

December 2007

Sci-Tech Book News Reviews

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Recommended Citation

Fingerman, Susan (2007) "Sci-Tech Book News Reviews," *Sci-Tech News*: Vol. 61: Iss. 4, Article 14.
Available at: <https://jdc.jefferson.edu/scitechnews/vol61/iss4/14>

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Sci-Tech Book News Reviews Kiem Ta, Selector



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PSYCHOLOGY

BF323 2007-002957 978-1-59147-930-7

Inhibition in cognition.

Title main entry. Ed. by David S. Gorfein and Colin M. MacLeod. (Decade of behavior)

American Psychological Assn., ©2007 337 p. \$79.95

Psychology researchers from around the US gathered in Arlington, Texas in March 2005 to share and integrate their findings on inhibition in various aspects of cognition. The 15 papers presented here discuss such topics as mechanisms of transfer-inappropriate processing, working memory capacity and inhibition, aging and inhibition deficits, concepts of inhibition and developmental psychopathology, and network models.

BF323 2007-004381 978-0-7657-0488-7

Playing Pygmalion; how we create one another.

Josselson, Ruthellen.

Jason Aronson, ©2007 151 p. \$34.95 (pa)

Josselson (psychology, Fielding Graduate U.) examines why we humans create the characters of people in our lives and respond to what we have created rather than to the real person. She reminds us that we do this unconsciously and that therapists often fall into the same trap as she describes why we create one another, why we recreate others from memories, why we impose our own perceived faults over the characters of others, why we repress the fact we are making up the people around us, and how our own insecurities get in the way of understanding others as themselves.

BF511 2006-014136 978-0-19-516915-7

Handbook of emotion elicitation and assessment.

Title main entry. Ed. by James A. Coan and John J.B. Allen. (Series in affective science)

Oxford U. Press, ©2007 483 p. \$95.00

This handbook details the major methodological achievements of the now mature multidisciplinary

field of affective science, and Coan (psychology, U. of Virginia, Charlottesville) and Allen (psychology, cognitive science, and neuroscience, U. of Arizona, Tucson) hope that it serves to stimulate further innovation in this highly theory-driven field. International contributors to 26 chapters discuss strategies for eliciting emotion in the laboratory setting (e.g., through films, music, self-statements); measurement of emotions (raising the conceptual issues of the validity of elicited emotions and whether measurement alters the response); and approaches to understanding the biological bases of emotion including functional magnetic resonance imaging.

BF724 2005-009305 0-19-516953-0

Lifespan cognition; mechanisms of change.

Title main entry. Ed. by Ellen Bialystok and Fergus I.M. Craik.

Oxford U. Press, ©2006 397 p. \$75.00

Researchers in cognition will find much of value in this interdisciplinary volume, which takes as its premise the pairing of chapters on given subjects, one by an expert in childhood and the other by an expert on aging, allowing connections and comparisons to be made between the two. Other chapters are on lifespan and methodology, including those on inter- and intra-individual differences in problem solving, and brain changes. Topics include working memory, representation, language, and differentiation of cognitive abilities. The contributors are psychologists in the US, Canada, Germany, and Australia. Bialystok is at York U. in Toronto; Craik is in Toronto at the Rotman Research Institute at the Baycrest Centre for Geriatric Care.

BT732 2007-016344 978-0-275-99506-5

Spirit, science, and health; how the spiritual mind fuels physical wellness.

Title main entry. Ed. by Thomas G. Plante and Carl E. Thoresen.

Praeger, ©2007 230 p. \$49.95

Medicine is increasingly embracing a health promotion rather than disease model. As

associates with the Spirituality and Health Institute at Santa Clara U., Plante (psychology, Santa Clara U.) and Thoreson (emeritus, education and psychology, Stanford U.), introduce 14 chapters examining how the formerly little-researched psychosocial factor of spirituality/religion relates to health in general and to specific patient populations. Social cognitive theory, to which the contributions of preface writer Albert Bandura Stanford U.) are well-known, is used to explain the demonstrated health effects of such practices as meditation and holy name repetition. Case examples treat ethical pitfalls.

PRODUCTION, INDUSTRY, COMMERCE

HD57 2007-929136 978-0-7695-2913-4

E-commerce technology/ enterprise computing, e-commerce, and e-services; proceedings.

Conference on e-Commerce Technology (9th) / Conference on Enterprise Computing, e-Commerce and e-Service (4th: 2007: Tokyo, Japan)

Computer Society Press, ©2007 709 p. \$231.00 (pa)

Fifty-nine papers from the combined July 2007 conference report on advances in the state of the art and practice of e-commerce and Web-based information systems, and identify emerging research topics in the field. Most papers are related to the infrastructure issues and enabling technologies that facilitate dynamic e-business and Web-based information systems. Material is organized in sections on e-commerce applications, trading, marketing, business modeling, document management, auction and dynamic pricing, enterprise computing, and Web services for electronic commerce. There is no subject index.

HD9980 2006-027706 978-1-59904-180-3

Enterprise service computing; from concept to deployment.

Title main entry. Ed. by Robin G. Qiu.

Idea Group Publishing, ©2007 426 p. \$94.95
Qiu (information science, Pennsylvania State U.) compiles 15 chapters for students and professionals working in the field of enterprise service computing. The volume is organized into sections covering the life cycle of enterprise service computing's development: business aspects; requirements; modeling, design methods, and methodologies; technologies; formal modeling, verification and validation; and best practices and deployment. Chapters do not need to be read in order, as each presents its own view of technology and business. Researchers and scholars in computers, information systems, and electronic engineering

from around the world contributed to the volume.

SOCIOLOGY

HM851 2006-007261 978-0-19-531280-5

Computers, phones, and the Internet; domesticating information technology.

Title main entry. Ed. by Robert Kraut et al. (Oxford series in human-technology interaction; 2)

Oxford U. Press, ©2006 326 p. \$49.95 (pa)
North American and European researchers in psychology, communications, and sociology explore how the everyday use of mobile phones, computers, and the Internet is changing the lives of their users and those around them. Bringing empirical evidence to the debate, they address factors that have a direct domestic or community effect and that are potentially measurable (once the theoretical and methodological bugs are worked out, of course). Social change, home and family, community, teenage life, and social relationships are the dimensions considered.

HV551 2006-029119 978-1-59370-099-7

Common sense dictionary for first responders.

Fire, Frank L.

PennWell Books, ©2006 295 p. \$59.00 (pa)
This volume is a glossary of about 4,200 specialized terms useful for those who respond to emergency situations such as fires and hazardous materials incidents, and for environmentalists and safety engineers as well. Terms relate to electricity, general science, hazardous materials, chemistry, the environment, firefighting, EMS, the material safety data sheet, plastics, protective clothing, radioactivity, shipping regulations, and transportation. The second section consists of a list of abbreviations and acronyms related to these topics. Fire is the author of other books on plastics and hazardous materials and a former teacher with extensive experience in the plastics industry.

HV6115 2006-049390 1-4200-4331-5

Biological influences on criminal behavior.

Anderson, Gail S.

CRC / Taylor & Francis, ©2007 315 p. \$89.95

Anderson (criminology, Simon Fraser University) explains the basic concepts of natural selection, behavior theory, and genetics that may apply to current criminal research. Never suggesting crime can be blamed on biology, this undergraduate textbook methodically surveys the results of recent studies on twins and adoption, hormones, fetal development, brain chemistry,

structural brain imaging, diet, and toxins.

JX1974 978-3-527-40690-6

Joseph Rotblat; visionary for peace.

Title main entry. Ed. by Reiner Braun et al.

Wiley-VCH, ©2007 355 p. \$45.00

His family was so poor he originally trained to be a domestic electrician. He worked his way through the university system in Poland and became a leading authority in physics, particularly nuclear physics. Knowing what nuclear fallout did, he was committed to peace, a mover shaker along with Bertrand Russell and a gaggle of Nobel Laureates and laureates-to-be in the extremely influential Pugwash Conferences on Science and World Affairs, named after the town in Nova Scotia they could all afford (in terms of time as well as money) to gather in at the same time. He joined the ranks of the laureates with the Nobel Peace Prize in 1995. He lived to be 96. He was adored. Each of the brilliant contributions to this collection of articles about Rotblat's life and legacy reflects his light, and the authors range from Rotblat himself to Mohammed ElBaradei, Mikhail Gorbachev and Martin Reese.

KF3133 2006-033073 978-1-59031-761-7

Biotechnology and the law.

Title main entry. Ed. by Hugh B. Wellons and Eileen Smith Ewing.

American Bar Association, ©2007 957 p. \$189.95 (pa)

Legal experts specializing in biotechnology law, intellectual property, patent licensing, and related areas present a clearly written review of multiple aspects of the latest wave of better living through science and its legal ramifications. Following a primer defining biotechnology and the life cycle and regulation of biotech companies, contributors treat issues in obtaining patents, innovation financing and management, technology creation and transfer, Federal regulation regarding research, product approval, and post-approval marketing; international regulation; patient privacy; medical reimbursement; and last but not least, litigation. The final chapter lists biotechnology resources worldwide; key U.S. Federal acts, cases, and agencies; and state laws. The volume also includes a glossary, highlighted legal practice points, and sample agreements.

SCIENCE (GENERAL)

Q124 2007-295537 3-11-017966-0

The origin of the history of science in classical antiquity.

Zhmud, Leonid. Trans. by Alexander Chernoglazov. (Peripatoi; v.19)

Walter de Gruyter, ©2006 331 p. \$118.95

The study of the history of science has grown dramatically from the rather faddish classicism of the eighteenth and nineteenth centuries to the rich discipline it is today, but its historiography of science has remained quiet. Zhmud points out that this is not at all surprising, as the study of the history of science has always been, properly, science. He begins what promises to be a new discipline by evaluating the period when science and history first met in antiquity, the first discoverers, the strange days of heurmatography, the theory and origin of medicine and the example of mathematics, the Platonic academy, the late fourth century Lyceum, the history of geometry from Eudemus of Rhodes, fragments and commentary on the history of arithmetic and the origin of number (here comes Eudemus again), the history of astronomy and a brief outline of the history of science after Eudemus.

Q125 2006-929619 1-58603-646-7

Science and technology policies for the anti-terrorism era; proceedings.

NATO Advanced Research Workshop on Science and Technology Policies for the... (2004; Manchester, England) Ed. by Andrew D. James. (NATO science series, series V, Science and technology policy; v.51)

IOS Press, ©2006 191 p. \$144.00

This volume is the product of a September 2004 NATO Advanced Workshop directed by James (Police Research in Engineering, Science & Technology at the U. of Manchester, UK), which was held to "critically consider the science and technology policies necessary for defence against terrorism and other threats to security; to assess the priorities for governments, universities, national laboratories and industrial firms; to identify how governments and the science and technology community can most effectively work together to enhance our security; and to share the experiences of policy makers and policy analysts." Topics include the Israeli experience with research and development on scientific and technological applications to terrorism; detection and decontamination of chemical and biological agents; US perspectives on homeland security research and development; the Canadian research and technology initiative on chemical, biological, radiological, and nuclear threats;

effective international cooperation in homeland security technology development; impacts of post-September 11th security policies on US science; the individual and collective roles scientists can play in strengthening international treaties; and national security, terrorism, and the control of life science research.

Q172 978-3-527-40484-1

Competing interactions and patterns in nanoworld.

Vedmedenko, Elena Y.

Wiley-VCH, ©2007 202 p. \$150.00

Vedmedenko (applied physics, U. of Hamburg) writes for students as well as researchers with different professional backgrounds in this introduction to systems that display competing interactions, a situation that can significantly impact many aspects of nanoscience. She classifies phenomena by the type of competing interaction involved to better present the underlying principles and universal laws governing the behavior of various systems, covering the basics of self-competition, competition between a short-range and a long-range interaction, competition between interactions on a scale of similar length, interplay between anisotropies and inter-particle interactions, and dynamic self-organization. She provides comprehensive references for each topic. Vedmedenko's interdisciplinary approach and logical organization makes what is a very complex topic easy to follow, and the examples are useful for a variety of applications.

Q334 2007-274838 978-1-84540-070-5

Artificial consciousness.

Title main entry. Ed. by Antonio Chella and Riccardo Manzotti.

Imprint Academic, ©2007 284 p. \$34.90 (pa)

Artificial intelligence being only a first step, engineers are now trying to develop artificial consciousness as experienced by humans, other mammals, and probably some other animals as well. Contributors identified only by name report on the struggle from such perspectives as depicting architecture for synthetic phenomenology, a rational and vision for machine consciousness in complex controllers, and the ensemble and the single mind. Perhaps artificial morality will be next. Distributed in the US by the Philosophy Documentation Center.

MATH, COMPUTERS

QA3 2005-044024 0-8493-3743-7

Mathematical models and methods for real world systems.

Title main entry. Ed. by K.M. Furati et al. (Monographs and textbooks in pure and applied mathematics; 272)

Chapman & Hall/CRC, ©2006 455 p. \$161.96

Drawn from materials presented at a symposium of the International Congress of Industrial and Applied Mathematics, these articles focus on mathematics for technology, wavelet methods for real-world problems, classical and fractal methods for physical problems and trends in variational methods. Topics include the challenges anticipated in the next ten years, mathematical models for superconductors, wavelet frames and multi-resolution analysis, trends in wavelet applications, advanced data processes of meteorological issues, gradient catastrophe in heat propagation with second sound, acoustic waves in a perturbed layered ocean, chaos as described using MATLAB in the motion of a satellite under the influence of magnetic torque, convex objective functional for elliptic inverse problems, and convergence and the optimal choice of the relation parameter for a class of iterative methods.

QA8 2006-049700 978-0-691-12982-2

The mathematician's brain.

Ruelle, David.

Princeton U. Press, ©2007 160 p. \$22.95

If mathematicians ran the world, this extraordinary book would be the design document for a whole mathematics curriculum. Students taking geometry, for example, might still learn about the axioms of Euclidean geometry, but the subject would be placed in the context of the more mathematically sophisticated view of geometry as a group of symmetries. This is generally Ruelle's method: take a subject that is covered in elementary math classes and explain its context—the way professional mathematicians see it. So Euclidian geometry leads to projective and affine geometry, illuminated by Felix Klein's concept of the role of symmetry in geometry; and Cartesian coordinates leads to algebraic varieties. Ruelle uses these examples to explain some of the great themes of mathematics, such as generalization of problems, the simultaneous roles of formal axioms and human ideas, translation of problems into new forms to apply different tools, and so on. In the course of these explanations he also articulates ideas about philosophical questions such as the definition of mathematics, and the independent reality of mathematical concepts. Finally, the author

shares anecdotes that are a combination of history and gossip about various famous mathematicians. Written with beautiful clarity, this book will give non-mathematicians a feel for how mathematicians think. Yet, for mathematicians, it is raised above "popularization" by the fact that it actually contains mathematical proofs and exercises, rather than merely talking about them. Ruelle is one of the creators of chaos theory and is emeritus, mathematical physics, Institut des Hautes Etudes Scientifiques in France, and visiting professor at Rutgers U.

QA29 2007-927658 978-0-88385-563-8

How Euler did it.

Sandifer, C. Edward. (Spectrum series)

Mathematical Assn. of America, ©2007 237 p. \$51.95

Sandifer (mathematics, Western Connecticut State U.) takes a suitably respectful but also jocose tone in this compilation of his 40 monthly chapters about the work of the Swiss mathematician and scientist Leonhard Euler, arguably the possessor of the best brain of the eighteenth century. Well-represented here are Euler's contributions to geometry, including his enhancements of Pythagoras, number theory, including his work on odd perfect numbers and amicable numbers, combinatorics, including his work on Venn diagrams and orthogonal matrices, and a full range of his work in analysis, one article of which shows how Euler discovered America. Sandifer includes the official list of Euler's top ten theorems and a number of period illustrations. This is published in commemoration of Euler's entrance into his fourth century.

QA43 2007-012792 978-0-525-95024-0

Poincaré's prize; the hundred-year quest to solve one of math's greatest puzzles.

Szpiro, George G.

Dutton Books, ©2007 309 p. \$24.95

A reclusive Russian posted the solution to one of mathematics' major puzzles on the Internet in 2003, but Grigory Perelman has yet to claim the prestigious and lucrative prizes to which this entitles him. Szpiro (a Jerusalem-based mathematician/author of *Kepler's Conjecture*) traces the quest to solve Poincaré's 1904 problem concerning how an ant on a large surface would know whether it was flat, a round sphere, or bagel-shaped. Notes supply details for those wishing to be more mathematically literate about its implications.

QA76 2006-039748 978-1-59904-289-3

Contemporary issues in database design and information systems development.

Siau, Keng.

IGI Publishing, ©2007 331 p. \$99.95

These ten articles describe new approaches and renovations of traditional ones to give designers and managers a better idea of what is happening out there in database design. Their topics include a contextual approach that works toward an ontology for information systems development, an ontological analysis of KAOS using separation of references, an application of UML for modeling the physical design of data warehouses, process mining and intelligent redesign supporting the full BPM life-cycle, efficient placement and processing in shared-nothing data warehouses, factors affecting design decisions for customer relationship management data warehouses, effective processing of XML-extended OLAP queries based on a physical algebra, the differences between the theoretical and practical complexity of UML, data quality and expanded database access control.

QA76 2006-039844 978-1-59140-999-1

Handbook of research on open source software; technological, economic, and social perspectives.

St. Amant, Kirk and Brian Still.

Information Science Reference, ©2007 728 p. \$225.00

St. Amant and Still, both of Texas Tech University, compile the latest research from around the world on open source software (OSS) technologies and their educational, economic, organizational, and societal implications. The handbook is divided into seven sections examining factors affecting OSS development, adoption, and use: culture and society; development models and methods for OSS production; evaluation of OSS products and uses; laws and licensing practices; public policy and government perspectives; business approaches and applications; and educational perspectives and practices. Chapter key terms and their definitions are included, with a total of about 350 terms defined. The handbook is useful as a reference for researchers, managers, and policy makers, and can be used as a supplementary text for advanced undergraduate and graduate courses.

QA76 2006-039749 978-1-59904-927-4
Research issues in systems analysis and design, databases and software development.

Siau, Keng.

IGI Publishing, ©2007 286 p. \$99.95

Several of the ten papers in this collection explore modeling methods for active domains, knowledge management, deontic business rules, and organizational memory. Other topics include matching models of different abstraction levels, the application of agile software development at two companies, potential research areas in extreme programming, the adaptation of an agile information system development method, and translation between process modeling languages.

QA76.55 2006-031349 1-59904-426-9
Semantic web-based information systems; state-of-the-art applications.

Title main entry. Ed. by Amit Sheth and Miltiadis Lytras.

CyberTech Publishing, ©2007 317 p. \$94.95

An extension of the current World Wide Web, the "Semantic Web" is a both a philosophy and a set of technologies aimed at enabling computers and people to better cooperate in the finding and sharing of information. This volume contains twelve contributions by international researchers in academia and industry considering various aspects of the Semantic Web and related information systems. Sample topics include ontology creation methodologies, design principles for versatile Web query languages, and semantic applications for online businesses. CyberTech Publishing is an imprint of Idea Group Publishing.

QA76.58 2007-927956 978-0-7695-2917-2
Parallel and distributed computing; proceedings.

International Symposium on Parallel and Distributed Computing (6th: 2007: Hagenberg, Austria)

Computer Society Press, ©2007 400 p. \$247.00 (pa)

These proceedings of the July 2007 symposium includes 48 papers reflecting the dynamics of this rapidly expanding field, including several case studies, application reports, and a full treatment of the invited talk on knowledge-based platforms for environmental risk management. General topics include parallel computing, with papers on a new execution mechanism for distributed pipeline processing, real-time systems, including a prototype of a social and economically-based resource allocations system in grid computing, grid computing, including a fully distributed active and passive task

management system, peer-to-peer computing, including a new iterative method to improve Internet distance estimation, distributed software components, scheduling and load balancing, cluster computing, programming paradigms and related issues, mobile computing, fault tolerance, and scientific computing and simulations.

QA76.73 978-0-596-00957-1
Understanding MySQL internals.

Pachev, Sasha.

O'Reilly Media, Inc., ©2007 234 p. \$49.99 (pa)

Pachev, who was on the original MySQL development team explains structures of its code that developers will find helpful in extending the open-source database software to serve specific purposes. Among those structures are client/server communication, thread-based request handing, concurrent access and locking, storage engines, and replication. Administrators and users will find little of use here.

QA76.76 2007-007268 978-1-59904-210-7
Emerging free and open source software practices.

Title main entry. Ed. by Sulayman K. Sowe et al.

IGI Publishing, ©2008 288 p. \$99.95

Technological, mathematical, economic, business, social, and philosophical and among the aspects of free and open-source software that specialists from around the world consider. They do not attempt to survey or overview the field, but describe the practices that have evolved in their particular milieu or region. The general themes are empirical research, community structures and perception, tools for qualitative development, adoption in public and corporate environments, and case studies of successful and failed projects.

QA76.76 2006-031361 1-59904-265-7
Application of agents and intelligent information technologies.

Title main entry. Ed. by Vijayan Sugumaran.

Idea Group Publishing, ©2007 377 p. \$99.95 Intelligent-agent technology, believes Sugumaran (Oakland U.), has come of age to the point where its applications can be useful in a variety of fields such as electronic commerce, supply-chain management, resource allocation, intelligent manufacturing, mass customization, industrial control, information retrieval and filtering, collaborative work, mobile commerce, decision support, and computer games. In this volume, he presents 15 examples of recent research and applications of agents and other intelligent-information technologies.

These include an ontology-based approach to business rules sourcing in supply chain management systems, approaches and tools to optimize and manage clinical processes, agent-based modeling and simulation for explaining the impact of education on malaria healthcare, an intelligent multi-robot system using higher-order mobile agents, instrument validation for strategic business simulation, building sound semantic web frameworks for scalable and fault-tolerant systems, automatic database management, the monitoring and enforcing of online auction ethics, and mail server management with intelligent agents.

QA76.9 978-0-470-02760-8

Advances in fuzzy clustering and its applications.

Title main entry. Ed. by J. Valente de Oliveira and W. Pedrycz.

John Wiley & Sons, ©2007 434 p. \$130.00

Once the stuff of which we dreamt, fuzzy clustering is now a mature area of research with new applications and methods of study emerging constantly. This collection of research concentrates on new research and that used to counter traditional issues, focusing on the algorithmic and computational augmentations of fuzzy clustering and on presenting the important and relevant phases of cluster design, including information granules, fuzzy sets in the realization of the human-centric facet of data analysis, and system modeling. Contributors give a solid background, then cover relational fuzzy clustering, Minkowski distance functions, soft cluster ensembles, visualization, algorithms and computational aspects such as fuzzy clustering to fuzzy data and infusion-based fuzzy clustering, fuzzy regression clustering, real-time and dynamic clustering, and a wide range of applications in such areas as exploratory analysis, concept induction and classification.

QA76.9 2007-001277 978-0-470-11486-5

Applied cryptanalysis; breaking ciphers in the real world.

Stamp, Mark and Richard M. Low.

John Wiley & Sons, ©2007 401 p. \$85.00

Stamp (computer science) and Low (mathematics, both San Jose State U., California) introduce applied cryptanalytic attacks in a form accessible to motivated upper-division undergraduate students in any technical field of study. They strive to minimize advanced mathematics, and append some they cannot avoid. Even so, they warn that the material is tough and cannot be grasped unless readers solve at least some

of the problems provided. The arrangement is by types of ciphers: classic, World War II, stream, block, hash functions, and public key systems. An instructor's manual is available.

QA76.9 2006-033770 1-59904-252-5

Knowledge discovery and data mining; challenges and realities.

Title main entry. Ed. by Xingquan Zhu and Ian Davidson. (Premier reference source)

Information Science Reference, ©2007 274 p. \$165.00

The 13 contributions in this collection share experiences with the application of data mining methods to software quality estimation, multimedia computing, biology, clinical trials, finance, and banking. Topics include genome-wide analysis of epistasis, cross-modal correlation mining using graph algorithms, a decision tree for remotely sensed image data, the business impact of predictive analytics, and semantics enhancing knowledge discovery. The final three chapters on traditional data mining algorithms explore the Dempster-Shafer theory for handling imperfect data, self-organized maps for outlier detection, and rough set theory for estimating error rates.

QA76.9 2006-041348 978-0-89871-626-9

Matrix methods in data mining and pattern recognition.

Eldén, Lars. (Fundamentals and algorithms; 04)

SIAM, ©2007 224 p. \$69.00 (pa)

Eldén (numerical analysis, Linköping U.) uses as examples handwritten digits, text summarization, pagerank computations made famous by a certain very popular search engine (the name of which is now used as a verb) and face recognition to explain how to use very powerful linear algebra techniques to mine data and recognize patterns. He introduces vectors and matrices in data mining and pattern recognition, then gives more details on vectors and matrices, including their inner products, vector norms and linear independence bases. He explains linear systems and least squares, orthogonality, QR decomposition, singular value decomposition, reduced-rank least squares models, tensor decomposition, clustering and nonnegative matrix factorization. In the next section he applies the abstract to real life, throwing in an exercise on extracting an automatic key word and key sentence, and closes with instructions on computing matrix decomposition, including computing eigenvalues and singular values.

QA76.9 2007-004444 978-1-58488-941-0

Stochastic relations; foundations for Markov transition systems.

Doberkat, Ernst-Erich. (Chapman & Hall/CRC studies in informatics series)

Chapman & Hall/CRC, ©2007 345 p. \$99.95

Doberkat develops the theory of stochastic relations as a foundation for Markov transition systems, investigating such central ideas as congruences and morphisms and applying them to monoidal structure. He also examines bi-similarity and behavioral equivalence under the same framework and puts the general theory of algebras into the context provided by the subprobability factor. He shows that bi-similarity, behavioral, and logical equivalence are the same for general model logics and for continuous time stochastic logic with and without a fixed point operator. Sections include a tutorial on Polish and analytic spaces, measurable selectors, probability measures and categories, and then material on stochastic relations as monads, Eilenberg-Moore algebras for stochastic relations, the existence of semi-pullbacks and interpreting modal and temporal logics.

QA76.9 2006-102335 978-1-59904-387-6

Temporal and spatio-temporal data mining.

Hsu, Wynne et al.

IGI Publishing, ©2008 279 p. \$99.95

Spatio-temporal databases have been the subjects of a significant amount of academic and industrial research, resulting in advances including modeling, indexing and moving of objects and spatio-temporal data. This addresses one of the issues in such research, which is mining topological patterns in such databases by imposing temporal constraints into the process of mining spatial collocation patterns. Using a variety of techniques, including two partition-based algorithms designed by the authors, this gives background and advanced research into mining dense periodic patterns in time series databases, mining sequence patterns in evolving databases, mining progressive confident rules in sequence databases, understanding early works in spatio-temporal mining, mining topological patterns, mining flow patterns, mining generalized flow patterns, mining spatio-temporal trees and graph patterns, and preparing for future advances in the field.

QA276 978-0-470-51024-7

The R book.

Crawley, Michael J.

John Wiley & Sons, ©2007 942 p. \$110.00

After reviewing the basic syntax of the R language for data analysis, this reference explains the R functions for calculating a variety of statistical techniques spanning all the way from elementary classical tests, through regression and analysis of variance and generalized linear modeling, up to spatial statistics, multivariate methods, tree models, and time series analysis. Crawley (Imperial College) focuses on the assumptions behind the tests, fostering a crucial approach to statistical modeling without requiring statistical theory and advanced mathematics. The final chapter provides instructions for changing the look of graphics.

QA311 978-0-88385-337-5

A garden of integrals.

Burk, Frank E. (The Dolciani mathematics expositions; no.31)

Mathematical Assn. of America, ©2007 281 p. \$51.95

Burk (California State U. at Chico) provides a survey of the integrals used in calculus and related subjects. In individual chapters, he covers the integrals of Cauchy, Riemann, Riemann-Stieltjes, Lebesgue, Lebesgue-Stieltjes, Henstock-Kurzweil, Weiner, and Feynman. For each, he describes basic properties, highlights differences and similarities, and discusses their applications. The material is geared towards advanced undergraduate audiences and up.

QA377 2005-000173 1-59454-273-2

Advances in grid generation.

Title main entry. Ed. by Olga V. Ushakova.

Nova Science Publishers, ©2007 382 p. \$129.00

Writing for the benefit of young researchers, undergraduate and graduate students and engineers in the fields of computational and applied mathematics, mechanics and physics, this collection focuses on grid generation and numerical simulation of physical field phenomena and processes. Papers on two-dimensional algorithms address such topics as elliptic barrier-type grid generators for problems with moving boundaries, a class of quasi-isometric grids, triangle distortions under quasi-isometries, grid optimization and adaptation, moving mesh calculations in unsteady two-dimensional problems, generation of curvilinear grids in multiply connected domains of complex topology. Papers on three-dimensional algorithms cover numerical simulation of component vortex flows

by MAH-3 code, nondegeneracy conditions for different types of grids, application of optimal grid generation algorithms to the volumes of revolution, an algorithm that constructs optimal grids in domains of the "pipeline" type and conservative remapping on hexahedral meshes.

QA460 2006-050969 978-0-691-12526-8
The Pythagorean theorem; a 4,000-year history.

Maor, Eli.

Princeton U. Press, ©2007 259 p. \$24.95

Maor (mathematics, Loyola U., Chicago) traces the history of the most famous geometrical theorem ever, including some of the more interesting of the more than 400 proofs. He places it within the larger philosophical system attributed to Pythagoras, and samples its use down the centuries in science, art, and literature.

QA614 2006-102211 978-3-11-019092-2
Getting acquainted with fractals.

Helmbert, Gilbert.

Walter de Gruyter, ©2007 177 p. \$98.00

Helmbert balances the fascinating geometric aspects of fractals with the serious mathematics underlying them at a level accessible to advanced undergraduate students in either discipline. He cites works that provide the next level of detail, and contain exercises. The sections cover fractals and dimensions, iterative function systems, and the iteration of complex polynomials—Julia sets and the Mandelbrot set. The illustrations use color.

ASTRONOMY

QB461 2007-009980 978-0-470-01305-2
Astrophysics; decoding the cosmos.

Irwin, Judith A.

John Wiley & Sons, ©2007 417 p. \$70.00 (pa)

Irwin (physics, Queen's U., Canada) opens up astrophysics for undergraduates and others with a bent for examples of theory in practice. She covers signals as they are observed, defined and measured, matter and radiation; signals as they are perturbed, as in the interaction of light with matter and light with space; signals emitted, whether as continuum or line emissions; and the signal decodes in forensic astronomy. Appendices give both undergraduate and graduate students background and the many color plates reveal, among other fascinating things, that Betelgeuse and Rigel can be visible to the naked eye in daylight and a cute dog is a darn good model for a lesson on heat and light.

QB641 2006-016848 0-525-94985-2

Postcards from Mars; the first photographer on the red planet.

Bell, Jim.

Dutton Books, ©2006 196 p. \$55.00

Bell led the team that built the "Pancam" cameras installed on the Mars rovers *Spirit* and *Opportunity*. The some 100 double-page (and some fold-out) prints collected here depict the preparation of those missions as well as the stark Martian panoramas captured in images both single and composite, both real and false-color. Bell applies his sensibilities as a lifetime landscape photographer to select artful and varied depictions of the texture of the Red Planet. The book is oversize: 11.75x11.75".

QB801 978-3-527-40602-9

Nuclear physics of stars.

Iliadis, Christian.

Wiley-VCH, ©2006 666 p. \$100.00 (pa)

Iliadis (physics, University of North Carolina-Chapel Hill; Triangle Universities Nuclear Laboratory) explains nuclear processes that generate the energy that makes stars shine, covering nucleosynthesis, nuclear energy generation in stars, and other topics at the intersection of nuclear physics and astrophysics. Most equations are derived, and concepts are explained in as simple a manner as possible. The book begins with coverage of basic concepts in nuclear physics and stellar evolution, and progresses with material on nuclear reactions, nuclear processes in stellar plasma, experimental information needed to perform measurements in nuclear astrophysics, and theory of stellar nucleosynthesis. With chapter exercises and 50 pages of reference appendices, the book can be used as a text or reference for undergraduates, graduate students, and researchers in nuclear physics and astrophysics. Students should have taken an undergraduate course in modern physics with elementary coverage of wave functions. An undergraduate course in quantum mechanics or nuclear physics is helpful but not required. Color photos and images are included.

QB806 2006-037043 978-0-8165-2654-3

Protostars and planets V.

Title main entry. Ed. by Bo Reipurth et al. (The University of Arizona space science series)

U. of Arizona Press, ©2007 951 p. \$90.00

Derived from the Protostars and Planets V conference held in October 2005 on the island of Hawaii, and featuring a focus on the early evolution of the solar system, the chapters of this large volume present the current state of knowledge in the field, co-authored by an

international array of 249 scientists. The chapters are grouped into nine major topics: molecular clouds, star formation, outflows, young stars and clusters, and circumstellar disks, among others. Water in the small bodies of the solar system, comparative planetology and the search for life beyond the solar system, and growth of dust as the initial step toward planet formation comprise a small sample of the topics of individual chapters. Each of the chapters includes an abstract and list of references. The volume is authoritative but approachable and will be useful to students as well as specialists in astronomy.

PHYSICS

QC173 978-0-19-921486-0

Liquid crystal elastomers.

Warner, M. and E. M. Terentjev. (International series of monographs on physics; no.120)

Oxford U. Press, ©2007 407 p. \$59.50 (pa)
Warner and Terentjev (both U. of Cambridge) examine the phenomena arising when liquid crystals and polymers are combined into a material even more mysterious than its parents. They concentrate on such polymers that are cross-linked into networks: elastomers and gels made from polymer liquid crystals. Much has happened in the field since the cloth edition was published in 2003, but rather than trying to stuff all the new developments between paper covers, they focus on nematic photo-elastomers and smectic elastomers.

QC174 978-3-527-40687-6

Quantum theory of optical coherence; selected papers and lectures.

Glauber, Roy J.

Wiley-VCH, ©2007 639 p. \$165.00

This work compiles the most renowned and groundbreaking articles and lectures by Nobel Laureate Roy J. Glauber. It includes his lectures held at the Les Houches summer school in 1964 on "Optical Coherence and Photon Statistics," which has been a milestone for generations of students and researchers. Some other topics addressed are the quantum theory of optical coherence, correlation functions for coherent fields, quantum theory of parametric amplification, photon statistics, and coherence and quantum detection. Amplifiers and attenuators, the quantum mechanics of trapped wavepackets, superfluorescence, and density operators for fermions are some other areas examined. A foreword gives a brief overview of Glauber's career and accomplishments. Glauber is affiliated with Lyman Laboratory at Harvard University. The book can be used not only as

a reference for experts, but also for graduate students and beginning researchers who wish to gain insight into the basic theories of the field.

QC454 2007-011030 978-0-470-06978-3

A practical guide to magnetic circular dichroism spectroscopy.

Mason, W. Roy.

Wiley-Interscience, ©2007 223 p. \$125.00

Mason (chemistry and biochemistry, Northern Illinois U.) explains magnetic circular dichroism (MCD) spectroscopy and its use in the interpretation of molecular electronic spectra. The presentation is descriptive to help the reader visualize the optical spectroscopic effects of MCD measurements. The text begins with discussions of polarized light and the theoretical framework and includes lengthy chapters of case studies. Chapters on magnetic vibrational circular dichroism (MVCD) and x-ray magnetic circular dichroism (XMCD) and magnetic linear dichroism spectroscopy round out the book. Familiarity with wave properties of light, quantum chemistry, electronic states, and molecular structure is assumed. Scientists and graduate students in spectroscopy, organometallic chemistry, nanotechnology, and bioinorganic chemistry are the intended audience for the book.

QC485 2005-031796 978-1-59454-793-5

Frontiers in cosmic ray research.

Title main entry. Ed. by Igor N. Martsch.

Nova Science Publishers, ©2007 25 p. \$129.00

Physicists, most in eastern Europe and Russia, report their own research and that of others into cosmic rays. Among their topics are primary cosmic ray studies based on atmospheric Cherenkov light techniques at high-mountain altitude, possible sources and spectra for ultra-high energy cosmic rays, and the search for cosmic antimatter.

CHEMISTRY

QD39 978-1-58488-687-7

Self assembly; the science of things that put themselves together.

Pelesko, John A.

Chapman & Hall/CRC, ©2007 307 p. \$59.95 (pa)

The science of self-assembly offers the most promising route available to true molecular nanotechnology, proclaims Pelesko, and explains how it works in the natural world, engineered systems, and the future. He does not expect readers to be specialists in any particular field. Exercises are included for use in courses or for self-study.

QD255 2006-102177 978-0-471-71342-5

Computational organic chemistry.

Bachrach, Steven M.

Wiley-Interscience, ©2007 478 p. \$110.00

Bachrach (chemistry, Trinity U., Texas) provides a practical overview of computational methods and applications in organic chemistry that predict the structure and activity of organic molecules. Along with a very accessible text that steps briskly through the topics, and concise illustrations that work very well with the text, Bachrach offers extensive case studies, showing how certain methods work best in certain situations. He describes quantum mechanics for organic chemistry, fundamentals of organic chemistry, pericyclic reactions, diradicals and carbenes, organic reactions of anions, solution-phase organic chemistry, and organic reaction dynamics, all of which he punctuates with personal interviews with leading lights in the field. The result is definitely for majors but even some non-majors will find the approach accessible.

QD281 2006-028909 978-1-60021-435-6

Monomer and polymers research frontiers.

Title main entry. Ed. by Alberto D'Amore and Gennady Zaikov.

Nova Science Publishers, ©2007 152 p. \$89.00

The 12 papers in this collection investigate the radical polymerization of methyl methacrylate initiated with threefold systems, the influence of media on radical copolymerization, and linear multiparametric equations for generalizing the effects of solvent-polymer interaction. The Russian researchers also explore thermo-mechanical destruction of polypropylene, polymer nanocomposite reinforcement, the fractal-like kinetics of the re-esterification reaction with a catalyst, and the structure and thermo-oxidation of polymer blends of isotactic polypropylene and triple ethylenepropylenediene.

QD431 978-1-58829-550-7

Peptide characterization and application protocols.

Title main entry. Ed. by Gregg B. Fields. (Methods in molecular biology; 386)

Humana Press Inc., ©2007 342 p. \$99.00

Fields (chemistry and biochemistry, Florida Atlantic U.) assembles 13 chapters by researchers from the US and Europe who discuss the characterization of peptides and their applications for the study of biochemical systems. They present the most recent advances in selected analytical techniques, including a comprehensive updating of high-performance

liquid chromatography for the purification and evaluation of peptides. Mass spectrometry, the synthesis and characterization of membrane peptides, and specific applications are described, such as conformationally constrained peptides, drug and siRNA delivery, and peptides as imaging, anti-aggregatory, and antimicrobial agents.

QD505 2006-020555 978-0-471-68026-0

New frontiers in asymmetric catalysis.

Title main entry. Ed. by Koichi Mikami and Mark Lautens.

Wiley-Interscience, ©2007 418 p. \$100.00

Researchers in pharmaceuticals and chemical companies and some universities describe some of the developments in asymmetric catalysis, which is becoming an important tool in drug discovery. Their topics include ligand design for oxidation, metathesis reaction, nonlinear effects, the asymmetric activation and deactivation of racemic catalysis, and chiral organic catalysis.

QD921 978-0-19-856777-6

Aperiodic crystals; from modulated phases to quasicrystals.

Janssen, Ted et al. (International union of crystallography book series; 20)

Oxford U. Press, ©2007 466 p. \$150.00

The discovery of quasicrystals spurred interest because they show sharp diffraction spots and a rotation symmetry that is not crystallographic in the sense of compatibility with lattice periodicity. Thus they are well ordered but aperiodic, meaning that standard techniques for the determination of their structures and physical properties, very often based on the presence of a Brillouin zone, are not applicable. New techniques were required for these determinations, spurring developments in chemistry, physics, crystallography, and even mathematics. In this work aimed at materials scientists, physicists, and crystallographers, Janssen (theoretical physics, U. of Nijmegen, the Netherlands), Chapuis (physics, Ecole Polytechnique Fédérale de Lausanne, France), and Boissieu (Laboratoire de Thermodynamique et Physico Chimie Métallurgique, France) provide a unified view of this now mature field, with applications in quasicrystals and modulated phases, assuming only a basic knowledge of solid state physics and crystallography.

BIOLOGY

QH366 2007-010767 978-0-87969-684-9

Evolution.

Title main entry. Ed. by Nicholas H. Barton et al.

Cold Spring Harbor Lab., ©2007 833 p. \$100.00

In this text for undergraduate courses in evolution, Barton (evolutionary genetics, University of Edinburgh) integrates concepts from molecular biology, genomics, and human genetics with traditional studies of evolutionary processes. The first section of the text offers an overview and history of evolutionary biology. Three more sections cover the origin and diversification of life, evolutionary processes, and human evolution. Chapters found only a companion web site deal with techniques and models used in studying evolutionary biology. While the lively art program offers color photos, illustrations, and diagrams on every page, pedagogical features are limited to chapter and within-chapter summaries. Designed as a text for undergraduates, the book may also be of interest to biologists seeking a current account of evolutionary theory and mechanisms.

QH434 978-1-904455-14-1

Bacteriophage; genetics and molecular biology.

Title main entry. Ed. by Stephen Mc Garth and Douwe can Sinderen.

Caister Academic Press, ©2007 343 p. \$300.00

Scientists in a wide range of medical and biological disciplines, from universities and companies around the world review the understanding of bacterial viruses, or bacteriophages, as it is informed by recent insights from genomics. They consider bioinformatics and genomics, food fermentations, medicine, the Western perspective, host interaction in lactic acid bacteria, the transfer of DNA from phage to host, phrophages and their contributions to host cell phenotype, the release of progeny phages from infected cells, and other topics.

QH462 2006-019843 978-1-60021-320-5

New research on genomic instability.

Title main entry. Ed. by Eleanor J. Goscow.

Nova Biomedical Books, ©2007 302 p. \$129.00

Many cancer biologists now believe that genomic instability not only initiates carcinogenesis, but also allows the tumor cell to become metastatic and evade drug toxicity. This collection presents current work in this area of cancer research, by contributors in the

US, Germany, the Slovak Republic, Australia, Croatia, Japan, and Georgia. Topics covered include spontaneous and induced chromosomal instability in patients with carcinoma of cervix uteri, genomic instability of the APC gene found in glioblastoma, radiation hormesis and the control of genomic instability, how a cell defends itself against genomic instability caused by chromium, and genotoxic stress and apoptosis. Information on the editor is not provided.

BOTANY

QK142 2006-026090 978-0-8165-2588-1

The ribbon of green; change in riparian vegetation in the southwestern United States.

Webb, Robert H. et al.

U. of Arizona Press, ©2007 462 p. \$75.00

Popular and scientific publications have warned since the 1970s that about 90% of vegetation along rivers and streams in the southwestern US has been lost, and political policy has been enacted to deal with the emergency. Hydrologists Webb and Stanley A. Leake, and botanist Raymond M. Turner, currently or formerly with the US Geological Survey, check into the claim, and find that it goes back to a single paper concerning a single unusual site. Seeking broader evidence, they look at long-term changes, particularly investigating whether there has in fact been a net loss of woody riparian vegetation. They find change in the vegetation, but not overall loss.

QK725 2006-026442 978-1-4051-4939-6

Plant mitochondria.

Title main entry. Ed. by David C. Logan. (Annual plant reviews; v.31)

Blackwell Publishing, ©2007 342 p. \$199.99

Logan (biology, U. of St. Andrews, Fife, UK) assembles 10 chapters that review recent advances in the study of plant mitochondria for plant scientists, cell and molecular biologists, and biochemists. Scientists and researchers from Europe, the US, and Australia show the complex biology of plant mitochondria from a cell biological, biochemical, and molecular biological perspective. They describe the emerging field of plant mitochondrial dynamics; the dynamic mitochondrial genome, including expression and control; the sequence and structural determinants for protein import; the interplay between nuclear and mitochondrial gene expression; electron transport; metabolism; cytoplasmic male sterility; and plant programmed cell death.

QK762 2006-025504 978-1-4051-3984-7

Senescence processes in plants.

Title main entry. Ed. by Susheng Gan. (Annual plant reviews; v.26)

Blackwell Publishing, ©2007 332 p. \$199.99
Plants have a plan for getting old, which involves a massive operation of programmed cell death and nutrient recycling. This requires a whole new set of gene expression, which cells must maintain enough machinery to carry out at the same time they are shutting down the power and taking out the recycling. The whole process is a bother in agriculture, because aging plants—especially leaves—are not as productive as young ones. Here biologists from North America and Europe look at the molecular and cellular mechanisms of the phenomenon to help other scientists seek a way to stop it.

QK871 2006-027577 978-1-4051-3995-3

Plant solute transport.

Title main entry. Ed. by Anthony Yeo and Tim Flowers.

Blackwell Publishing, ©2007 405 p. \$199.99
The movement of dissolved material within plants is examined by European and Australian biologists at levels from the molecular to the ecological and agricultural. Their goal is to fill a gap for graduate students and researchers between general texts on plant physiology and detailed studies of specific topics such as membrane transport. Among their topics are the driving forces for water and solute movement, membrane structure, transport from root to shoot, water-limited conditions, and desiccation tolerance.

ZOOLOGY

QL505 2006-033232 978-0-8018-8616-4

Cockroaches; ecology, behavior, and natural history.

Bell, William J. et al.

Johns Hopkins U. Press, ©2007 230 p. \$100.00

Describing itself as a "grandchild" of *The Biotic Associations of Cockroaches* (by Roth and Wilson, 1960), this volume updates the previous work, but narrows its focus to non-domestic cockroach species and strives to present its information within ecological and evolutionary context. Chapters describe the extreme diversity of the morphology, locomotion, diets, and habitats of the 4000 species of *Blattaria*. They also provide overviews of the mating strategies, reproduction, and social behavior of cockroaches, as well as discussion of termites as social cockroaches and the ecological impact of cockroaches. Also discussed are microbes as the "unseen influence" on cockroach ecology

and evolution. The text is illustrated with black and white photographs, drawings, and charts.

QP360 2005-034758 978-0-19-517761-9

Neuroergonomics; the brain at work.

Title main entry. Ed. by Raja Parasuraman and Matthew Rizzo. (Oxford series in human-technology interaction)

Oxford U. Press, ©2007 430 p. \$89.95

Neuro-ergonomics builds on neuroscience, human factors psychology, and engineering to enhance the understanding of brain function and behavior in the complex tasks of everyday life. Practitioners in this new field, almost all in the US, offers an overview of it, discussing such aspects as event-related potentials, cerebral hemodynamics and vigilance, sleep and circadian control of neuro-behavioral functions, neural engineering, artificial vision, and medical safety.

QP447 2005-013750 978-0-19-516964-5

Perceptual coherence; hearing and seeing.

Handel, Stephen.

Oxford U. Press, ©2006 469 p. \$89.95

Handel (emeritus, psychology, U. of Tennessee, Knoxville) has written a substantial text on the correlation between hearing and seeing in sensory perception that will be useful to the researcher as well as in the upper undergraduate and graduate-level classroom. Maintaining a tight focus on the two senses' shared aspects throughout the discussion, Handel presents chapters on transformation from information to perception, the characteristics of auditory and visual scenes, the perception of motion, and segmentation, among other topics. Visual color and auditory timbre are treated as complementary topics in two separate chapters.

QP514 978-3-527-31150-7

Chemical biology; from small molecules to systems biology and drug design; 3v.

Title main entry. Ed. by Stuart L. Schreiber et al.

Wiley-VCH, ©2007 1205 p. \$625.00

The three volumes of this authoritative resource present up-to-date coverage in chapters that describe theoretical and practical aspects of the field. Initial chapters describe the development of theory, the use of small molecules to unravel biological mechanisms, developments in engineering control over protein function through chemistry, and the control of protein-protein interactions. Vol. 2 contains chapters that include diversity-oriented synthesis, synthesis of large biological molecules, advances in sugar chemistry, and chemical informatics. The final volume contains 13 chapters, with drug discovery, target families, and genome and

proteome studies among the main topics. The volume's three editors are Schreiber (chemistry and chemical biology, Harvard U.), Günther Wess (R&D management, Johann von Goethe U., Frankfurt, Germany); and Taun M. Kapoor (chemistry, Rockefeller U.). The 99 contributors are specialists at universities and pharmaceutical companies in the U.S. and Europe; one is in Japan.

QP625 978-0-19-929918-8

Ancestral sequence reconstruction.

Title main entry. Ed. by David A. Liberles.

Oxford U. Press, ©2007 252 p. \$100.00

Liberles (molecular biology, U. of Wyoming) assembles 19 chapters drawn from the meeting, "Using Ancestral Sequence Reconstruction to Understand Protein Function," held in Kristineberg, Sweden, in March 2005. Following a historical and scientific overview of ancestral sequence reconstruction, the use of the technique to applications of drug design and substitutional mapping is discussed. Further chapters cover experimental methodology, and experimental synthesis of ancestral proteins, with specific topics addressing, for example, standard approaches for reconstruction, limitations and considerations, covarion or heterotachous processes, the reference species tree and how different typologies can affect reconstructed sequences, converting sequences to proteins, and biological questions across different evolutionary depths. Contradictory views are presented to show the ongoing debates in the discipline. Contributors are scientists working around the world in fields such as genetics, biology, and bioinformatics. The volume is meant for graduate students and researchers in molecular biology and evolution, and evolutionary bioinformatics.

QP751 2006-036488 978-0-8493-9079-1

Sports nutrition; fats and proteins.

Title main entry. Ed. by Judy A. Driskell.

CRC / Taylor & Francis, ©2007 383 p. \$99.95

Many recreational, collegiate, and professional athletes consume more fat and protein than required to meet their needs, according to Driskell (nutrition and health sciences, U. of Nebraska). Expert contributors to 16 chapters review the types, quality, and quantity of these energy-yielding macronutrients that influence health and performance. Following an introductory chapter on athletes' balanced nutrient requirements for optimal performance, authors present in-depth profiles on particular nutrients and popular supplements, e.g., glucosamine, various amino acids. The ethics of taking performance-

enhancing aids is discussed in regard to creatine. Lastly, intake guidelines are presented for different energy levels for women and men.

MICROBIOLOGY

QR177 2006-018903 1-60021-298-0

Multidrug resistance-associated proteins.

Title main entry. Ed. by Christopher V. Aiello.

Nova Science Publishers, ©2007 251 p. \$129.00

As more drug-resistant strains of disease come to light, researchers are scrambling to find alternatives while trying to keep up with the latest research of others in the field. This collection of nine papers describe that research with a number of studies, covering the role of glutathione in the function and gene regulation of GS-X pump and multi-drug resistance proteins, gene-messenger RNA in gliomas by means of realtime RT-PCR, predictions of therapeutic responses to chemotherapy and monitoring of effects of MDR-modulation with radiotracers in malignant tumors, proteins associated with multi-drug resistance and their profiles in childhood and adult cancer and efflux of organic anions at the blood-brain and blood-cerebrospinal fluid barriers, the role of proteins with multi-drug resistance in neurological disease, neurofilaments as the central core of axonal damage in multiple sclerosis, pseudoxanthma elasticum's move toward possible functions and an herbal alternative for cholestatic liver disease.

QR184 978-0-470-02755-4

Decoding the genomic control of immune reactions.

Title main entry. (Novartis foundation symposium; 281)

John Wiley & Sons, ©2007 218 p. \$160.00

Judging from this collection of reports on recent research, great progress is being made toward using the genome sequences of humans, mice and other vertebrates to solve key problems in immunological disease and chronic infections. However, researchers are finding a barrier in the identification of key sequences and circuits controlling the relevant immune reactions. Drawn from material presented at the Novartis Foundation Symposium entitled "Decoding the Genomic Control of Immune Reactions" held in Canberra in March 2006, this collection covers transcriptional regulatory networks in macrophages, molecular pathways and their role in human disease, specifying the patterns of immune cell migration, human monogenic disorders and their relationship with specific

infections, the genetic control of susceptibility to a strain of tuberculosis, disorders resulting from defective LAT signalosomes, smallpox and mousepox, strategies for phenotype detection and subsequent mapping and cloning, genetic control of host-pathogen interactions, systems genetics, and regulation of the immune system.

TECHNOLOGY (GENERAL)

T10 2005-027648 0-8247-2964-1

Using the engineering literature.

Title main entry. Ed. by Bonnie A. Osif.

Routledge, ©2006 614 p. \$215.00

Osif (Engineering Reference and Instruction Librarian, Pennsylvania State U.) has prepared this reference to guide readers to engineering information resources with the goal of avoiding information overkill by pointing to good resources in a wide variety of formats that address most needs. The 19 contributed chapters, written by "front-line" librarians, cover resources in general engineering, aeronautical and aerospace engineering, architectural engineering, bioengineering, chemical engineering, civil engineering, computer engineering, electrical and electronics engineering, engineering education, environmental engineering, history of engineering, industrial and manufacturing engineering, materials science and engineering, mechanical engineering, mining engineering, nuclear engineering, petroleum engineering, and transportation engineering.

T55 2007-001818 978-0-86587-155-7

Changing safety's paradigms.

McKinnon, Ron C.

Government Institutes Inc., ©2007 212 p. \$79.00 (pa)

Industrial safety, America-style, may be its own worst enemy, claims consultant McKinnon. He is especially concerned about how American workplace safety practices translate under globalization, and proves his point by showing how 20 safety paradigms have already turned out to be dangerous myths in the US, let alone around the world. What is startling here is McKinnon's evidence that such maxims we have repeated like mantras for generations such as "safety is first" and "no blood, no foul" can be killers and in fact injure or kill over four million people each year in the US. As he works through the safety paradigms we have understood to be true and actually practiced, we come to understand that safety and security are not the same thing, that injuries measure safety performance, and that discipline does not make people work

safely. He readily supplies truly safe substitutes.

ENGINEERING (GENERAL, CIVIL)

TA9 978-3-527-31220-7

Rules of thumb in engineering practice.

Woods, Donald R.

Wiley-VCH, ©2007 458 p. \$115.00

Woods (emeritus chemical engineering, McMasters U., Canada) explains how engineers can use rough guesses based on experience to obtain approximations that will allow them to decide whether more precise calculation is necessary. Far from leading to a neglect of fundamentals, he says, it keeps engineers acutely aware of orders of magnitude and common sense interpretations. Using his own field as an example, he discusses the basics of rules of thumb, then looks at applying them in transport, homogeneous and heterogeneous separations, reactors, size reduction and enlargement, and other areas.

TA355 2006-100169 978-1-4200-5321-0

Vibration damping, control, and design.

Title main entry. Ed. by Clarence W. de Silva. (Mechanical engineering series)

CRC / Taylor & Francis, ©2007 634 p. \$119.95

With case studies and examples, the contributors of these articles work systematically from theory to applications so practitioners as well as students can produce mechanical engineering projects with better product quality and more economical operation. The contributors include summaries for each topic so readers can quickly find what they need to know about design for vibration damping and control, damping theory, experimental techniques, structure and equipment isolation, structural dynamic modification and sensitivity analysis, fluid-induced vibration, instrumentation, and statistical energy analysis. Articles on acoustics cover sources of noise, sound levels and decibels, hearing and psychological effects, noise control criteria and regulations (including design of acoustic absorption) and building in reactive mufflers. Some of the applications that deserve a chapter all to themselves include vibration in rotating machinery, regenerative chatter in machine tools, and helicopter rotor tuning. The illustrations are very clear and helpful.

TA418 2006-018539 978-1-60021-291-8

New topics in nanotechnology research.

Title main entry. Ed. by Matthew F. Ginobili.

Nova Science Publishers, ©2007 249 p. \$129.00

Along with mainstream biomedical and consumer applications, nanotechnology (which is actually a very broad description of a variety of activities at the level of atoms and molecules) has great potential in drug delivery, gene therapy, and drug discovery techniques. These seven articles describe aspects of nanotechnology, including the use of epitaxial oxides on semiconductors for applications in nanoelectronics, new methods for optimization of semiconductor nanostructures based on optimal control theory, epitaxial metallic nanostructures and their relationship with characterization and electron transport properties as well as other nanotechnologies, principles and applications of carbon nanotube and polymer nanocomposites, preparation of nanomaterials in the presence of branched molecules, progress in the synthesis of II-V group nanocrystals through solution routes, and laser-induced phase transformation in nanocrystalline silicon thin films.

TA455 2007-002982 978-1-56990-405-3

Handbook of engineering biopolymers; homopolymers, blends, and composites.

Title main entry. Ed. by Stoyko Fakirov and Debes Bhattacharyya.

Hanser Gardner Pub., ©2007 896 p. \$199.95 Fakirov (polymer chemistry, Sofia U., Bulgaria) and Bhattacharyya (advanced composite materials, U. of Auckland, New Zealand) have been working jointly on wider applications of a newer type of polymer composite or "green plastic" called microfibril-reinforced composites. Driven by increasing environmental concerns and new European Union legislation, international experts contributed to the 28 chapters contained in this handbook. The book reviews physiochemical properties, mechanical behavior, and commercial feasibility of composite alternatives made up at least partly of biodegradable, renewable plant-based fibers as substitutes for petroleum-based synthetic polymers. The natural fibers studied include starches, cellulose, hemp, gelatin, soy, and silk. The volume commemorates Dr. Fakirov's 70th birthday.

TA460 978-3-527-31537-6

Fatigue crack propagation in metals and alloys; microstructural aspects and modelling concepts.

Krupp, Ulrich.

Wiley-VCH, ©2007 287 p. \$115.00

Analysis of crack initiation and early crack propagation is imperative in the study of metal fatigue. Conducted at the microscale level, the behaviors observed here closely explain how the material will function and look across its lifetime. However it is impossible to conduct analysis with non-destructive methods such as ultrasonic inspection, so improvements in the techniques available are always welcomed. Krupp (engineering metallic materials, U. of Applied Sciences, Osnabruck, Germany) uses his experience as a practitioner to organize his material logically according to real-world needs and situations, introducing the basic concepts of metal fatigue and fracture in the engineering design process, experimental approaches to crack propagation, including the newest methods, physical metallurgy of the deformation behavior of metals and alloys, initiation of microcracks, and modeling crack propagation accounting for microstructural features. This volume is well illustrated and can serve as both a professional reference and a classroom text.

TA462 2006-014876 978-0-8493-8243-7

Fundamentals of metallic corrosion; atmospheric and media corrosion of metals.

Schweitzer, Philip A. (Corrosion engineering handbook; 2d ed.)

CRC / Taylor & Francis, ©2007 727 p. \$99.95

Essential for choosing materials that will withstand environmental and process conditions, the understanding of corrosion is essential for successfully designing, using and maintaining equipment and structural components. This reference, which provides complete coverage of the science underlying corrosion in metals and alloys, concentrates on such atmospheric corrosives as compounds containing sulfur, nitrogen and chlorine and natural media such as water, acids, salts, organics and gases. It devotes significant space to metal types and their alloys, including nickel alloys, copper, copper alloys, aluminum, titanium, zinc, lead, other nonferrous materials and alloys and especially stainless, ferritic and martensitic steels. It includes the effects of indoor and outdoor pollutants on materials, comparability data and the resistance of coatings. Users

will find the illustrations and tables easy to use and the index is particularly helpful.

TA660 2007-017552 978-1-56347-917-5

Highly flexible structures; modeling, computation, and experimentation. (CD-ROM included)

Pai, P. Frank. (AIAA education series)

Am. Inst. of Aero. & Astro., ©2007 742 p. \$129.95

Highly flexible structures as discussed in this work by Pai (mechanical and aerospace engineering, U. of Missouri-Columbia) are nonlinearly elastic structures designed that have applications from space structural systems to home appliances. He describes the modeling and computational analysis of highly flexible structures and presents experimental techniques for measuring large static and/or dynamic deformations of highly flexible structures. His graduate-level treatment is intended to close the gap between engineers and applied mathematicians. It presents mathematically consistent and systematic derivations of geometrically exact theories for one-dimensional and two-dimensional structures, solution techniques based on the multiple shooting method for computing numerically exact solutions, fully nonlinear finite element analysis of static and dynamic deformations, and the experimental methods mentioned above. The CD-ROM contains programs for solving example problems, finite element solution sequences, function files of types of linear and nonlinear finite elements, a variety of functions, and video files showing experiments.

TA705 2006-052993 1-4200-5250-0

Geologic hazards; a field guide for geotechnical engineers.

Hunt, Roy E.

CRC / Taylor & Francis, ©2007 323 p. \$89.95

Hunt (geosciences, University of Pennsylvania) explains how to recognize, and understand, and minimize various geological hazards in this text/reference for engineers. Using general concepts rather than rigorous mathematical analyses, the book covers the prediction of slope failures through recognition of geologic and other factors that govern failure, and describes measures for dealing with slopes that are potentially unstable. Specific topics covered include the design and construction of stable cut slopes and side-hill fills, the stabilization of failed slopes, determining the potential for surface movements, and earthquake causes and surface effects. An appendix briefly reviews Earth's

geological history. B&W photos are included.

ENVIRONMENTAL TECHNOLOGY

TD657 2006-000885 0-471-72177-8

Stormwater management for land development; methods and calculations for quantity control.

Seybert, Thomas A.

John Wiley & Sons, ©2006 372 p. \$120.00

Stormwater can be deadly, and judicious design and management of stormwater systems is an integral part of land development. However, many texts go beyond a working knowledge of algebra, trigonometry and geometry and are thus inaccessible to some decision-makers in the development process. Here Seybert (engineering, The Pennsylvania State U., Wiles-Barre) provides a readable and usable guide to controlling stormwater, focusing on the practical. He begins with elementary fluid properties and basic statics, proceeding to fluid flow, open channel flow and basic hydrology. He explains watersheds, soils, and rainfall, travel time, runoff depth and peak flow and then describes ways of understanding and dealing with stormwater in the field, including the use of hydrographs, routing methods, drainage conveyance and control, and because trouble never runs by itself, multiple-event detention design. Engineers will find this valuable in design but also in helping to explain to non-specialists why stormwater matters.

BUILDING CONSTRUCTION

TH420 2007-009080 978-0-7844-0884-1

Seismic rehabilitation of existing buildings.

Title main entry.

Am. Society of Civil Engineers, ©2007 411 p. \$160.00 (pa)

The Structural Engineering Institute of the American Society of Civil Engineers presents their nationally applicable standards for the seismic rehabilitation of buildings, together with commentary explaining the presented technical requirements. Covering both the overall structure of a building and nonstructural components, the standards are arranged such that four analysis procedures can be used: linear static procedure, linear dynamic procedure, nonlinear static procedure, and nonlinear dynamic procedure. In presenting the standards, both the International System of Units and customary units have been employed.

MECHANICAL ENGINEERING & MACHINERY

TJ163 2006-024895 0-8493-1730-4
Handbook of energy efficiency and renewable energy.

Title main entry. Ed. by Frank Kreith and D. Yogi Goswami.
 (Mechanical engineering series)

CRC / Taylor & Francis, ©2007 -- p. \$169.95
 The 28 contributions in this engineering handbook outline strategies for conserving energy in commercial buildings, residences, and manufacturing plants, and describe technologies and generating and storing energy from renewable sources. Topics include HVAC control systems, compact heat exchangers, cogeneration, concentrating solar thermal power, biomass conversion processes, geothermal power generation, and fuel cells. The opening chapters discuss current energy policies, economic assessment methods, the outlook of U.S. energy markets, the next generation of coal and nuclear power plants, and threats to infrastructure security.

TJ213 2006-102035 978-0-470-02963-3
Foundations of fuzzy control.

Jantzen, Jan.

John Wiley & Sons, ©2007 209 p. \$100.00
 With its tutorial format and sympathy for the novice, this introductory text takes into consideration the wide range of consumer, industrial and financial applications in its examples and case studies. It systematically analyzes several fuzzy proportional-integral-derivative (PID) control systems and state space control and also takes on self-learning control mechanisms while covering fuzzy reasoning, fuzzy control, linear and non-linear fuzzy PID control, stability analysis by describing functions, and supervisory control. One of the best features is a simulation study of a car-ball balancer in which readers design a crisp PID controller and then replace it with a linear fuzzy, then a non-linear, and fine-tune the result.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK151 978-1-59693-244-9
Electrical engineering; a pocket reference.

Heinz, Schmidt-Walter and Ralf Kories.

Artech House, ©2007 666 p. \$69.00 (pa)
 Comprehensive enough to be a desk reference but still fairly compact, considering the scope of the subject matter, this professional and student guide provides the basics of electrical engineering

and also covers telecommunications, computer engineering and a range of other engineering disciplines. This is fully loaded with appendices that contain useful data on standards, electrical and physical data on materials and even a list of common acronyms. Rather than relying extensively on cross-references that cause more pawing than reading, the authors have organized materials in the same sequence in which students learn them and supplement text extensively with illustrations and tables. They also supply useful equations, graphics and illustrations and supply a very comprehensive index. The result should be seen on many engineers' desks, well-thumbed.

TK5102 978-0-470-02738-7
Digital alias-free signal processing.

Bilinskis, Ivars.

John Wiley & Sons, ©2007 430 p. \$150.00
 Digital alias-free signal processing (DASP) is a technique for overcoming the problems of aliasing at extended frequency ranges. In this book, Bilinskis (Institute of Electronics and Computer Science, Latvia) covers the theory and techniques behind DASP. After an introductory chapter on signal digitizing and digital processing, chapters are organized in two sections on digitizing and processing, with material on different types of sampling, related sampling issues, and methods for complexity reduced designs. Examples present engineering applications using these techniques in areas including spectrum analysis, waveform reconstruction, and estimation of various parameters. The readership for the book includes practicing engineers and researchers working on the development of digital signal processing applications at extended frequencies, as well as electrical and computer engineering graduate students taking courses in signal processing or digital processing.

TK5103 2006-003478 978-1-59454-883-3
Adaptation techniques in wireless multimedia networks.

Title main entry. Ed. by Wei Li and Yang Xiao. (Wireless networks and mobile computing; v.6)

Nova Science Publishers, ©2007 357 p. \$129.00

Fifteen invited papers are presented by the editors (of the U. of Toledo and the U. of Alabama) with the aim of providing a reference to current activities and findings in the relevant technical fields of next generation heterogeneous and adaptive wireless and mobile communication systems. Among the topics addressed are link adaptation techniques for carrier sensed multiple access based wireless

local area networks, adaptation in the physical layer using heterogeneous reconfigurable hardware, adaptive video multicast over wireless internet, adaptive techniques for robust real-time video communications, modeling adaptive self-organizing wireless networks, online stochastic optimization of wireless multimedia networks, economic and adaptive admission control of non-stationary traffic in wireless multimedia networks, and multimedia delivery over wireless multi-hop networks.

TK5103 978-1-59994-189-9

Building web applications with SAS/IntrNet; a guide to the application dispatcher.

Henderson, Don.

SAS Institute, ©2007 352 p. \$61.95 (pa)

One of the components of SAS/IntrNet software, the Application Dispatcher enables programmers to build dynamic applications that can access the power of SAS from a Web browser. This guide for experienced SAS programmers describes some less-well-known features they can use to make their tasks easier. Most of the examples given in the book are also available in a sample environment that may be downloaded from a companion Website. Consultant Henderson was one of the original developers for the SAS/IntrNet Application Dispatcher.

TK5103 978-0-470-03464-4

Personal content experience; managing digital life in the mobile age.

Lehikoinen, Juha et al.

John Wiley & Sons, ©2007 357 p. \$85.00 (pa)

Lehikoinen et al. discuss issues in the personal content experience and tools for analyzing applications, services, and user interfaces from a consumer-oriented view. They aim to identify aspects of personal content that are critical for the general public and the consequences to the system, application, and user interface design. They introduce and explore issues such as context capture, user interfaces for continuous mobile use, UI design for mobile media applications, metadata magic, virtual communities, and ontologies. In addition to presenting a mobile prototype software framework, other topics they discuss include user interactions and behavioral patterns and understanding personal content from different viewpoints. The book is intended for practitioners in mobile industry and digital content management, media-intensive application developers, content creators and distributors, academic researchers, and

lecturers in computer science and multimedia.

TK5105 2006-027708 1-59904-096-4

Advances in universal web design and evaluation: research, trends and opportunities.

Title main entry. Ed. by Sri Kurniawan and Panayiotis Zaphiris.

Idea Group Publishing, ©2007 304 p. \$94.95

The goal is to work towards a design of the World Wide Web that will make it accessible to people with disabilities, older people, children, people whose first language is not English and whose cultures and backgrounds are different from those of Web developers, and people using outdated hardware and software. Researchers and practitioners in fields clustering around information, computers, communication, and education describe new technology that they think will help.

TK5105 978-0-471-70355-6

Network security; current status and future directions.

Title main entry. Ed. by Christos Douligieris and Dimitrios N. Serpanos.

Wiley-Interscience, ©2007 572 p. \$85.00

Researchers and practitioners in computer and information sciences report on the current ability to protect both sensitive data on computer networks and the integrity of the network itself, and explore promising and interesting possibilities on the horizon. Among their topics are intrusion detection versus intrusion protection, secure multi-casting, mobile telecom networks, and securing digital content.

TK5105 2006-027712 978-1-59904-168-1

Web services security and e-business.

Title main entry. Ed. by G. Radhamani and G.S.V. Radha Krishna Rao.

Idea Group Publishing, ©2007 394 p. \$94.95

Focusing on the needs of businesses that rely on the web for marketing, communications and sales, this collection of articles offers professional-grade techniques, algorithms, protocols and tools that authenticate, control access, and set availability, while maintaining privacy and confidentiality. Topics include wireless LAN loopholes, web security using a neural networks, security and privacy in RFID systems, mobile code, key generation for secure multicast communication protocols, security in mobile agent systems, intrusion detection systems, authentication using zero-knowledge proofs, attacks and countermeasures on web services, verifiable encryption of digital signatures, business intelligence security, chain

signatures, distributed intrusion detection, generic algorithms, watermarking, electronic bills and off-line messaging, watermarking using redundant residue number systems, propagation and delegation of rights in access controls and risk assessment techniques, IPSec overhead in dual stack IPv4/IPv6 transition mechanisms and an approach to intentional modeling of web services security risk assessment.

TK7871 978-1-59693-132-9

CMOS RFIC design principles. (CD-ROM included)

Caverly, Robert.

Artech House, ©2007 435 p. \$129.00

In this book/CD-ROM package, Caverly (Department of Electrical and Computer Engineering, Villanova University) offers a practical reference on designing elemental and advanced CMOS RF integrated circuits. The first portion of the book is a review of RF system fundamentals. The second portion covers elemental CMOS RF circuits such as low-noise amplifiers, gain amplifiers, mixers, and oscillators, with ideal circuit topologies discussed first and then merged with nonideal CMOS circuit elements. The third portion of the book looks at more advanced CMOS RF integrated circuits such as voltage-controlled oscillators, phase lock loops, and power amplifier architectures. The CD-ROM contains demonstration versions of CAD tools, CAD layouts, and measured RF data on select RFICs. The book addresses the needs of RF, wireless, and microwave circuit designers, both professionals and students.

TK7871 978-0-86341-617-0

Low power and low voltage circuit design with the FGMOS transistor.

Rodriguez-Villegas, Esther. (Circuits, devices and systems series; 20)

IET, ©2006 304 p. \$109.00

In a world in which consumers want their electronic devices ever smaller, more complex, and easier to keep charged, power efficiency has become a major gating factor to progress. Rodriguez-Villegas (electrical and electronic engineering, Imperial College, London) gives designer what they need to know when working in low voltage and low power (LV/LP) circumstances, especially those involving the floating gate MOS (FGMOS). She begins by describing the reasons the issue is critical and the analog and digital techniques used to reduce power consumption, then covers the FGMOS transistor, circuit applications and design techniques, low-power analog continuous-time filtering based on the

FGMOS in various regions (inversion ohm and saturation and weak inversion), low power log-domain filtering, and low-power digital design based on the FGMOS threshold gate. Distributed in the US by Books International.

TK7872 2006-016693 1-60021-184-4

Josephson junction and superconductivity research.

Title main entry. Ed. by William J. McCann.

Nova Science Publishers, ©2007 180 p. \$129.00

The Josephson junction is a type of electronic circuit capable of switching at very high speeds when operating at temperatures approaching absolute zero. As such it combines the fields of superconductivity, materials science and electronics. In these seven papers contributors describe their research in facets of Josephson junctions, including progress in fabrication techniques for circuits of small capacitance, the order parameter symmetry of unconventional superconductors by Josephson effects, annular Josephson tunnel junctions that monitor causal horizons, non-equilibrium phase diagrams of current-driven arrays, Josephson vortex behavior in certain superconducting ceramics under a low frequency magnetic field, thermomagnetic shock waves in the vortex stage of Type-II superconductors and finite temperature effects on the quantum phase transition in disordered d-wave superconductors.

TK7874 2006-101011 978-0-8493-8528-5

Nano and molecular electronics handbook.

Title main entry. Ed. by Sergey Edward Lyshevski. (Nano- and microscience, engineering, technology, and medicine series)

CRC / Taylor & Francis, ©2007 -- p. \$129.95

When solid-state microelectronics development hits a wall, other paths will get more attention; but this volume brings together 26 contributions from researchers (primarily, but not exclusively US- based) who are already thinking ahead. Their investigations involve the profound differences that molecular electronics involves at every level of research and application. Contributions are arranged in sections dealing with the device- and system-level, nanoscaled electronics, biomolecular electronics and processing, and device-level modeling and simulation. Editor Lyshevski (U.S. Air Force Research Laboratories and Naval Warfare Centers) is a prolific author and an expert in the synthesis, design, application, verification, and implementation of aerospace, electronic, electromechanical, and naval systems.

**MOTOR VEHICLES, AERONAUTICS,
ASTRONAUTICS**

TL154 2007-001235 978-1-56990-406-0

**Plastics in automotive engineering;
exterior applications.**

Title main entry. Ed. by Rudolf Stauber and Ludwig Vollrath.

Hanser Gardner Pub., ©2007 407 p. \$129.95
Stauber (BMW Group, Germany) and Vollrath (VDI-Gesellschaft Kunststofftechnik, Germany) provide an overview of current plastic polymer applications for automotive exteriors in European car manufacturing. The volume describes body applications for lightweight design, material concepts and process technologies, modeling and rapid prototyping, and joining and bonding techniques. It also presents case studies of design, production, and performance for structures and body panels; front modules, crash elements, and safety concepts; roof modules and hardtops; automotive glazing; and acoustics and aerodynamics. Future volumes are planned that will address applications in the car interior and in the engine compartment and assemblies.

TL782 978-1-56347-703-4

**Fundamentals of hybrid rocket
combustion and propulsion.**

Title main entry. Ed. by Martin J. Chiaverini and Kenneth K. Kuo. (Progress in astronautics and aeronautics; v.218)

Am. Inst. of Aero. & Astro., ©2007 648 p.
\$119.95

Chiaverini, a propulsion engineer, and Kuo (mechanical engineering, The Pennsylvania State University) bring together respected experts in the field of hybrid rockets in this text/reference for industrial designers, propulsion steam analysts, test engineers, academic researchers, and graduate and advanced undergraduate students in chemical propulsion. Coverage encompasses fundamental aspects of hybrid combustion, theoretical and experimental approaches to solid-fuel regression rate characterization, and both analytical and numerical modeling of hybrid rocket internal flow fields. Other areas covered include transient hybrid rocket combustion, scaling effects relevant to hybrid motors, practical applications, and challenges for continued advancements in the field. B&W photos are included.

CHEMICAL TECHNOLOGY

TP244 2006-036086 978-0-470-02725-7

**Aerosol sampling; science, standards,
instrumentation and applications.**

Vincent, James H.

John Wiley & Sons, ©2007 616 p. \$155.00

Vincent (environmental health sciences, University of Michigan) provides an account of aerosol sampling as it is applied to the measurement of aerosols that are ubiquitous in both indoor and outdoor occupational and living environments. Early chapters describe the physical science underpinning the process of aerosol sampling. Later chapters present the basis of standards for aerosols, including in particular the link with human exposure by inhalation, and cover the development of practical aerosol sampling instrumentation. Final chapters describe the performance of sampling instruments in the field in both ambient and occupational atmospheric environments. The readership for the book includes researchers and practitioners in occupational and environmental health and hygiene, aerosol scientists and engineers, and graduate students in these fields. In addition, the book will be of interest to environmental and occupational epidemiologists, atmospheric scientists, and occupational and environmental health policy specialists.

TP371 2006-027648 978-0-8138-2968-5

**Advances in thermal and non-thermal
food preservation.**

Title main entry. Ed. by Gaurav Tewari and Vijay K. Juneja.

Blackwell Publishing, ©2007 281 p. \$184.99

The technology of food preservation has advanced far beyond the thermal technique of cooking with fire and non-thermal techniques such as pickling. In this volume, Tewari (CEO and president, Tewari De-Ox Systems, Inc.) and Juneja (supervisory microbiologist and lead scientist for the US Department of Agriculture's Eastern Regional Research Center) present 13 paper that describe advanced thermal and non-thermal techniques of food preservation and place a special emphasis on considerations of commercialization of said techniques. In the realm of thermal techniques, contribution discuss thermal processing of liquid foods with or without particulates, aseptic processing, microwave and radio-frequency heating, novel thermal processing technologies, and *sous-vide* ("under vacuum") and cook-chill processing of foods. Nonthermal techniques discussed include active packaging, ozone

treatment, electronic pasteurization, high-pressure processing, and pulsed electric fields.

MANUFACTURES

TS1925 2007-008123 978-0-8155-1528-9

Compounding precipitated silica in elastomers.

Hewitt, Norman.

William Andrew Publishing, ©2007 580 p. \$249.00

Hewitt (formerly of PPG Rubber Research) provides an overview of the chemical principles of silica compounding. Following a description of precipitated silica properties and their relationship to elastomer processing and reinforcement, chapters describe methods for compounding silica in natural rubber, emulsion styrene butadiene rubber, solution styrene butadiene rubber, ethylene propylene rubbers, neoprene, and nitrile. Each of these chapters discuss crosslinking or acceleration systems, zinc-free curing, surface area effects, and processing characteristics and provide comparison discussion of compounding using carbon black instead of precipitated silica. Further, they look at applications relevant to tear and aging resistance, adhesion, and low rolling resistance in tire treads. Each chapter also contains formulary recommendations for silica-reinforced compounds over a range of hardness.

FOOD SCIENCE

TX360 2007-003464 978-0-8493-1473-5

Nutrition in public health; principles, policies, and practice.

Spark, Arlene.

CRC / Taylor & Francis, ©2007 552 p. \$119.95

The purpose of Spark (Hunter College) in writing this book was to provide public health professionals with an overview of the field of public health nutrition, with a focus on the US government's role in determining nutrition policy and practice. She covers the principles of the field in chapters discussing the population of the United States, nutritional epidemiology, food and nutrition surveys for monitoring public health, programs to reduce disparities in the prevalence of diet-related chronic disease, weight control challenges and solutions, and special populations issues. She then discusses food and nutrition politics, policy, and legislation in the United States and the federal government's food and nutrition guidance systems. Finally, she addresses the practice of public health nutrition in five chapters that present the tools for conducting a food and nutrition assessment of a community, designing and carrying out a social marketing campaign, writing grant proposals, and creating programs to promote food security and ensure the safety of the food supply.

