1, France) describe the basics of polarimetric scattering mechanisms, speckle statistics and filtering, polarimetric information analysis and extraction and remote radar sensing before launching into discussions of Cloude and Pottier target decomposition theory. Examples of remote sensing applications are also presented that use space-borne and airborne PolSAR data.

TK7871 2008-026770 978-0-470-40128-6
Finite element analysis of antennas and arrays.
Jin, Jian-Ming and Douglas J. Riley.
John Wiley & Sons, ©2009 435 p. $120.00
Jin (computational electromagnetics, U. of Illinois, Urbana- Champaign) and Riley (computational electromagnetics, Northrop Grumman Space Technology Sector) note that antenna technologies have received considerable attention because of their significance in wireless communication, remote sensing, space exploration, defense, warfare, and other electronic systems. This reference work steps past the finite single element method to explore hybrid techniques that utilize both the finite element method with the finite difference time-domain method, the method of moments, and the high-frequency asymptotic methods to solve complex antenna problems. A sampling of specific topics includes: antenna source modeling and parameter calculation, modeling of complex materials, and fine geometrical details, and analysis and modeling of antenna platform interactions. The text is concise, and numerous illustrations are included.

TK7871 2008-046202 978-1-4200-7662-2
Introduction to light emitting diode technology and applications.
Held, Gilbert.
CRC / Taylor & Francis, ©2009 170 p. $69.95
Held, an independent author and lecturer who specializes in communications technologies, has written this primer on LED applications to reflect current trends that have lead to widespread

use of these devices. The author starts with a discussion of the basic properties of light and color before exploring the operation of *p-n* junctions, organic LEDs and LED drivers. Engineers and students will be interested in innovative LED applications in communications technologies as well as how to use these devices as alternatives to fluorescent and filament-based lighting.

TK7874 2008-051282 978-1-4200-5911-3
Nanoparticle engineering for chemical-mechanical planarization; fabrication of next-generation nanodevices.
Paik, Ungyu and Jea-Gun Park.
CRC / Taylor & Francis, ©2009 191 p. $149.95
Paik (materials science engineering, Hanyang U., Korea) and Park (electrical and computer engineering, Hanyang U., Korea) have aimed this textbook on nanoparticle engineering for researchers and engineers who are involved with the fabrication of next-generation nanoscale devices and need to achieve higher speed and lower power operation. The authors describe the physicochemical properties of nanoparticles by offering step-by-step instruction on the various phases of the CMP process. Techniques for improving overall performance in these nanodevices through the use of polymeric additives are also explained.

TK8360 2009-005792 978-1-4200-6578-7
Practical applications of microresonators in optics and photonics.
Title main entry. Ed. by Andrey B. Matsko. (Optical science and engineering; 145)
CRC / Taylor & Francis, ©2009 565 p. $149.95
Fifty-five international academics and researchers contribute 13 chapters reviewing basic directions in the development of the practical applications of the microresonators, with reports on both micro- and nano-optical elements. Topics addressed include photonic crystal-based resonators, pillar microcavities, crystalline WGM resonators in filtering and laser stabilization, polygonal-shaped microdisk resonators, electro-optic polymer ring resonators for millimeter-wave modulation and optical signal processing, organic micro-lasers, optical microfiber loop and coil resonators, optofluidic ring resonator biological and chemical sensors, crystalline microresonators for fabrication of a non-electronic wireless receiver with immunity to damage by electromagnetic pulses, cavity opto-mechanics, optical frquency comb generation in monolithic microresonators, bit rate limitations in single and coupled microresonators, and linear and nonlinear localization of light in optical slow-wave structures. For graduate students, researchers, and new and experienced professionals in the field.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL782 978-1-56347-956-4
Frontiers of propulsion science.
Title main entry. Ed. by Marc G. Millis and Eric W. Davis. (Progress in astronautics and aeronautics; v.227)
Amer. Inst. of Aeronautics & Astronautics, ©2009 739 p. $129.95
This book compiles recent work relevant to such notions as space drives, warp drives, gravity control, and faster-than-light travel, breakthroughs which would revolutionize spaceflight and allow human voyages to other star systems. It covers NASA's Breakthrough Propulsion Physics Project from 1996 to 2002, as well as other related work. Early chapters lay the groundwork for the technical details to follow. Later chapters review recent advances in propulsion without rockets, energy considerations for spacecraft power systems, and known relativistic limits and faster-than-light implications from both general relativity and quantum physics. A final section offers suggestions for managing and conducting research on such visionary topics. The readership for the book includes scientists, engineers, and graduate students. Millis headed NASA's Breakthrough Propulsion Physics Project at NASA Glenn Research Center. Davis is a senior research physicist at the Institute for Advanced Studies at Austin.

TL782 2008-038061 978-1-4200-7528-1
Introduction to rocket science and engineering.
Taylor, Travis S.
CRC / Taylor & Francis, ©2009 310 p. $89.95
This introductory text for undergraduate students and practicing scientists and engineers presents the history and basics of rocket theory, design, experimentation, testing, and applications. It covers the importance of rockets from economic, philosophical, and strategic perspectives, why they are needed, how they work, types of rocket engines, and the testing of components, systems, subsystems, and complete products. Taylor works on programs for the Department of Defense and NASA.

MINING ENGINEERING

TN689 978-3-908451-61-7
Phase transformation and diffusion.
Title main entry. Ed. by G. B. Kale et al. (Defect and diffusion forum; v.279)
Trans Tech Publications, ©2008 151 p. $138.00 (pa)
The editors (all of the Bhabha Atomic Research Centre, India) present 18 peer-reviewed papers on phase transformation and diffusion in this special topic volume of the materials science series, Diffusion and Defects Forum. Topics include diffusion in the lattice and interfaces of real engineering materials, the lattice Monte Carlo method for solving phenomenological mass and thermal diffusion problems, diffusion and melting, method of evaluation in diffusion coefficients in Ti-Zr system, diffusion in Cu(Al)

solid solution, a probabilistic approach to analyze austenite to ferrite transformation in Fe-Ni system, Gibbs free energy difference in bulk metallic glass forming alloys, calorimetric studies of dissolution kinetics of $Ni_2(Cr,Mo)$ phase in Ni-Cr-Mo alloys using non-isothermal approach, kinetics and mechanism of growth of β-solid solution during reaction diffusion in binary titanium and zirconium alloy system, crystallographic aspects of alpha to omega transition in shock compressed zirconium, development of a thermodynamic criterion to predict the alloy compositions for amorphous and nanocrystalline phase transformation during mechanical alloying, and effect of Cu addition on nanocrystalllization behavior in a Co-based soft magnetic metallic glass.

TN751 2008-049674 978-0-8493-5019-1
Handbook of thermal process modeling of steels.
Title main entry. Ed. by Cemil Hakan Gür and Jiansheng Pan.
CRC Press, ©2009 739 p. $169.95
This handbook for practicing engineers explains factors and methods related to predicting material response under industrial rather than laboratory conditions, and gives insight into the physical origins of various aspects of materials behavior. It introduces mathematical modeling methods used in thermal processing, and highlights problems requiring further research. Chapters cover areas including thermodynamics of thermal processing, physical and mechanical metallurgy of thermal processing, and methods for the modeling of casting, industrial heat treatment options, induction hardening processes, laser surface hardening, and case hardening. Gür is professor in the Department of Metallurgical and Materials Engineering at Middle East Technical University, Turkey. Pan is professor in the School of Materials Science and Engineering at Shanghai Jiao Tong University, China.

CHEMICAL TECHNOLOGY

TP248 2008-025310 978-1-60456-901-8
Biotechnology; research, technology & applications.
Title main entry. Ed. by Felix W. Richter.
Nova Science Publishers, ©2008 378 p. $139.00
Richter (no affiliations listed) has edited this collection of biotechnology research and applications that connects researchers in biological sciences with fellow practitioners in chemical engineering, information technology and robotics. Expert contributor cover such topics as artificial periodic stimulation in bioreactor design, recent advances in membrane processes for emulsions and particles and polyhydroxyalkanoates (PHAs) in both nature and the research lab. Public attitudes toward bioethics and the acceptance of biotechnology, especially in terms of genetic engineering, are also explored.

TP248 978-3-527-32151-3
Metallic nanomaterials.
Title main entry. Ed. by Challa S. S. R. Kumar. (Nanomaterials for the life sciences; v.1)
Wiley-VCH, ©2009 571 p. $215.00
Kumar (director of nanofabrication and nanomaterials, Center for Advanced Microstructures and Devices) presents the first volume of the 10-volume series *Nanomaterials for the Life Sciences*. This volume is dedicated to coverage of gold, silver, copper, palladium, and platinum nanomaterials and their applications in the life sciences. Individual chapters for each metal discuss approaches to the synthesis and characterization of spherical and anisotropic copper, silver, gold, palladium, platinum, and noble metal nanomaterials. Remaining chapters discuss spherical and anisotropic copper materials in medical diagnosis, spherical and anisotropic silver nanomaterials in medical therapy and medical diagnosis, health and environmental impact of silver nanomaterials, spherical and anisotropic gold nanomaterials in medical therapy, biological and biomaterials-assisted synthesis of precious metal nanoparticles, spherical and anisotropic gold nanomaterials in plasmonic laser phototherapy of cancer, and application of metallic nanoparticles in textiles.

TP248 978-981-270-983-7
Biomechanical systems technology; muscular skeletal systems.
Title main entry. Ed. by Cornelius T. Leondes. (Biomechanical systems technology)
World Scientific, ©2007 307 p. $122.00
Editor Leondes (engineering, UCLA) has collected these research articles on biomechanical systems technology that focus primarily on muscular skeletal systems. Written for engineers and researchers in medical fields, these papers reflect the progress being made in such areas as the dynamics of musculoskeletal systems, the mechanics of bone remodeling, flow-prosthesis interfaces and the mechanics of hard and soft tissue. This book is part of a four-volume series on biomechanical systems technology, with other entries featuring papers on general anatomy, computational modeling and cardiovascular systems. (Each volume is sold separately.)

UG150 2009-001090 978-1-4200-6628-9
Handbook of military industrial engineering.
Title main entry. Ed. by Adedeji B. Badiru and Marlin U. Thomas. (Industrial innovation series)
CRC / Taylor & Francis, ©2009 -- p. $129.95
Badiru (systems and engineering management, (Air Force Institute of Technology), Thomas (engineering and management, Air Force Institute of Technology), and 72 co-contributors provide an extensive compilation of tools, principles, and techniques of industrial engineering (IE) for military systems applications. Key topics include: modeling and optimization, reliability and maintenance, contingency planning and logistics, supply chain and decision making, human factors and ergonomics, and management and process improvement. Chapters are

arranged in brief, easy-to-locate sections and include references. A series of appendices includes military acronyms and abbreviations.

ZA4080 2008-028570 978-1-59904-879-6
Handbook of research on digital libraries; design, development, and impact.
Title main entry. Ed. by Yin-Leng Theng et al.
IGI Publishing, ©2009 649 p. $265.00
This large reference volume on digital library research is aimed at developers and librarians who need to implement database designs that are both user-friendly and comprehensive. Editors Theng, Foo, Goh and Na (communication and information, Nanyang Technological U., Singapore) has enlisted help from hundreds of experts in information sciences to cover such digital library advances as DL and GIS, BIVALDI, social tagging for resource discovery and semantic annotation and retrieval. Case studies are also presented that chronicle digital library advances in countries such as Pakistan, Spain, Austria and the Philippines. ❖