Sci-Tech News

Volume 63 | Issue 4 Article 14

12-2009

Sci-Tech Book News Reviews

Susan Fingerman
Johns Hopkins University Applied Physics Laboratory, susan.fingerman@jhuapl.edu

Follow this and additional works at: http://jdc.jefferson.edu/scitechnews

Part of the Physical Sciences and Mathematics Commons

Recommended Citation
Fingerman, Susan (2009) "Sci-Tech Book News Reviews," *Sci-Tech News*: Vol. 63: Iss. 4, Article 14.
Available at: http://jdc.jefferson.edu/scitechnews/vol63/iss4/14

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's Academic & Instructional Support & Resources Department (AISR). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in Sci-Tech News by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: JeffersonDigitalCommons@jefferson.edu.

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.

CD974 978-1-55570-686-9
Managing electronic records, 4th ed.
Saffady, William.
Neal-Schuman, ©2009 246 p. $75.00 (pa)
This practical textbook offers a discussion of records management concepts and methods as they apply to electronic records. Coverage encompasses special records management issues and problems associated with electronic records, and physical and application characteristics of electronic storage media used by computer, audio, and video systems, including magnetic and optical storage as well as solid-state and obsolete storage that may be uncovered during inventory procedures. Also covered are principles and procedures for inventorying electronic records, factors that influence the stability and durability of electronic records, and methods for protecting records against damage and destruction. Guidelines for daily management of electronic records are also included. A glossary of terms and acronyms is included. The book is intended for records managers, computer systems professionals, office systems analysts, archivists, data center managers, librarians, and others responsible for the creation, maintenance, and use of electronic records created by computer, audio, and video systems. Saffady teaches information management at the Palmer School of Library and Information Science.

GEOGRAPHY, HYDROLOGY, ENVIRONMENT

G70 2009-004453 978-1-4200-9072-7
Classification methods for remotely sensed data, 2d ed.
Tso, Brandt and Paul M. Mather.
CRC Press, ©2009 356 p. $99.95
Both specialists in remote sensing, Tso, a scientific officer in the Taiwan military, and Mather (emeritus geography, U. of Nottingham, England), examine pattern recognition for remotely sensed data, not by someone looking at the screen and squinting, but by a computer that has nothing but a circuit full of numbers to work with. Topics include pattern recognition principles, artificial neural networks, methods based on fuzzy set theory, texture quantization, and multi-source classification. Existing chapters in the 2001 first edition have been updated, and new chapters added on support vector machines and decision trees—both hot topics now in the journals.

G70 2009-010969 978-1-4200-7397-3
Geographic data mining and knowledge discovery, 2d ed.
Title main entry. Ed. by Harvey J. Miller and Jiawei Han. (Chapman & Hall/CRC data mining and knowledge discovery series)
CRC Press, ©2009 458 p. $89.95
This second edition includes updated and substantially revised versions of chapters from the 2001 first edition, and new chapters on topics that have become prominent during the interval. Geographers working with information systems and information scientists working with geography explain some approaches and techniques for extracting knowledge from the data-rich environment that new electronic sensing and processing have created. Their topics include fundamentals of spatial data warehousing for geographic knowledge discovery, data quality issues, clustering methods in geographical data analysis, leveraging the power of spatial data mining to enhance the applicability of geographic information systems technology, multi-variate spatial clustering and geo-visualization, and periodic pattern discovery from trajectories of moving objects. Many of the high-quality monochrome illustrations embedded in the text are also reproduced in a battery of color plates.

HF5548 2009-903679 978-0-7695-3686-6
Information engineering and electronic commerce; proceedings.
International Symposium on Information Engineering and Electronic Commerce (2009: Ternopil, Ukraine) Ed. by V. E. Muhin and Zhiwei Ye.
Computer Society Press, ©2009 840 p. $304.00 (pa)
The 166 papers selected for the May 2009 symposium present sophisticated techniques and tools for computer-aided instruction, security and privacy, electronic commerce, and wireless/mobile communication. The contributors propose a semi-fragile watermarking algorithm based on double-step, a secure routing and aggregation protocol for sensor networks, online botnet detection by continuous similarity monitoring, and a graduated value model of supply chain management. Other topics include an economic analysis of regulating virtual currency in China, dynamic pricing for e-retailers, enterprise logistics optimization, passenger capacity prediction, chaotic identification of power load, and risk management of IT project outsourcing. No subject index is provided.

Published by Jefferson Digital Commons, 2009

KF8961 2009-007560 978-1-59425-094-1
The scientific expert in court; principles and guidelines, 2d ed.
Froede, Richard C. and Haskell M. Pitluck.
Am. Assn./Clinical Chemistry, ©2009 87 p. $35.00 (pa)
This is the second edition of a monograph seeking to familiarize the scientific expert with the basic legal principles and conduct required when testifying in scientific and medicolegal cases in US courts. It has been updated in light of scientific and legal developments. The monograph covers responding to subpoenas; evidence and its use in court; courtrooms and their actors; trial preparation; interviews, affidavits, and depositions; courtroom testimony and types of examination of the expert witness; testimony guidelines; and angles of attack on the expert's testimony. Appendixes include examples of subpoenas, checklists for trial preparation and billing, questions for qualifying the expert witness, and a glossary of common legal terms.

KZD1145 2008-047099 978-1-60692-244-6
Space commercialization and the development of space law from a Chinese legal perspective.
Zhao, Yun.
Nova Science Publishers, ©2009 280 p. $79.00
Zhao has taught space law at universities in Europe and Hong Kong, and here offers the first account in English of the Chinese legal perspective. A matter of concern is that the treaties drafted and signed during the 1960s and 1970s may not still be adequate in light of the rapid commercialization of space over the past couple of decades and recent developments particularly in Chinese space law. He chooses a few areas to concentrate on: property rights, a space registration and liability regime, satellite launching services and space tourism, national space legislation, and international space cooperation.

LB1044 2009-013278 978-1-60566-392-0
Cognitive and emotional processes in web-based education; integrating human factors and personalization.
Title main entry. Ed. by Constantinos Mourlas et al.
Information Science Reference, ©2009 541 p. $195.00
Editors Mourlas, Tsianos and Germanakos (communications and media studies, National and Kapodistrian U. of Athens, Greece) have gathered these research studies on cognitive and emotional processes in web-based education for students and researchers concerned with the impacts of human factors on e- Learning applications. Expert contributors discuss such topics as affective issues in adaptive educational environments, using virtual reality to enhance cognition and differences in social communication patterns for online learning technologies. A section addresses the latest research on group and individual processes in web-based collaborative learning environments.

SCIENCE (GENERAL)

Q335 2008-000062 978-1-60456-282-8
Artificial intelligence; new research.
Title main entry. Ed. by Randal B. Bernstein and Wesley N. Curtis.
Nova Science Publishers, ©2009 463 p. $129.00
Most of the papers are by researchers in electrical and electronic engineering, but cover a wide range of fields as they describe the design and application of systems that perceive their environment and take action to maximize their chances of success. The anchor study however, on applying artificial neural networks in civil engineering, is by Tsung-Lin Lee (construction technology, Leader U., Taiwan) and Dong-Sheng Jeng (civil engineering, U. of Dundee, Scotland).

PATERRA®

Machine Translation for Patents
Since 1996
Japanese-Korean-Chinese-Russian-German-French
www.paterra.com

Other topics include screening patients with congestive heart failure, analogy-making in situation theory, learning Bayesian networks for reverse engineering and completing regulatory gene networks based on expression data, and the intelligent fault diagnosis of robotic systems with neural networks.

Q387 2008-036234 978-1-4200-6062-1
Conceptual structures in practice.
Title main entry. Ed. by Pascal Hitzler and Henrik Schärfe.
(Chapman & Hall/CRC studies in informatics series; 2)
CRC Press, ©2009 407 p. $99.95
As described by Hitzler (Institute for Applied Informatics and Formal Description Methods, U. of Karlsruhe, Germany) and Schärfe (communication and psychology, Aalborg U., Denmark) in their preface, "conceptual structures" refers to an interdisciplinary field—involving mathematics, computer science, linguistics, social sciences, and philosophy—that investigates various aspects of thought by means of structures. In other words, it deals with such questions as how to map the internal structure of a concept or how to represent age-old knowledge about knowing. They present 14 chapters that are collectively intended to serve as an overview of the field. Topics covered include introduction to formal concept analysis, formal logic with conceptual graphs, software tools for formal concept analysis, efficient computation with conceptual graphs, conceptual graphs for representing conceptual structures, formal concept analysis and contextual logic, linguistic data exploration, ontology learning using corpus-derived formal contexts, a lexico-logical approach to ontology engineering, faceted web document navigation, optimizing social software system design, semantic annotations and localization of resources, and active knowledge systems.

MATH, COMPUTERS

QA76 2008-027619 978-1-60456-925-4
Multimedia communication security; recent advances.
Title main entry. Ed. by Shiguo Lian.
Nova Science Publishers, ©2008 246 p. $79.00
The longest of the nine chapters in this collection surveys collusion-secure codes developed in coding theory and mathematics, and their application to digital fingerprinting. Other topics include digital rights management, multimedia authentication, visual cryptography, video watermarking using complex wavelets, and secure quantization-based steganography. Most of the contributors served as referees for chapters written by other authors. The editor works in research and development for France Telecom in Beijing.

QA76.59 2008-053595 978-1-60692-903-2
Mobile user interface analysis and design; a practitioner's guide to designing user interfaces for mobile devices.
Ryu, Hokyoung.
Nova Science Publishers, ©2009 260 p. $49.00
Ryu (mobile computing, Massey U.) draws on his own work and that of others to offer guidelines for designing an interface with mobile computing devices that make sense to average, non-technical users. He provides designers with examples, stories, and basic principles as inspiration rather than recipes to be followed. His topics include challenges in mobile user interface design, mobile context analysis, task-function mapping, action-effect design, information design, collective walk-throughs, and testing with users.

QA76.76 2008-054195 978-1-59904-681-5
Agile technologies in open source development.
Title main entry. Ed. by Barbara Russo et al.
Information Science Reference, ©2009 371 p. $180.00
Russo (computer science, Free U. of Bolzano-Bozen, Italy), Scotto (software architect, i4C s.r.l., Italy), Sillitti (computer science, Free U. of Bolzano-Bozen, Italy) and Succi (computer science, Free U. of Bolzano-Bozen, Italy) cover the latest agile technologies in open source development for researchers and IT professionals who need to investigate these innovations and how they have been integrated in recent years. The authors present the separate development histories of agile technologies and open source development and show how these two technologies have been coordinated in testing, code ownership and design approaches. Empirical evaluations, case studies and industrial adoption and tools for agile development are also discussed.

QA76.76 2008-055311 978-1-60566-402-6
Handbook of research on emerging rule-based languages and technologies; open solutions and approaches; 2v.
Title main entry. Ed. by Adrian Giurca et al.
Information Science Reference, ©2009 693 p. $495.00
Rule-based computer programming started during the 1960s and 1970s, and was long used principally for artificial applications in academic contexts. Since the late 1990s, the concepts and processes have found applications in business modeling and requirements engineering. This reference surveys the current state of rule languages and engines, standards, methodologies, tools for modeling, designing and implementation rules, rule interoperability and interchange, and rule-based applications. The intended readers are practitioners looking for solutions to concrete problems, and researchers looking for research topics. Among the topics are graphical notations for rule modeling, a logic programming perspective on rules, the agile development of rule systems, the agent-object relationship simulation as a business process, sharing ontologies and rules using model transformation, using the semantic web rule language in developing ontology-driven applications, and mining association rules. The two volumes are paged together, but the index

Published by Jefferson Digital Commons, 2009

and the bibliography are in both volumes.

QA76.76 2009-011227 978-0-321-54549-7
Real-time agility; the harmony/embedded process for real-time and embedded systems development.
Douglass, Bruce Powel.
Addison-Wesley, ©2009 522 p. $54.99 (pa)
Douglass is with IBM Rational, a leading producer of tools for real-time systems development; he consults to many companies and organizations on building both small- and large-scale, real-time, safety-critical systems. Based on 30-plus years of experience, he presents a tutorial in agile methods for real-time and embedded-systems developers. Coverage includes an introduction to agile and real-time concepts; concepts, goals, and benefits of model-drive development; Harmony/ESW principles and practices; process overview; project initiation; and agile analysis, design, testing, and process optimization. For practicing professional software developers, junior- and senior-level computer science majors, project and technical leads, and software managers.

QA76.87 2008-046699 978-981-279-025-5
Brain-mind machinery; brain-inspired computing and mind opening.
Ng, Gee-Wah.
World Scientific, ©2009 371 p. $69.00
In order to survey efforts to build general intelligent systems based on an understanding of the brain, Ng (DSO National Laboratories, Singapore and Boston U.) draws together diverse perspectives and findings from multi-disciplinary communities working on the effort. His topics include neurons and synapses as the key to memory and learning, investigating the human multiple memory systems, emotion and cognition, probabilistic computing by the Bayesian mind, higher theories of brain and commonsense knowledge generation, biologically inspired cognitive architectures, and some issues not yet totally explored.

QA76.9 2009-016989 978-1-4200-7002-6
Algorithmic cryptanalysis.
Joux, Antoine. (Chapman & Hall/CRC cryptography and network security)
CRC / Taylor & Francis, ©2009 501 p. $89.95
This textbook on cryptographic algorithms for students and IT professionals who work with computer architectures focuses on advanced cryptanalytic methods used for LFSR-based stream ciphers, lattice methods, elliptic curves and index calculus. Joux (Laboratory PRiSM, U. of Versailles, France) provides a basic review of cryptography, linear algebra and elemental number theory before presenting specific algorithms in text, pseudo-code and C code form. A companion website provides exercises, hints solutions, and several downloadable C codes.

QA76.9 2009-000519 978-1-4200-4590-1
Design and implementation of data mining tools.
Thuraisingham, Bhavani et al.
CRC / Taylor & Francis, ©2009 250 p. $89.95
Intended for IT professionals who specialize in data mining applications, this guide explains how to implement internal systems and tools that perform intrusion detection, image classification and Web page surfing prediction. Awad (software engineering, U. of United Arab Emirates), Latifur Khan (computer science, U. of Texas at Dallas), Bhavani Thuraisingham (computer science, U. of Texas at Dallas) and Lei Wang (data mining specialist, Microsoft) discuss the latest data mining techniques and tools such as support vector machines, neural networks, association rule mining and decision trees while presenting the algorithms and practical considerations commonly used in cutting-edge research. Current trends in heterogeneous data mining, privacy-preserving data mining and Web data mining are also discussed.

QA76.9 2008-039739 978-1-4200-5336-4
Discrete-event modeling and simulation; a practitioner's approach.
Wainer, Gabriel A. (Computational analysis, synthesis, and design of dynamic models series)
CRC / Taylor & Francis, ©2009 494 p. $99.95
Models based on differential equations have been used for centuries to understand the behavior of complex systems, says Wainer (systems and computer engineering, Carleton U., Canada), but they are proving inadequate for human-made dynamic systems such as traffic controllers, automated factories, and computer networks. He explains that such systems are often called discrete-event systems because they change step-wise rather than smoothly, and the models developed to analyze them are therefore called discrete-event as well. He describes the theory of modeling and simulation called discrete-event system specification (DEVS) from the perspectives of concepts, building simulation models with the CD++ toolkit, and simulation and visualization. A separate section surveys applications in biology defense and emergency planning, architecture and construction, environmental sciences, physics and chemistry, networking and communications, and urban traffic.

QA76.9 2009-003681 978-1-4200-6766-8
Grid computing; infrastructure, service, and applications.
Title main entry. Ed. by Lizhe Wang et al.
CRC / Taylor & Francis, ©2009 512 p. $129.95
Grid computing has emerged as a new paradigm for Internet-based parallel and distributed computing. In this work, contributors from Asia, Europe, and the US review recent advances in the field of grid computing since 2003, covering grid infrastructure and middleware, architecture, services, and applications. Several national and international grid systems are highlighted, including China Research and Development Environment Over Wide-Area

Networks (CROWN), Enabling Grids for E-Science (EGEE), ChinaGrid, the UK National Grid Service (NGS), and several ongoing cyberinfrastructure efforts in the state of New York. Applications analyzed include WISDOM, LHC, and the SOHR framework. Other topics examined include grid resource allocation, security, virtual machines in grid environments, and high-energy physics applications on the grid. Information on the editor is not included.

QA76.9 2008-274036 978-1-59749-239-3
Managing catastrophic loss of sensitive data.
Photopoulos, Constantine.
Syngress Media, Inc., ©2008 293 p. $59.95 (pa)
Designed for IT and security professionals, this guidebook provides step-by-step instructions for recovering catastrophic loss of sensitive data and dealing with all subsequent legal, PR and regulatory issues. Photopoulos is a noted project manager and corporate expert on Sarbanes-Oxley, and he explains how to create data security programs, controls and safeguards that prevent all types of data leakage. Strategies for rapid response to data loss, timely notification and recovery are also presented. A downloadable e-book version is available with purchase.

QA76.9 2008-055308 978-1-60566-386-9
Multimodal human computer interaction and pervasive services.
Title main entry. Ed. by Patrizia Grifoni.
Information Science Reference, ©2009 514 p. $195.00
Sixty-five international academics and researchers contribute 24 chapters providing theoretical and practical scenarios, concepts, methodologies, standards, definitions, and applications used to design and develop multimedia systems, focusing on mobile devices and pervasive services. Coverage includes the basic concepts and the main theoretical and practical problems and features of multimodal interaction; problems faced when designing, implementing, and using multimodal systems, and solutions to those problems; a discussion of multimodal interaction in mobile environments, according to the limitations of the devices and the different contexts where people use them; and emerging standards and guidelines for mobile multimodal applications design and usability evaluation. For academics, researchers, technicians, students in computer science, and professionals involved in designing multimodal and mobile pervasive services.

QA76.9 2008-056149 978-0-89871-675-7
Scientific data mining; a practical perspective.
Kamath, Chandrika.
SIAM, ©2009 286 p. $71.00 (pa)
Kamath, a researcher at Lawrence Livermore National Laboratory, has written this scientific data mining guide for students and researchers who need to employ these techniques on existing data sets. The author uses a multi-step process to describe the sorting of raw data and images to match an area of interest, the extracting of relevant features, the detection of patterns in the data and the display of these characteristics for fellow scientists. This volume also describes the software applications used for scientific data mining and provides guidelines for the analysis of unusually large and complex data sets.

QA269 2008-022979 978-1-60456-844-8
Game theory; strategies, equilibria, and theorems.
Title main entry. Ed. by Ingrid N. Haugen and Anna S. Nilsen.
Nova Science Publishers, ©2009 383 p. $129.00
Game theory can be applied to problems in economics and other social sciences, but it also applies to the realm of nature, especially at the molecular level. At the intersection of game theory and quantum information is a new field known as quantum game theory. In this book, international contributors outline the idea of quantum bits (qubits), their interference and entanglement, and the allowable operations on them. They also discuss various protocols for quantizing well-known classical games. After a review of quantum game theory, some specific topics covered include reversible error correction in decision communication within quantum game-theoretic bijectivity, quantum games and the relationships between quantum mechanics and game theory, and iterative solution methods for mixed equilibrium problems and variational inequalities with non-smooth functions. Other areas examined are discrete models of political competition, the effectiveness of sophisticated capital budgeting practices, a game- theoretic analysis of informational phase transitions in social networks, and game theory as a general decision making tool in the electric power industry.

ASTRONOMY

QB334 2009-009355 978-1-58488-903-8
An introduction to gravity currents and intrusions.
Ungarish, Marius.
CRC / Taylor & Francis, ©2009 489 p. $89.95
Written for researchers, students and engineers who are involved with the study, interpretation and prediction of gravity current flows in fluids, this textbook uses a mathematical framework to interpret experimental results and measurements. Ungarish (computer science, Israel Institute of Technology) provides the fundamentals of both non-stratified ambient currents and stratified ambient currents and intrusions. Essential mathematical tools such as the Navier-Stokes numerical simulations, SW equations for finite- difference schemes and Leibniz's Theorem are also provided.

QB603 2009-000099 978-981-283-912-1
Vortex dynamics, statistical mechanics, and planetary atmospheres.

Lim, Chjan C. et al.
World Scientific, ©2009 211 p. $88.00
Reporting the results of four years of research by a team of scientists and students, Lim, Xueru Ding, and Joseph Nebus (all Rensselaer Polytechnic Institute, US) describe a qualitative theory for the end-states—or statistically-stationary asymptotic flow states—of the forced-damped rotating-shallow-water equations. They also show how this theory can be applied to analyzing the super-rotation of slowly rotating terrestrial planets and major moons, and the key large-scale features of the gas giants in the solar system. Their topics include barotropic and shallow-water models, phase-transition in energy-relative enstrophy models, extremal free energy in the mean-field theory, and exact closed-form solutions for getting from phase transitions to super-rotation.

PHYSICS

QC39 2008-047006 978-1-60692-302-3
Geometrization of physical quantities.
Chizhov, Evgeny.
Nova Science Publishers, ©2009 132 p. $139.00
This book presents a new mathematical-physical paradigm, a complete geometrization of physical quantities, offering a new model of the formation of matter from qualitative-quantitative numbers and their interaction. The first chapter reviews elements of physics according to Newton and Einstein. Later chapters examine systems of physical quantities, and dimensionality of space and physical quantities. The author describes a new system for expression of base physical quantities through length, which he calls the L-System, and uses this system to understand the finite-dimensional spaces of the universe and to provide a geometric interpretation of physical quantities. Chizhov is affiliated with the Russian Federation, Moscow, Russia. The book is translated from Russian by Andrei Shkarubo, under the editorship of G. E. Zaikov.

QC454 2008-036200 978-0-470-04823-8
Optical imaging and spectroscopy.
Brady, David J.
John Wiley & Sons, ©2009 510 p. $110.00
Designed for advanced undergraduate and graduate courses in optical sensor design, and as a reference for sensor designers in radio and millimeter wave, X- ray, and acoustic systems, Brady's (electrical and computer engineering, Duke U.) is the first text to present an integrated view of the optical and mathematical analysis tools necessary to understand computational optical system design. Coverage includes an overview of the past, present, and future of computational optical sensing; the tools needed to analyze and design computational optical sensors, including geometric imaging, analysis, wave imaging, detection, coherence imaging, sampling, coding and inverse problems; and specific design strategies and opportunities.

QC611 2008-032306 978-1-60456-930-8
Quantum dots; research, technology, and applications.
Title main entry. Ed. by Randolf W. Knoss.
Nova Science Publishers, ©2008 691 p. $149.00
Quantum dots are small devices that contain a tiny droplet of free electrons fabricated in semiconductor materials; they act much like atoms, but can be connected to electrodes so their atom-like behavior can be studied. Physicists, materials scientists, electronics researchers, and others present information on them that they have created in their own laboratories or have compiled from literature in the field. Their topics include theory and methods of few-electron semiconductors quantum dots in a magnetic field, the numerical modelling of semiconductor quantum dot light emitters for fiber optic communication and sensing, quantum dots in medicinal chemistry and drug development, sub-diffraction quantum dot waveguides, a unified description of resonance and decay phenomena in quantum dots, studying quantum dots using effective-mass envelope function theory, and the application of quantum dots in organic memory devices.

QC760 978-1-4398-0071-3
Monte Carol methods for electronics.
Sadiku, Matthew N.O.
CRC / Taylor & Francis, ©2009 224 p. $99.95
Sadiku (Prairie View A&M U.) presents the techniques in a systematic way for researchers and practitioners in the field of simulation generally but particularly in electromagnetic computation. Readers might include electrical and electronics engineers, students, and researchers who are interested in applying Monte Carlo methods to electromagnetic computation and have completed an introductory course on numerical analysis that includes finite difference method. Chapter-end problems facilitate the book's use as a textbook in an introductory graduate or undergraduate course. Among the topics are probability and statistics, floating random walk, whole field computation, and multi-dimensional integration.

QC871 978-1-59693-372-9
Neural networks in atmospheric remote sensing. (CD-ROM included)
Blackwell, William J. and Frederick W. Chen.
Artech House, ©2009 215 p. $109.00
Blackwell (senior technical staff at the Massachusetts Institute of Technology's Lincoln Laboratory) and Chen (senior engineer at Signal Systems Corporation) present an applications-oriented treatment of neural network methodologies for use in atmospheric remote sensing. Their focus is on the retrieval of atmospheric parameters, such as the Earth's temperature, water vapor profiles, and precipitation rate, but the methodologies can also be applied to other problems where function approximation is required. They begin with simple, theoretical examples demonstrating how performance is affected by basic neural

network attributes such as model selection, initialization, and training methodology and then build on those to describe applications common in atmospheric remote sensing. The examples are often accompanied by MATLAB software codes, available on the accompanying CD-ROM, which can be used for larger and more complex problems.

CHEMISTRY

QD172 2008-031731 978-0-470-06054-4
Chirality in transition metal chemistry; molecules, supramolecular assemblies and materials.
Amouri, Hani and Michel Gruselle. (Inorganic chemistry)
John Wiley & Sons, ©2008 246 p. $80.00 (pa)
This book on chirality in transition metal chemistry is the first to give specialized treatment on the subject since Alex von Zelewsky's 1996 work, *Stereochemistry of Coordinatino Compounds*, to the knowledge of the authors (both of the U. Pierre et Marie Curie, France). They cover new discoveries in the field since 1996 and draw connections between the various aspects of chirality in such different fields of chemistry as organometallics, catalysis, coordination chemistry, supramolecular assemblies, and nanomaterials.

QD181 978-3-527-32086-8
Gold chemistry; applications and future directions in the life sciences.
Title main entry. Ed. by Fabian Mohr.
Wiley-VCH, ©2009 408 p. $215.00
The metal has been precious since prehistory times, but its chemistry has interested scientists only for about the past generation. Here chemists from around the world describe the latest thoughts and findings about the chemistry of gold, and survey current and possible future applications of gold complexes. They cover gold (I) nitrogen chemistry; gold (III) complexes with nitrogen and oxygen ligands; pentafluorophenyl gold complexes; the theoretical chemistry of gold from atoms to molecules, cluster, surfaces, and the solid state; the luminescence and photophysics of gold complexes; gold compounds and their applications in medicine; the nanoscience of gold and gold surfaces; and liquid crystals based on gold compounds.

QD461 2009-006361 978-1-4200-7848-0
The fragment molecular orbital method; practical applications to large molecular systems. (CD-ROM included)
Title main entry. Ed. by Dmitri Fedorov and Kazuo Kitaura.
CRC Press, ©2009 276 p. $129.95
The growing raw power of computers is making electronic structure calculations possible for ever larger molecular systems, and new methods for treating large systems are being developed, most of them based on fragment approaches that boast a venerable career in quantum chemistry. Chemists and other scientists from Japan explain some of the more widely used methods, emphasizing their practical use rather than their theoretical background or mathematical elegance. They include excited state of photo-active proteins by configuration interaction studies, using the fragment molecular orbital (FMO) method to recognize specific bio-macromolecules, FMO in the study of viruses and their binding to receptors, and the chorismate mutase reaction as a case study for modeling a protein environment in an enzymatic catalysis. The disk contains free modeling software, a tutorial, input file samples, and other material.

QD571 2009-012179 978-1-4200-5188-9
Surface charging and points of zero charge.
Kosmulski, Marek. (Surfactant science series; v.145)
CRC / Taylor & Francis, ©2009 1064 p. $199.95
Editor Kosmulski (Technical U. of Lublin, Poland) has compiled a comprehensive reference for chemists with the most current information available on points of zero charge (PZC) of oxides. The extensive book includes PZC data on well-defined specimens of materials that are sorted by trademark, manufacturer (commercial materials), location (natural materials), and specific recipe (synthetic materials). Topics include: correlations of the PZC and isoelectric points (IEP) with other physical quantities and properties, surface charging in mixed and nonaqueous solvents, surface charging at high ionic strengths, and ion-specificity in 1-1 electrolytes. The book is a synthesis of information from published research reports. Contributors are not listed.

BIOLOGY

QH505 2009-921740 978-1-58829-973-4
Fundamental concepts in biophysics, v.1.
Title main entry. Ed. by Thomas Jue. (Handbook of modern biophysics)
Springer, ©2009 240 p. $129.00
This is the first volume in a series intended to bring current biophysics topics into focus for biology, medical, engineering, mathematics, and physical science students and researchers as they learn fundamental concepts and apply new biophysics techniques to address biomedical questions. The book, written for graduate students in biophysics, chemistry, physics, and engineering, surveys the physical techniques that scientists use to study biology and illustrates biomedical applications. Early chapters cover mathematical methods in biophysics, and quantum mechanics basic to biophysical methods. These first two chapters establish some of the principles of mathematical physics underlying many biophysics techniques. Later chapters cover computational modeling of receptor-ligand binding and cellular signaling processes, fluorescence spectroscopy, electrophysiological measurements of membrane proteins, single-particle tracking, and NMR measurement of biomolecule diffusion. Each chapter has a bipartite structure: the first part establishes the fundamental physics concepts and describes the

Published by Jefferson Digital Commons, 2009

instrumentation or technique. The second part illustrates current applications in biology. With the addition of problem sets, guides to further study, and references, the interested reader can continue to explore ideas independently. Jue is a Professor in the Department of Biochemistry and Molecular Medicine at the University of California Davis.

QP360 2008-041235 978-0-309-11894-1
Emerging cognitive neuroscience and related technologies.
Title main entry. Ed. by Committee on Military and Intelligence Methodology for Emergent Neurophysiological and Cognitive/Neural Science Research in the Next Two Decades, Division on Engineering and Physical Sciences, National Research Council of the National Academies.
National Academies Press, ©2008 194 p. $49.00 (pa)
The Committee was charged with identifying areas of cognitive neuroscience and related technologies that will develop over the next two decades and could have military applications that might be of interest to the intelligence community and more especially to the overlap of military intelligence. The report reviews the current state of neurophysiological and cognitive/neural science, highlights work that could be of interest, applies the warning methodology developed in the 2005 report *Avoiding Surprise in an Era of Global Technology Advances*, and suggests how research in various countries may affect the Committee's assessment. No index is provided.

QP360 2008-044683 978-1-4051-2288-7
Memory and the computational brain; why cognitive science will transform neuroscience.
Gallistel, C.R. and Adam Philip King.
Wiley-Blackwell, ©2009 319 p. $50.00 (pa)
Gallistel (Rutgers Center for Cognitive Science) and King (mathematics and computer science, Fairfield U.) argue that there must be an addressable read/write memory mechanism in brains that encodes information received by the brain into symbols, locates the information when needed, and transports it to computational machinery that makes productive use of the information; the steps of this process are analogous to writing, addressing, and reading in computer science. They go looking for it, privileging insights from computer science, which they say has identified the essential components of a powerful computing machine, whereas neuroscience has yet to establish an empirically anchored understanding of how the brain computes. Their topics include Bayesian updating, representations, computation, data structures, the nature of learning, dead reckoning in a neural network, and the molecular basis of memory.

MEDICINE (GENERAL & PUBLIC ASPECTS)

R857 2009-011787 978-1-4200-7582-3
A laboratory course in biomaterials.
Xian, Wujing.
CRC Press, ©2009 212 p. $59.95
Written for students and researchers in university biomedical engineering programs, this volume on biomaterials covers the laboratory protocols, data analysis, problem solving and scientific writing skills needed to complete coursework. Xian (materials science and engineering, U. of Illinois at Urbana-Champaign) covers basic laboratory skills before covering five comprehensive modules on drug delivery, natural biomaterials and cell culture, biocompatibility testing, tissue engineering and bioceramics. Each module contains rigorous schedules for daily sessions, and an appendix contains all the answers for the exercises.

R858 2009-017656 978-1-55570-627-2
Health informatics for medical librarians.
Cleveland, Ana D. and Donald B. Cleveland. (Medical Library Association guides)
Neal-Schuman, ©2009 288 p. $95.00 (pa)
Written specifically for information professionals, this text covers basics of health informatics as well as principal practices in the field. Each chapter features problem scenarios and solutions. The first section defines health information as a discipline and as a profession, describes today's healthcare environment and infrastructure, and explains the role played by new and emerging health information technology. It also discusses major specialty areas in health informatics, including nursing, pharmaceutical, dental, public health, hospital, and veterinary informatics. Each chapter in the second section outlines a specific facet of health informatics, with information on medical knowledge organization, health information technology, electronic health records, and major types of healthcare information management systems. Also covered are medical imaging, ethical and legal issues, and bioinformatics and genomic medicine. A glossary is included. Useful as a reference in medical or health libraries and information centers, the book can also be used as a text for undergraduate or graduate courses in health informatics, medical librarianship, and biomedical information management. Ana Cleveland is director of the health informatics program at the University of North Texas. Donald Cleveland is professor emeritus at the University of North Texas.

TECHNOLOGY (GENERAL)

T10 2009-004539 978-0-309-13026-4
Beyond "fortress America"; national security controls on science and technology in a globalized world.
Title main entry.
National Academies Press, ©2009 137 p. $42.00 (pa)
Assembled by two separate committees from the National Research Council of the National Academies, this report for policymakers and researchers analyzes the current condition of the national security controls that regulate access to science and technology and concludes

that immediate change is warranted. This volume reviews the changes in geopolitical and technological conditions that have occurred since regulations were originally implemented and makes specific recommendations for export and visa controls that may prevent security breaches caused by globalization. An appendix contains a list of reports prepared by the National Academies over the last 25 years that have addressed these security concerns.

T55 978-1-84735-148-7
The underlying foundation of science used in the regulation of industrial chemicals.
Plamondon, Joseph.
Smithers Rapra, ©2009 136 p. $108.00 (pa)
This book reviews chemical nomenclature issues in the EU and US and their impact on regulatory compliance. It discusses the relationships among various nomenclature systems and looks at how chemical identity issues are to be addressed under the implementation of Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), along with comparative examples of how chemical issues are addressed under the Toxic Substances Control Act (TSCA) in the US. Treatment of nanotechnology under the TSCA and REACH is also covered. A list of abbreviations is included.

T56 2009-006945 978-1-4200-7235-8
STEP project management; guide for science, technology, and engineering projects.
Badiru, Adedeji Bodunde. (Industrial innovation series)
CRC / Taylor & Francis, ©2009 401 p. $89.95
Badiru (systems and engineering management, Air Force Institute of Technology Dayton, Ohio) presents the tools and techniques for executing complex science, technology, and engineering projects using the STEP (Science, Technology, and Engineering Projects) methodology, based on the structural framework of the Project Management Body of Knowledge (PMBOK) as presented by the Project Management Institute (PMI). Coverage includes an overview of the STEP methodology; the use of project integration management to bring together the parts to create the complete project; directing and controlling the scope of the project; and management of the time, cost, quality, human resource, communications, and procurement aspects of a project. The final chapter presents a case study profiling the project management errors that led to the *Challenger* disaster in 1986. For all types of professionals involved in science, technology, and engineering projects, technical consultants, academics, and students.

T58 2008-042439 978-1-60566-364-7
Grid technology for maximizing collaborative decision management and support; advancing effective virtual organizations.
Title main entry. Ed. by Nik Bessis.
Information Science Reference, ©2009 336 p. $195.00
Grid technology refers to the infrastructure and set of protocols that enable the sharing, integration, and collaborative use of networked computer-based resources between multiple organizations. In this book for both technical and non-technical readers, Bessis (computing and information systems, University of Bedfordshire, UK) brings together recent international research and applications for managing information and communication technology-related resources using grid technology in business and other commercial and non-commercial organizations. The first section introduces concepts and principles of grid technology such as distributed computation and resource-sharing using Web services. Some of the chapters in this section present scenarios for collaborative decision management and support across various settings. The second section pays attention to socio-technical aspects of trust and control between teams and organizations. The third section, on grid services for advancing virtual organizations, discusses areas including small world architecture, and runtime service discovery for grid applications. The audience for the book includes industry leaders, consultants, managers, academics, and advanced students in computing, and in non-computing disciplines such as information systems, social science, business, and management.

T58 2008-055725 978-1-60566-659-4
Handbook of research on contemporary theoretical models in information systems.
Title main entry. Ed. by Yogesh K. Dwivedi et al.
Information Science Reference, ©2009 660 p. $265.00
Editors Dwivedi (information systems, Swansea U., UK), Lal (information systems (Nottingham Trent U., UK), Williams (business and economics, Swansea U., UK), Schneberger (Dean of Academics, Principia College, USA) and Wade (management information systems, York U., Canada) have collected research on contemporary models in information systems, providing researchers and practitioners with one of the first volumes that addresses the lack of concrete theory in the field. Expert contributors discuss the primary theoretical concerns of information systems such as grounded theory approached to MIS research, diffusion of innovation and capability theory for e-government and expectation-confirmation theories for marketing systems. Theories are also presented that discuss the social, cultural and psychological aspects of information systems.

T174 2008-023112 978-1-60456-569-0
Nanotechnology research progress.
Title main entry. Ed. by Julian F. Vogel and Felix T. Jung.
Nova Science Publishers, ©2009 358 p. $129.00
The latest research progress in the field of nanotechnology is covered in this volume, with editors Vogel and Jung (no affiliations listed) gathering articles from experts that examine how these technologies are being used in precision engineering, new materials development,

Published by Jefferson Digital Commons, 2009

electromechanical systems and mainstream biomedical applications. These papers discuss such topics as restricted flow in nano-channels, nanosphere lithography to enable plasmonic applications and tungsten oxide nanowires. An expert commentary is also provided on residual stresses in nanotechnology.

T385 2009905373 978-0-7695-3734-4
Visualisation in built and rural environments—biomedical visualization—geometric modelling and imaging; proceedings.
International Conference Visualisation (VIS) (2009: Barcelona, Spain) Ed. by Ebad Banissi et al.
Computer Society Press, ©2009 260 p. $194.00 (pa)
This volume contains the proceedings of an international conference bringing together scientists, artists, and technology users from a cross section of disciplines in order to discuss the application and utilization of computer-aided visualization in the areas of built and rural environments, biomedicine, geometrical modeling and imaging, and computer animation and digital art. The 43 papers include discussions of such topics as a computational steering visualization environment for surface structure determination, believable emotional facial expression animation, fuzzy logic based built environment impact assessment for urban regeneration simulation, attractive visualization influences on the perceived quality of the living environment, visual analytic methods for hereditary breast and ovarian cancer risk assessment, two-dimensional geometric constraint solving, recognition and translation of hand gestures to Urdu alphabets using a geometric classification, and real time object detection and motion.

ENGINEERING (GENERAL, CIVIL)

TA167 2009-005529 978-1-4398-0383-7
Human reliability, error, and human factors in engineering maintenance; with reference to aviation and power generation.
Dhillon, B. S.
CRC / Taylor & Francis, ©2009 184 p. $89.95
Dhillon (engineering management, U. of Ottawa) has designed this guide on engineering maintenance for managers and practitioners who need to identify and correct human errors that can impact a company's bottom line. The author discusses the current literature on human reliability and error in engineering maintenance and presents the mathematical concepts, analysis methods and error theories that are currently applied in the field. Each subsequent chapter addresses human factors and errors in specific industries such as aviation maintenance and power plants. A final section presents mathematical models for performing human reliability and error analysis.

TA174 2008-048129 978-1-4200-5918-2
Computer aided design and design automation.
Title main entry. Ed. by Wai-Kai Chen. (The circuits and filters handbook, 3d ed.)
CRC Press, ©2009 -- p. $99.95
Engineers mainly in the US are the authors of the 14 chapters of this well-produced reference, which is part of the 5-volume *The circuits and filters handbook*, now in its 3d edition. Clearly written, with a focus on design, the volume includes chapters that describe the basic concepts and theory as well as more advanced problems, with chapters devoted to physical design automation and design automation technology, computer-aided analysis, and performance modeling and analysis using VHDL and SystemC. Each chapter begins with an expanded table of contents and introduction to the topic and is well-illustrated with diagrams and examples. A list of references concludes each chapter. An essential reference for electrical engineers, *The circuits and filters handbook* may be acquired either by the individual volume or as a 5-volume set. Chen is at the U. of Illinois in Chicago.

TA347 2008-042179 978-1-4200-8662-1
Applied calculus of variations for engineers.
Komzsik, Louis.
CRC / Taylor & Francis, ©2009 170 p. $59.95
This textbook on applied calculus of variations is aimed at engineers who need to find solutions to problems that involve optimal quantities, shapes and functions. Komzsik, chief numerical analyst at Siemens PLM Software, provides the fundamentals of calculus of variations before explaining constrained variational problems, multivariate functions, higher order derivatives, inverse problems and direct methods. He then describes specific engineering applications such as differential geometry, computational geometry, analytic mechanics and computational mechanics.

TA347 2009-014064 978-1-56347-997-7
Finite element structural analysis; new concepts.
Przemieniecki, J. S. (Education series)
Amer. Inst. of Aeronautics & Astronautics, ©2009 136 p. $89.95
Structural engineer Przemieniecki (PhD, U. of London, UK) proposes and describes a new method of finite element structural analysis that provides the means for assessing the accuracy of results obtained for any given mesh size relative to the size of the structure and distribution of the applied loading. The method consists of two separate sets of analysis. The first is based on traditional element properties derived from assumed displacement folds and the second is based on stress elements based on assumed stress fields satisfying the necessary equations of stress equilibrium, enhanced displacement elements based on assumed displacement fields with additional fields vanishing on the element

boundaries (the magnitudes of which are determined from the Principle of Minimum Total Potential Energy), and a special hexahedron element constructed from two pentahedrons based on assumed displacement fields. The results from the two sets of analysis are compared and, if the results are close enough, the solution can be considered bounded, or if they are not, the process is repeated with a smaller grid until reasonable closeness is obtained.

TA347 2009-004459 978-1-4398-0294-6
What every engineer should know about computational techniques of finite element analysis, 2d ed.
Komzsik, Louis. (What every engineer should know; 38)
CRC / Taylor & Francis, ©2009 331 p. $89.95
Written for mechanical and aerospace engineers who use finite element analysis (FEA) as a computational technique, this volume describes the processes needed to convert a physical problem to a final computed solution. Komzsik, a chief numerical analyst for Siemens PLM software, has updated his original 2004 version to include new chapters on such topics as iterative solutions of linear systems and the use of technology to couple multiple physical phenomena. Methods for numerical model generation, computational reduction techniques and engineering computation solutions have also been revised to the latest industry standards.

TA417 978-1-4398-0301-1
Multiaxial notch fatigue; from nominal to local stress/strain quantities.
Susmel, Luca. (Woodhead publishing in materials)
CRC Press, ©2009 566 p. $189.95
Susmel (U. of Ferrara, Italy, he's also a researcher at Trinity College, Dublin) has written a thorough and helpful text documenting his extensive researches on multiaxial fatigue loading that will be of interest to researchers, professionals, and graduate students in structural engineering and related fields. The problems for calculating stress/strain quantities and the fundamentals of fatigue assessment are described in the initial chapters, followed by an in-depth treatment of the modified Wöhler Curve Method which is discussed in several chapters dealing with various applications. The two appendices take nearly 300 pages of the text; the first reports on the experimental values of the material characteristic length (with full list of references), and the second provides detailed tables of nearly 4500 experimental results from multiaxial fatigue loading under various conditions, using different materials.

TA418 978-3-527-31524-6
Bulk nanostructured materials.
Title main entry. Ed. by Michael J. Zehetbauer and Yuntian T. Zhu.
Wiley-VCH, ©2009 710 p. $290.00
This work details the latest understanding of bulk nanostructured materials (BNMs) and commercial applications, covering metals and alloys as well as nonmetallic nanomaterials such as semiconductors and ceramics. Coverage encompasses processing techniques, microstructures, mechanical and physical properties, and applications. An introduction and overview section reviews basics of BNM properties and describes severe plastic deformation (SPD) processing techniques. Several chapters of the book are devoted to mechanical properties, and one chapter is devoted to the related topic of molecular dynamics (MD) simulations. There is a wealth of material on characterization methods used to study nanostructural features of BNMs, with focus on HRTEM and diffraction techniques. The two final sections of the book discuss applications of BNMs, which not only benefit from the refined grain structure but also, in the case of SPD-processed BNM, from the high densities of SPD-induced lattice defects. B&w microimages and illustrations are included on

PATERRA®

Machine Translation for Patents
Since 1996
Japanese-Korean-Chinese-Russian-German-French
www.paterra.com

almost every page, and chapter references are presented in a numbered, two-column format for readability. Zehetbauer is affiliated with the University of Vienna, Austria. Zhu is affiliated with North Carolina State University.

TA418 978-1-60511-114-8
Nanotubes, nanowires, nanobelts and nanocoils—promise, expectations and status; proceedings.
International Symposium on Nanotubes, Nanowires, Nanobelts and Nanocoils... (2008: Boston, MA) (MRS symposium proceedings; v.1142)
Materials Research Society, ©2009 235 p. $115.00
The proceedings of a 2008 Materials Research Society symposium on nanotubes, nanowires, nanobelts and nanocoils is covered in this volume, with leading experts in materials science providing researchers and engineers with an up-to-date survey of the latest advances in the field. Editors Bandaru (materials science, U. of California, San Diego), Grego (research scientist, RTI International) and Kinloch (research fellow, U. of Manchester, UK) have collected papers that discuss such topics as carbon nanotube growth mechanisms, solution based processing and electrochemistry, carbon nanotube and nanowire synthesis and characterization, carbon nanostructure processing, optical and thermal properties and mechanical properties. A concluding set of studies address energy applications for these technologies such as control of NEMS and detection of single DNA molecules.

TA418 2008-024207 978-1-60456-799-1
New research on nanocomposites.
Title main entry. Ed. by Luis M. Krause and Jonas T. Walter.
Nova Science Publishers, ©2008 335 p. $129.00
Correlating the properties of composite materials with their structure at the nano-scale has become a major magnet for research in the physical sciences. Here researchers in chemistry, materials, physics, and other disciplines report their research and review the literature on such aspects as the nano-scale characterization and spectroscopy of strained silicon, bone inspired nanocomposites, ultra-nanocrystalline diamond/amorphous carbon nanocomposite films, periodic non-oxide semiconductor-based organic-inorganic nanocomposites, and flexible transparent conducting nanocomposites.

TA418 2008-045771 978-1-60692-437-2
Porous media; heat and mass transfer, transport and mechanics.
Title main entry. Ed. by José Luis Acosta and Andreés Felipe Camacho.
Nova Science Publishers, ©2009 255 p. $129.00
The studies consider a wide range of materials serving as barriers or interfaces—often both, of course—in as many contexts. Their topics include porous hydro-gels, Monte Carlo simulations for studying diffusion-limited drug release from porous matrices, determining the loading factor for gases transported across meso-porous adsorbent membranes, granular beds composed of different particle sizes, particle transport and deposition in porous media, and modeling the relationship between comfort and protection in chemical-protection clothing.

TA455 2009-010703 978-1-56990-435-0
Nano- and micromechanics of polymer blends and composites.
Karger-Kocsis, József and Stoiko Fakirov.
Hanser Publications, ©2009 604 p. $199.95
Covering in-depth structural investigations of polymeric micro- and nanocomposites as well as molecular modeling using different approaches and techniques, this volume's 15 chapters are presented by Karger- Kocsis (polymer engineering, Budapest U. of Technology and Economics, Hungary) and Fakirov (mechanical engineering, U. of Auckland, New Zealand) with the intention of demonstrating that a multiscale approach is the right means for understanding the structure-property relationships of these materials. Topics include nano- and micromechanics of crystalline polymers; modeling mechanical properties of segmented polyurethanes; fabrication and mechanical properties of nanoparticles and polymer composites; new developments in rubber nanocomposites; manufacturing, modeling, and applications of organoclay, particulate, and nanofibril reinforced polymer-polymer composites; viscoelasticity of amorphous polymer nanocomposites with individual nanoparticles; interphase phenomena in polymer micro- and nanocomposites; deformation behavior of nanocomposites studies by x-ray scattering; creep and fatigue behavior of polymer nanocomposites; deformation mechanisms of functionalized carbon nanotube reinforced polymer nanocomposites; fracture properties and mechanisms of polyamide/ clay nanocomposites; the toughness of nanomodified polymers and their traditional polymer composites; microhardness of polymer systems containing a soft component and/or phase; Monte Carlo simulations of nanoparticle reinforcement of elastomers; and modeling of polymer nanocomposites for a multiscale approach.

TA455 2009-003876 978-1-60456-878-3
Progress in monomers, oligomers, polymers, composites and nanocomposites.
Title main entry. Ed. by Richard A. Pethrick et al.
Nova Science Publishers, ©2009 401 p. $89.00
Russian chemists review recent research into various kinds of plastics and their application, particularly but not exclusively in biological and medical fields. Among their topics are spatial-energy parameters as a materialized analog of wave function, relaxation and structural properties of the anisotropic polymer composites, modifying cellulose by biocidal poly-electrolytes, physical and mechanical properties of highly filled polymer composites, the electrochemical

synthesis of tungsten carbide nanopowders and carbon nanotubes, electrospun biodegradable and biocompatible natural biofibers, and pharmacological premises for creating new anti-tumor preparations of the nitrosoalkylurea class.

TA637 2008-055491 978-1-60692-927-8
Structural materials and engineering.
Title main entry. Ed. by Ference H. Hagy.
Nova Science Publishers, ©2009 372 p. $135.00
Materials scientists, chemists, and research and practicing engineers report research and review literature on the physical properties of building materials that bear loads, in the context of microstructures, operating environments, and structural engineering problems. Their topics include microstructure and fracture aspects of short-fiber reinforced thermoplastics toughened with elastomers, a kinetic model of the oxide growth and restructuring on structural materials in nuclear power plants, a performance- based seismic design for buildings in Taiwan, recent design advances in industrial ground-floor slabs with special emphasis on permissible deformations, and predicting the survival probabilities of building structures under transient extreme execution loads.

TA654 2008-048994 978-1-60692-486-0
Controlled structures with electromechanical and fiber-optical sensors.
Melashvili, Yuri et al.
Nova Science Publishers, ©2009 203 p. $89.00
This book details framed and spatial combined structures with applications to electromechanical and fiber-optic sensors. Chapter topics include the use of electromechanical and fiber-optical sensors in civil engineering and the control of space structures, control of stresses and strains in spatial composed constructions with electro-mechanical and fiber-optical sensors, regulation of combined framed structures, and deformation and vibration of cable and guy stayed trusses and bridges using electromechanical and fiber-optic structures. Future prospects for the development of controlled structures are also examined. B&w photos and illustrations are included. The editors are affiliated with the Georgian Technical University, Tbilisi, Georgia.

TA1750 978-1-4200-6780-4
Optoelectronics; infrared-visible-ultraviolet, devices and applications.
Title main entry. Ed. by Dave Birtalan and William Nunley.
CRC / Taylor & Francis, ©2009 336 p. $149.95
The second edition of this list of industry standards for infrared optoelectronic applications has been updated to reflect new developments in semiconductor physics. Editors Birtalan, a vice president of an optoelectronic firm, has joined with Nunley, a noted innovator in the semiconductor field, to gather reviews from fellow experts on LED and silicon sensor fabrication and packaging, ultraviolet LEDs and white LED light for the conversion of SSL from convention sources. An applications section is categorized according to industry so that engineers and designers in industrial, automotive, military, medical and telecommunications fields can find pertinent information in an efficient manner.

ENVIRONMENTAL TECHNOLOGY

TD194 2009-000603 978-1-60692-667-3
Environmental impact assessments.
Title main entry. Ed. by George T. Halley and Yeram T. Fridian.
Nova Science Publishers, ©2009 493 p. $129.00
The intended readership of the anthology is unclear, because the topics range from technical descriptions of chemical analysis to organizational and management aspects of research projects, environmental impacts of various processes, financial impacts of environmental reporting, and the role of environmental degradation on economic development efforts. Presumably they all have some connection, however tenuous, with predictions of the environmental impact of a construction project, which in many cases are now required by law before the project is approved. Among the topics are the sustainability assessment of energy policies and technologies, applying life-cycle engineering to material selection, environmental implications of erosive rainfall across the Mediterranean, environmentally friendly methods for extracting and determining organophosphorus and organochlorine pesticides, metals and sustainable development, and assessing the impact of environmental management systems on the financial performance of firms.

TD1040 2009-003578 978-1-4200-8970-7
Principles of hazardous materials management, 2d ed.
Griffin, Roger D.
CRC / Taylor & Francis, ©2009 238 p. $109.95
Griffin has worked with environmental concerns since 1969, and has produced three textbooks and references, with this publication all now in second edition. In this one he provides a broad view of toxic materials and how to deal with them. He follows the epidemiological model, covering in turn the health effects of toxic materials and their measures, the transmission of hazardous materials in the environment, and managing the sources of those materials. The first edition appeared in the late 1980s, and the second reflects the impact of the environmental movement over the last two decades both in reduced pollution and the generation of hazardous materials; and in the technologies developed for detecting, measuring, and managing them.

Published by Jefferson Digital Commons, 2009

BUILDING CONSTRUCTION

TH880 2008-048583 978-1-4200-8490-0
Green facilities handbook; simple & profitable strategies for managers.
Woodroof, Eric A.
Fairmont Press, ©2009 301 p. $110.00
Over the past 15 years, Woodroof has helped 250-plus organizations and governments in the U.S. and abroad improve their profits with energy-environment solutions, including clients such as the U.S. Public Health Service, IBM, Pepsi, Ford, GM, and Verizon, as well as universities, airports, utilities, and cities. He presents a collection of chapters highlighting profitable green ideas that business owners can implement quickly, including practical tactics in energy, water, cleaning, transportation, sustainable design, landscaping, recycling, and solar projects, as well as tips on financing, green marketing, and getting projects implemented. Three of the chapters are by Woodroof; the remaining ten were contributed by 12 American specialists in alternative energies, natural resource conservation, and environmental sustainability. Distributed by Taylor & Francis.

MECHANICAL ENGINEERING & MACHINERY

TJ163 2008-013816 978-1-60456-461-7
Energy efficiency research.
Title main entry. Ed. by David M. Bergmann.
Nova Science Publishers, ©2009 219 p. $79.00
In addition to reducing greenhouse gases and local air pollution, improvements in energy efficiency can cut costs, increase competitiveness, improve consumer welfare, and decrease reliance on imported fossil fuels. The international research and analyses collected here put this issue in perspective. Some topics examined include adaptive power management techniques for IEEE 802.11 wireless ad hoc networks, performance evaluation of energy efficient multicast algorithms for providing longest life in wireless ad hoc networks, and energy efficiency demand-side management for sustainability. B&w photos and color images are included.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK2931 978-0-470-23328-3
Modeling and control of fuel cells; distributed generation applications.
Nehrir, Hashem and Caisheng Wang. (IEEE Press series on power engineering)
Wiley-IEEE Press, ©2009 296 p. $100.00
Nehrir (electrical and computer engineering, Montana State U.-Bozeman) and Wang (engineering, Wayne State U.) have written this guide for students, engineers and professionals on fuel cell modeling and their emergence as large-scale power generators. The authors begin with a history of electric utility formation and restructuring in the United States before presenting tutorials on the principle operations of fuel cells, the dynamic modeling and simulation of PEM and solid-oxide cells, power electronic interfacing circuits, grid-connected and stand-alone systems and modeling for electrolyzers. A companion website provides MATLAB and SIMULINK models and applications for examples in the text.

TK5102 2007-014521 978-1-4200-5461-3
Contemporary coding techniques and applications for mobile communications.
Osman, Onur and Osman Nuri Ucan.
CRC / Taylor & Francis, ©2009 343 p. $99.95
Written for engineers who work in mobile communications, this textbook describes contemporary coding techniques and applications such as multiplexing, channel models, MIMO systems, trellis coding modulation and multilevel turbo codes. Osman (telecommunication and electrical/electronics engineering, Istanbul U., Turkey) and Ucan (telecommunication and electrical/electronics engineering, Istanbul Commerce U., Turkey) provide an overview of mobile communications systems before discussing cutting-edge technologies such as turbo coding and 3G. The authors also present simulation results, new coding algorithms and advanced image transmission techniques.

TK5102 978-1-59693-468-9
Disaster recovery planning for communications and critical infrastructure.
Wrobel, Leo A. & Sharon M. Wrobel.
Artech House, ©2009 304 p. $99.00
The authors are principles of a business and communications consultancy, and they have assembled this guide for business professionals who need to maintain command and control of company infrastructures in case of emergencies and disasters. The authors describe step-by-step processes for assessing vulnerabilities during an emergency response and developing safeguards and procedures that will protect infrastructures from all types of catastrophic events. Purchase of the book includes special online access to the Pacific Disaster Center (PDC) data on weather, seismic activity and demographic data.

TK5102 2008-042884 978-1-59749-298-0
Mobile malware attacks and defense.
Title main entry. Ed. by Ken Dunham.
Syngress Media, Inc., ©2009 409 p. $59.95 (pa)
This is one of the first books to address malicious attacks, or malware, against mobile devices such as smartphones and personal digital assistants. It explains foundational aspects of mobile security and mobile malware, and equips the reader with techniques for lowering the risk against emergent mobile threats. The first five chapters, written to be accessible to nontechnical readers, introduce concepts of mobile malware, visual payloads, and families of mobile malware. The next chapter introduces higher mathematical models for working with phishing identification

and mitigation and more complicated vishing attacks. Later chapters delve into a range of mobile malware technologies and mitigation measures. Chapter summaries, FAQs, and a glossary are included. Dunham is a security consultant.

TK5103 978-1-59693-389-7
Achieving interoperability in critical IT and communication systems.
Title main entry. Ed. by Robert I. Desourdis et al.
Artech House, ©2009 411 p. $129.00
Having discussed communications interoperability as a purely technical problem in his earlier co-authored text *Emerging Public Safety Wireless Communication Systems* (Artech, 2001), Desourdis (a senior systems architect at Science Applications International Corporation) has come to understand interoperability as, at root, a people problem, "that is, leaders and planners failing to use best practices to develop the right processes and tools (including standards) for sharing trusted information that drives predictable collaborative action." He therefore uses this text to describe interoperability of critical systems as a holistic problem. He postulates the causes of failed interoperability and derives a checklist for organization self-evaluation, defines best practices, reviews the people and processes that are required to support operational architecture, describes the IT and communications systems architecture that support interoperability, presents an example of a interoperability plan driven by local requirements couched in a hypothetical common national or multinational information-sharing framework, and examines emerging technologies that can aid in overcoming human deficiencies in interoperability.

TK5103 978-1-60783-234-8
Artificial intelligence in wireless communications.
Rondeau, Thomas W. and Charles W. Bostian.
Artech House, ©2009 213 p. $99.00
Rondeau (Institute for Defense Analyses' Center for Communications Research at Princeton) and Bostian (electrical and computer engineering, Virginia Polytechnic Institute and State U.) describe and explain the components and architecture of "cognitive radios," i.e. wireless communication devices with software that can dynamically select spectrum, waveform design, time diversity, and spatial diversity options and may even have the ability to modify medium access protocols or change routing behavior based on network topology. Along the way, they discuss implementations of artificial intelligence to radio optimization, the principles of software defined radio, the genetic algorithm optimization method, case-based decision theory and decision-making, and controlling radio nodes in a network during reconfiguration of the physical layer waveform.

TK5103 2008-037931 978-1-4200-6469-8
Cooperative wireless communications.
Title main entry. Ed. by Yan Zhang et al. (Wireless networks and mobile communications)
CRC / Taylor & Francis, ©2009 513 p. $99.95
The first ten contributions in this collection explore the theory behind advances in cooperative wireless communication while the remaining 11 contributions focus on cooperative techniques for wireless communication systems. Topics include capacity limits, orthogonal opportunistic relaying, power allocation, topology control, game theory, cooperative ARQ protocols, the impact of cooperative transmission on network routing, radio resource management, and self-healing wireless sensor networks. Black and white diagrams and graphs are provided. Chen is an engineering professor at National Cheng Kung University in Taiwan and Guizani is a computer science professor at Western Michigan University.

TK5103 2008-043512 978-1-4200-8205-0
Digital optical communications.
Binh, Le Nguyen.
CRC / Taylor & Francis, ©2009 579 p. $119.95
This book surveys the application of digital communication techniques to optical communication technology, minimizing unwieldy mathematical analysis and instead emphasizing operation principles. The models provided in the book will help researchers and engineers develop optical communications systems which employ new modulation formats in MATLAB. Because there are no optical communications blocks in MATLAB Simulink, one of the main objectives of the book is to explain the operational principles of optical communications blocks as examples. After a review of the fundamentals of modern communications, the book focuses on enhancements to digital technology used in ultra-high capacity networks. It details principles of digital communications and digital modulation formats in optical and photonic transmission technology, within the contexts of experimental and theoretical works and modeling. Digital modulation techniques are applied to optical communications systems and networks, in areas such as binary and quadrature amplitude shift keying, phase shift keying, differential shift keying, continuous phase shift keying, frequency shift keying, multilevel modulation, and multi-subcarriers. Case studies and numerous examples are included. Binh teaches in the Department of Electrical Engineering at Monash University.

TK5103 2009-004034 978-1-4200-7210-5
Long Term Evolution; 3GPP LTE radio and cellular technology.
Title main entry. Ed. by Borko Furht and Syed A. Ahson. (Internet and communications)
CRC / Taylor & Francis, ©2009 469 p. $99.95
In the future, a 100-fold increase in mobile data traffic is expected, necessitating improvements in the Third Generation Partnership Project's long-term evolution (3GPP LTE). This book explains basic concepts, current research, technical

aspects, and future directions of 3GPP LTE. Coverage includes the proposed architecture of Mobile IPRR and distributed dynamic architecture in wireless communication, performance evaluation of the TD-SCDMA LTE system, architecture and protocol support for radio resource management, MIMO OFDM schemes for 3GPP LTE, and multihop extensions to cellular networks. B&w flow charts and schematics are included. The readership for the book includes designers and planners of 3GPP LTE systems, researchers, and graduate students. Although not designed specifically as a textbook, it can be used as a text for graduate and research-oriented courses the deal with 3GPP LTE. Furht teaches computer science and engineering at Florida Atlantic University. Ahson is a senior software design engineer with Microsoft.

TK5105 2009-013749 978-1-60566-868-0
Computer-mediated communication for linguistics and literacy; technology and natural language education.
Bodomo, Adams.
Information Science Reference, ©2009 374 p. $180.00
Computer-mediated communication (CMC) is an interdisciplinary subject area that spans fields as diverse as computer science, information technology, communication studies, linguistics, law, and education. This collection focuses on the linguistic, literacy, and educational aspects of CMC, a field alternately known as human language technology (HLT), language and computation, or Internet linguistics. The book explores the practical implications and applications of how computers and other communications technologies can be used to analyze and process natural languages, and examines the design of communication systems and devices such as automatic translation devices, mobile phones, voice recognition devices, and all kinds of computer systems involving a human language component. There is also a wealth of material on how natural languages, like English and Chinese, are used in media such as emails, mobile phones, and online games, and how this interaction between human language and technology has created new forms and uses of language and literacy, such as cell phone novels. Most chapters incorporate a case study of the issue being discussed, drawn from university-level research conduced by the author, his students, and other members of The Linguistic Theory and Technology Group. The readership for the book includes students and scholars in various fields that intersect with CMC. Bodomo teaches humanities at the University of Hong Kong.

TK5105 2008-055309 978-1-60566-650-1
Handbook of research on social dimensions of semantic technologies and web services; 2v.
Title main entry. Ed. by Maria Manuela Cruz-Cunha et al.
Information Science Reference, ©2009 1040 p. $495.00
In this two-volume set, 130 contributors from 23 different countries discuss challenges and trends related to the impact of IT on society, organizations, and individuals. Section I presents the main infrastructures, frameworks, protocols, and components that enable or support the semantic web. Section II introduces the social shaping of the semantic web, and Section III covers new directions that impact semantic technologies and web services. Section IV describes recent applications of semantic technologies and web services. Some specific topics examined include modeling sense division for word sense disambiguation, social networks in information systems, semantic discovery of services in democratized grids, the semantic web in tourism, and the creation of ontology for copyright law. The readership for the book includes academics, technology solutions developers, enterprise managers, and graduate and postgraduate students in information technology. Cruz-Cunha is affiliated with the Polytechnic Institute of Cavado and Ave, Portugal.

TK5105 978-1-933988-64-1
Hibernate search in action.
Bernard Emmanuel and John Griffin.
Manning Publications Co., ©2009 463 p. $49.99 (pa)
Hibernate Search, a full text search library, uses Hibernate's facility with data structures to inform and guide the text searching tool Lucene. This book introduces the subject of full-text search and helps readers master the Hibernate Search library. Most chapters start with a review of background and theory, then turn to practical aspects. Coverage progresses from the benefits of full-text search technology to preparing and indexing a domain model in Hibernate Search, querying data, and advanced concepts such as typo recovery, search by synonym, and using Hibernate Search in a clustered environment. The book then covers advanced Lucene concepts. No previous knowledge of Hibernate Search is assumed, but basic knowledge of Hibernate Core or Java Persistence is recommended. Bernard is employed at a private sector firm when he leads Hibernate projects. Griffin is a software engineer and architect. The book is distributed in the US and Canada by O'Reilly.

TK5105 2009-001030 978-1-60566-715-7
Mobile peer-to-peer computing for next generation distributed environments; advancing conceptual and algorithmic applications.
Title main entry. Ed. by Boon-Chong Seet.
Information Science Reference, ©2009 534 p. $195.00
This book reveals conceptual and algorithmic perspectives on research issues, findings, and approaches to mobile and wireless peer-to-peer (P2P) computing. Chapters are in sections on information retrieval and dissemination, overlay and mobility management, cooperative mechanisms, resource management, security, standards and protocols, architectures and platforms, and applications and services. Some

ANNUAL REVIEWS

A Nonprofit Scientific Publisher

Enlighten Your Patrons

with an Annual Reviews Site License.

Annual Reviews offers a variety of affordable site license solutions, ensuring seamless access to intelligent, high quality review literature covering 40 disciplines.

New Annual Reviews Journals Include:

- Economics, *ONLINE NOW!*
- Resource Economics, *October 2009*
- Financial Economics, *December 2009*
- Food Science and Technology, *April 2010*
- Chemical and Biomolecular Engineering, *July 2010*
- Condensed Matter Physics, *August 2010*

www.annualreviews.org

Secure a Site License for Your Institution Today Via www.annualreviews.org

tel: 800.523.8635 (US/CAN) •650.493.4400 (worldwide) • fax: 650.424.0910 • email: sitelicense@annualreviews.org

specific areas detailed include data dissemination and query routing in mobile P2P networks, mobility support in a P2P system for publish/subscribe applications, enabling cooperation in MANET-based P2P systems, and incentives for resource sharing in ad hoc networks. Other subjects covered are integration and internetworking of fixed and mobile P2P systems, mobile P2P in cellular mobile networks, and service discovery approaches to mobile P2P computing. The book is for academic researchers, graduate students, and senior undergraduates in computer science, electrical and electronic engineering, and telecommunications. It is also intended for industry professionals such as R&D engineers, application developers, and technology business managers involved in the research, use, design, development, and deployment of mobile P2P technologies. Seet is affiliated with Auckland University of Technology, New Zealand.

TK5105 2009-016336 978-0-07-160552-6
SOA-based enterprise integration; a step-by-step guide to services-based application integration.
Roshe, Waseem.
McGraw-Hill, ©2009 364 p. $59.99
Roshen, a senior architect for IBM, has written this guide to service- oriented architecture (SOA) implementation for IT professionals and managers who need to provide connectivity solutions for their organizations. The author provides both step-by-step instructions and sample codes for connection applications of common databases, sockets and RPCs in software packages from such companies as IBM, SAP and Oracle. Tips are also included for developing web services through the use of XML, SOAP, WSDL and the UDDI registry.

TK5981 978-1-59693-321-7
RF bulk acoustic wave filters for communications.
Title main entry. Ed. by Ken-ya Hashimoto.
Artech House, ©2009 275 p. $139.00
This book overviews radio frequency (RF) bulk acoustic wave (BAW) filters, the name for the category composed of film bulk acoustic wave resonators (FBARs) and solidly mounted BAW resonators (SMR) employing a multilayered reflector. The book covers a range of technologies, optimal device design, fabrication, and packaging. It also discusses the integration of BAW filters in RF systems. Chapters cover resonator and filter topologies, BAW device basics, design and fabrication of BAW devices, FBAR resonators and filters, comparison with surface acoustic wave (SAW) devices, thin film deposition for BAW devices, characterization of BAW devices, monolithic integration, and system-in-package integration. A glossary is included. Hashimoto teaches engineering at Chiba University, Japan.

TK6590 978-1-59693-397-2
High frequency electromagnetic dosimetry.
Title main entry. Ed. by Davis A Sanchez-Hernandez.
Artech House, ©2009 260 p. $129.00
Sánchez-Hernández (Radio Communications Engineering Group, Technical U. of Cartagena, Spain) has written this textbook on high frequency electromagnetic dosimetry for researchers, engineers and students who are concerned with the effects of electromagnetic radiation on human health. The author describes the fundamentals of EMF interaction with matter and uses far-field and near-field numerical electromagnetic dosimetry to show how radiation can be assessed and measured. Medical applications of high frequency electromagnetic energy are also discussed.

TK6590 2008-042350 978-1-891121-69-2
Phased-array radar design; application of radar fundamentals.
Jeffrey, Thomas W.
SciTech Publishing, ©2009 319 p. $89.00
Written for engineers and students working in phased-array radar design, this applications-oriented textbook provides the mission-level requirements, software and hardware needed for the design and development of surface-based radar installations. Jeffrey is a senior engineering fellow with an integrated defense business unit, and he uses his 30 years as an radar engineer to discuss such topics as target detection, interference suppression techniques, phased-array radar architectures, design trade-offs and performance requirements. Considerations for missile defense and early warning radar designs are also included.

TK7801 2009-900489 978-0-7695-3614-9
Circuits, communications and system; proceedings.
Pacific-Asia Conference on Circuits, Communications and System (2009: Chengdu, China) Ed. by Qi Luo.
IEEE Press, ©2009 794 p. $296.00 (pa)
Proceedings of a May 2009 conference held in Chengdu, China, providing an inter- disciplinary forum for scientific researchers, academicians, engineers, and university faculties, staffs, and students to exchange research ideas and results and discuss the state-of-the art of circuits, communications and systems. Some 195 papers are organized into six sections: communication theory and applications; computer communication and networks; theory, design and implementation of circuits and systems; multimedia signal processing and communications; signal processing application and communications; and neural networks and computational intelligence. A sampling of topics: embed geodesic cycles into Möbius cubes, adaptive wavelength assignment scheme for distributed path restoration in optical networks, study of a new series hybrid active power filter, efficient provable secure ID-based anonymous signcryption scheme, a thermal study of porous Si-pillared montmorillonite with high surface area, and performance modeling of composite web services. No subject index.

TK7871 2008-015580 978-1-60021-851-4
Solid state electronics research advances.
Title main entry. Ed. by Sergo B. Kobadze.

Nova Science Publishers, ©2009 381 p. $129.00
Kobadze (no affiliations given) has edited this collection of research on solid state electronics for students and engineers who wish to learn about new advances in theory and design, measurement techniques and the preparation of semiconductor devices. Experts in the field have contributed articles on such topics as SOI technology for harsh environment applications, linear modelling and optimization for semiconductor device noise and recent progress in charge-tripping flash memory devices. An expert commentary is provided on high speed 4-2 compressor designs for fast multipliers.

TK7872 2008-012769 978-1-60456-457-0
From problem to solution; wireless sensor networks security.
Title main entry. Ed. by Zhen Jiang and Yi Pan.
(Distributed, cluster and grid computing)
Nova Science Publishers, ©2009 382 p. $79.00
This volume for graduate students, upper-level undergraduates, and researchers, assembles 18 chapters on security issues relating to wireless sensor networks and practical solutions to them. Chapters are by individuals working in computer science in academia and industry in North America, Europe, Asia, and Australia, who discuss attacks, malicious node detection, access control, authentication, key management, cryptography and encryption, pre-distribution and revocation, power consumption, and secured routing and localization, among other topics.

TK7872 2008-052196 978-1-60566-396-8
Localization algorithms and strategies for wireless sensor networks.
Title main entry. Ed. by Guoqiang Mao and Baris Fidan.
Information Science Reference, ©2009 510 p. $195.00
This compilation for academicians, researchers, and practitioners examines the fast growing area of wireless sensor networks and localization techniques, and explains fundamental theories underpinning measurement techniques and localization algorithms. Despite its focus on localization in wireless sensor networks, many localization techniques introduced in the book can be applied in a variety of wireless networks beyond sensor networks. An introductory chapter covers the basic principles of techniques involved in the design and implementation of wireless sensor network localization systems. The rest of the book covers measurement techniques, localization theory and algorithms, and experimental study and applications. The targeted audience for the book includes designers and planners for wireless localization systems, and researchers. Although not specifically designed as a textbook, the book can be used as a text for graduate courses and research-oriented courses that deal with wireless sensor networks and wireless localization techniques. Mao is affiliated with the University of Sydney, Australia. Fidan is affiliated with National ICT Australia and Australian National University.

TK7872 2009-019107 978-0-07-159675-6
Organic electronics in sensors and biotechnology.
Shinar, Ruth and Joseph Shinar. (McGraw-Hill biophotonics series)
McGraw-Hill, ©2009 419 p. $150.00
Physics, chemistry, electrical and electronic engineering, water engineering, and material science are among the fields that contributors draw on to survey current research and development in organic electronics—electronic and optoelectronic devices that utilize organic active layers. The book is presented in 11 chapters which cover topics such as scaling effects in organic transistors and transistor-based chemical sensors, organic thin-film transistors for inorganic substance monitoring, strain and pressure sensors based on organic field-effect transistors, Integrated pyroelectric sensors, organic chemical and biological sensors based on light-emitting diodes, organic semiconductor lasers as integrated light sources for optical sensors, and electrophoretically deposited polymers for organic electronics. The editors are both affiliated with the electrical and computer engineering departments at Iowa State University and the contributors hail from institutions throughout the globe and represent a wide range of related disciplines. The book will serve as a useful resource for researchers in biophotonics and organic electronics as well as an introduction for scientists new to the field.

TK7872 2008-037932 978-1-4200-6839-9
Security in RFID and sensor networks.
Zhang, Yan. (Wireless networks and mobile communications)
CRC / Taylor & Francis, ©2009 540 p. $99.95
In the past several years, there has been an increasing trend in the use of radio frequency identification (RFID) and wireless sensor networks (WSNs), and in the integration of both systems due to their complementary nature and the demand for ubiquitous computing. This book discusses security challenges and solutions in RFID, WSNs, and integrated RFID & WSNs. The book begins with a discussion of current security issues that threaten the effective use of RFID technology. Contributors examine topics such as multi-tag systems, relay attacks, authentication protocols, and lightweight cryptography. The book then shifts the focus to WSNs, beginning with background on sensor network security, then moving on to survey intrusion detection, malicious node detection, jamming, and other issues of concern to WSNs and their myriad of applications. The last part of the book reviews security problems inherent in integrated RFID & WSNs. The book ends with a glimpse of the future possibilities in these burgeoning technologies and provides recommendations for the proactive design of secure wireless embedded systems. Zhang has written and edited numerous books on wireless networks.

TK7875 978-1-904455-46-2
Lab on a chip technology; v.1: Fabrication and microfluidics.
Title main entry. Ed. by Keith E. Herold and Avraham Rasooly.
Caister Academic Press, ©2009 409 p. $310.00
Editors Herold (bioengineering, U. of Maryland), Rasooly (cancer diagnosis program, National Cancer Institute), and 63 co-contributors illustrate the newest methods and novel technologies in development for the fabrication of lab-on-a-chip (LOC) devices and new approaches for fluid control and manipulation. The authors describe the technologies for prototyping the devices and include replication and direct machining methods of fabrication. The focus of the book is to assist readers in understanding current LOC technologies, to perform similar experiments, to design new LOC systems, and to develop new methods and applications. The comprehensive book features both theoretical and technical information. The book will interest anyone using LOC technology and developing applications, including biologists, clinicians, engineers, and chemical and physical science researchers who are developing analytical technologies. Numerous illustrations are included. This is one of two volumes: V.2 is on biomolecular separation and analysis. Distributed in the US by ISBS.

TK7875 978-1-60511-111-7
Microelectromechanical systems—materials and devices; proceedings.
Microelectromechanical Systems—Materials and Devices (2d: 2008: Boston, MA) Ed. by Srikar Vengallatore et al. (MRS Symposium proceedings; v.1139)
Materials Research Society, ©2009 247 p. $115.00
Vengallatore (McGill U., Canada) et al. compile 36 papers (three invited) and poster sessions from the Materials Research Society Symposium GG, "Microelectrical Systems—Materials and Devices II," held in December 2008 in Boston, Massachusetts. Papers discuss novel materials and accompanying processes, analysis of conventional materials and processes, material property assessment, metrology tools to support the introduction of new materials, microdevices and micro/nanofluidics, micro/nanomechanics, reliability and tribiology, and technologies for regenerative medicine, blood pressure measurement, and other applications. Paper authors, who are from North America, Europe, and Japan, work in industry, research, and academia in engineering, materials science, technology, computer science, and other fields.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL571 2008-048879 978-1-4398-0465-0
Real gas flows with high velocities.
Lunev, Vladimir.
CRC Press, ©2009 735 p. $159.95
Lunev (aero-physics and space research, Moscow Institute of Physics and technology) uses analytically treatable examples, similarity laws and asymptotic analysis to explain the general patterns and features of typical flows and how real gas affects them, providing physics and aerospace students with applications for supersonic and subsonic flight. The author emphasizes recent developments in the field of gas dynamics and hypersonic theory to revise existing dated monographs, and reveals how computational mathematics and other analytical methods can be used to address previously unsolvable problems of inviscid and viscous gas dynamics. Shock waves, mixed flows and elements of radiating gas dynamics are also discussed.

TL702 2008-034058 978-1-56347-963-2
Aircraft fuel systems.
Title main entry. Ed. by Roy Langton et al. (AIAA education series)
Amer. Inst. of Aeronautics & Astronautics, ©2009 345 p. $149.95
Editors Langton, Clark, Hewitt and Richards are industry experts from Airbus and Parker Aerospace, and they have collected the latest technology from the field to deliver this comprehensive textbook on aircraft fuel systems for both military and commercial applications. Written for engineers, project managers and students in aerospace and mechanical engineering, this volume covers all aspects of fuel delivery such as basic system functions, fuel handling, fuel quantity gauging and management, fuel systems safety and systems design and development. A companion website hosts a MATLAB/SIMULINK model of modern aircraft fuel systems so that users can fly simulated missions and monitor the effects of various types of equipment failures.

TL3035 2009-017847 978-0-07-160918-0
Communication satellite antennas; system architecture, technology, and evaluation.
Dybdal, Robert.
McGraw-Hill, ©2009 320 p. $99.95
This resource on antenna technology for communication satellites provides a system view of antenna applications, a description of various antenna technologies, and guidance on methodologies for antenna evaluation, addressing both the aerospace and user sectors. The book begins with an overview of the parameters that characterize antennas, then describes antenna technology required in communication satellite systems, reviews architectures for the space and user segments, looks at antenna technology alternatives, and details methods to evaluate both component- and system-level performance. Techniques to mitigate interference are covered, and processes used in the development and characterization of antenna systems are described. The book is for antenna system planners and technology developers. Dybdal is affiliated with the Aerospace Corporation.

CHEMICAL TECHNOLOGY

TP155 2009-002472 978-0-86587-182-3
Chemical infrastructure protection and homeland security.
Spellman, Frank R. and Revonna M. Bieber.
Government Institutes Inc., ©2009 223 p. $85.00 (pa)
This reference by Spellman (environmental health, Old Dominion U.) and Bieber (Naval Medical Center Portsmouth) provides guidance to those working in the chemical industry in the United States on how to respond to the possible threat of terrorism. They discuss facility security, vulnerability assessments, preparation planning, the computer-based control system called Supervisory Control and Data Acquisition, emergency response, and security techniques and hardware.

TP159 2009-010932 978-1-4200-8615-7
Field confirmation testing for suspicious substances.
Houghton, Rick.
CRC / Taylor & Francis, ©2009 431 p. $139.95
This text describes field tests for use by those who work with hazardous materials to test for the identity of unlabeled or possibly mislabeled substances. It includes physical confirmation tests that use physical methods such as measurement of temperature, vapor density, and radioactivity, as well as some 400 chemical confirmation tests, most of which provide a colorimetric result. It also provides an overview of the strengths and weaknesses of the technologies used to analyze materials. Appendixes provide some additional information on drug confirmation testing and explosive material confirmation testing.

TP248 2009-001710 978-1-4200-8448-1
Biotechnology; a comprehensive training guide for the biotechnology industry.
Haider, Imtiaz Syed and Anika Ashok.
CRC / Taylor & Francis, ©2009 834 p. $99.95 (pa)
Designed as a training guide for scientists and practitioners who lead biotechnology research applications, this reference volume contains 28 complete courses on optimizing research and development expenditures, avoiding market delays, maintaining competitive advantages in the field, reducing the risk of failures, developing staffs and complying with local and international regulations. Haider, a chemist who specializes in pharmaceutical quality assurance, teams with Ashok, an independent graduate engineer in biotechnology, to provide content, summaries, test papers and answers to vital research protocols. Numerous appendices are included for ICH harmonized tripartite guidelines, US regulatory compliance and EMEA European Medicine Agency guidelines, and a customizable CD-ROM contains additional hands-on training tools.

MANUFACTURES

TS156 2008-048130 978-1-4200-7888-6
Lean Six sigma in service; applications and case studies.
Title main entry. Ed. by Sandra L. Furterer.
CRC Press, ©2009 468 p. $79.95
Written for managers and leaders who need to employ Lean Six Sigma applications to improve service, governmental and educational processes, this guide provides step-by-step instructions on how to apply such methodologies as DMAIC and IDDOV. Editor Furterer, an operational performance analyst with Holy Cross Hospital in Florida, has collected case studies and applications from experts in the field that demonstrate how Lean Six Sigma teams have solved project dilemmas and challenges to achieve improvements in the metrics that measure customer satisfaction. The contributors also outline the most common challenges encountered by the teams and describe the steps in which the roots of these problems were identified and addressed.

TS156 2009-011714 978-0-87389-770-9
A practical field guide for ISO 9001:2008.
Myhrberg, Erik Valdemar.
ASQ Quality Press, ©2009 125 p. $66.00 (pa)
In this guide to organizations implementing a quality management system (QMS) in conformance with ISO (International Organization for Standardization) 9001:2008, Myhrberg (senior member, American Society for Quality) succinctly identifies the documentation required, the questions auditors need to ask, and management responsibilities. Flowcharts with explanations show the process to implement a QMS step-by-step either from scratch or in transitioning from ISO 9001:2000. The spiral-bound guide includes a summary table of ISO 9001:2008 documented requirements by section, the revisions to ISO 9001:2000, resources, and information on ASQ membership.

UF157 978-1-60086-015-7
Fundmentals of ground combat system ballistic vulnerability/lethality. (CD-ROM included)
Deitz, Paul H. et al. (Progress in astronautics and aeronautics; v.230)
Amer. Inst. of Aeronautics & Astronautics, ©2009 365 p. $119.95
This guide to the vulnerability and lethality of ground combat systems offers military weapons designers and engineers a full assessment of tactical utility, target response, damage mechanisms and personnel dysfunction. Deitz (technical director, U.S. Army Material Systems Analysis Activity, retired), Reed (systems engineering, U.S. Army Ballistic Research Laboratory), Klopcic (physics and mathematics, Kenyon College) and Walbert (chief scientist, SURVICE Engineering) discuss mission effectiveness, fault trees, degraded states and networked systems and show how V/L modeling

Published by Jefferson Digital Commons, 2009

and simulation are used to evaluate system acquisition, life cycle and vulnerability reduction. Additional topics include a study of penetrating fragments and behind-armor debris.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z665 978-1-85604-693-0
Information science in transition.
Title main entry. Ed. by Alan Gilchrist.
Facet Publishing, ©2009 401 p. $110.00
Eighteen international academics, independent scholars, consultants, and researchers specializing in information science contribute 16 chapters examining the development of information science over the past 50 years. The monograph was originally published by Sage as a special issue of the *Journal of Information Science*, reproduced here for information science students and professionals in a handy book form with a comprehensive index. Coverage includes meeting the challenges faced by information science, the developing foundations of the field, the past 50 years of knowledge organization, the history of evaluation in information retrieval, the information user, sociological aspects of information science, chemoinformatics, health informatics, social informatics and sociotechnical research, visual information retrieval, national and organizational information policies, the role of information professionals, electronic scholarly publishing and open access, social software, and from bibliometrics to webometrics. Distributed in the U.S. by Neal-Schuman. ❖