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## Strengthening Forensic Science in the United States

### A Path Forward

*National Academies Press Scores of talented and dedicated people serve the forensic science community, performing vitally important work. However, they are often constrained by lack of adequate resources, sound policies, and national support. It is clear that change and advancements, both systematic and scientific, are needed in a number of forensic science disciplines to ensure the reliability of work, establish enforceable standards, and promote best practices with consistent application. Strengthening Forensic Science in the United States: A Path Forward provides a detailed plan for addressing these needs and suggests the creation of a new government entity, the National Institute of Forensic Science, to establish and enforce standards within the forensic science community. The benefits of improving and regulating the forensic science disciplines are clear: assisting law enforcement officials, enhancing homeland security, and reducing the risk of wrongful conviction and exoneration. Strengthening Forensic Science in the United States gives a full account of what is needed to advance the forensic science disciplines, including upgrading of systems and organizational structures, better training, widespread adoption of uniform and enforceable best practices, and mandatory certification and accreditation programs. While this book provides an essential call-to-action for congress and policy makers, it also serves as a vital tool for law enforcement agencies, criminal prosecutors and attorneys, and forensic science educators.*

### The EBMT Handbook

*This Open Access edition of the European Society for Blood and Marrow Transplantation (EBMT) handbook addresses the latest developments and innovations in hematopoietic stem cell transplantation and cellular therapy. Consisting of 93 chapters, it has been written by 175 leading experts in the field. Discussing all types of stem cell and bone marrow transplantation, including haplo-identical stem cell and cord blood transplantation, it also covers the indications for transplantation, the management of early and late complications as well as the new and rapidly evolving field of cellular therapies. This book provides an unparalleled description of current practices to enhance readers' knowledge and practice skills. This work was published by Saint Philip Street Press pursuant to a Creative Commons license permitting commercial use. All rights not granted by the work's license are retained by the author or authors.*

## Transmission Electron Microscopy

### Diffraction, Imaging, and Spectrometry

*Springer This text is a companion volume to Transmission Electron Microscopy: A Textbook for Materials Science by Williams and Carter. The aim is to extend the discussion of certain topics that are either rapidly changing at this time or that would benefit from more detailed discussion than space allowed in the primary text. World-renowned researchers have contributed chapters in their area of expertise, and the editors have carefully prepared these chapters to provide a uniform tone and treatment for this exciting material. The book features an unparalleled collection of color figures showcasing the quality and variety of chemical data that can be obtained from today's instruments, as well as key pitfalls to avoid. As with the previous TEM text, each chapter contains two sets of questions, one for self assessment and a second more suitable for homework assignments. Throughout the book, the style follows that of Williams & Carter even when the subject matter becomes challenging—the aim is always to make the topic understandable by first-year graduate students and others who are working in the field of Materials Science Topics covered include sources, in-situ experiments, electron diffraction, Digital Micrograph, waves and holography, focal-series reconstruction and direct methods, STEM and tomography, energy-filtered TEM (EFTEM) imaging, and spectrum imaging. The range and depth of material makes this companion volume essential reading for the budding microscopist and a key reference for practicing researchers using these and related techniques.*

## Visible Learning

### A Synthesis of Over 800 Meta-Analyses Relating to

## Achievement

*Routledge This unique and ground-breaking book is the result of 15 years research and synthesises over 800 meta-analyses on the influences on achievement in school-aged students. It builds a story about the power of teachers, feedback, and a model of learning and understanding. The research involves many millions of students and represents the largest ever evidence based research into what actually works in schools to improve learning. Areas covered include the influence of the student, home, school, curricula, teacher, and teaching strategies. A model of teaching and learning is developed based on the notion of visible teaching and visible learning. A major message is that what works best for students is similar to what works best for teachers – an attention to setting challenging learning intentions, being clear about what success means, and an attention to learning strategies for developing conceptual understanding about what teachers and students know and understand. Although the current evidence based fad has turned into a debate about test scores, this book is about using evidence to build and defend a model of teaching and learning. A major contribution is a fascinating benchmark/dashboard for comparing many innovations in teaching and schools.*

## Handbook of Medical Neuropsychology

## Applications of Cognitive Neuroscience

*Springer Science & Business Media This handbook celebrates the abundantly productive interaction of neuropsychology and medicine. This interaction can be found in both clinical settings and research laboratories, often between research teams and clinical practitioners. It accounts for the rapidity with which awareness and understanding of the neuropsychological components of many common medical disorders have recently advanced. The introduction of neuropsychology into practice and research involving conditions without obvious neurological components follows older and eminently successful models of integrated care and treatment of the classical brain disorders. In the last 50 years, with the growing understanding of neurological disorders, neuropsychologists and medical specialists in clinics, at bedside, and in laboratories together have contributed to important clinical and scientific advances in the understanding of the common pathological conditions of the brain: stroke, trauma, epilepsy, certain movement disorders, tumor, toxic conditions (mostly alcohol-related), and degenerative brain diseases. It is not surprising that these seven pathological conditions were the first to receive attention from neuropsychologists as their behavioral symptoms can be both prominent and debilitating, often with serious social and economic consequences.*

## A HEAT TRANSFER TEXTBOOK

*Phlogiston Press*

## A Handbook for DNA-Encoded Chemistry

## Theory and Applications for Exploring Chemical Space and Drug Discovery

*John Wiley & Sons This book comprehensively describes the development and practice of DNA-encoded library synthesis technology. Together, the chapters detail an approach to drug discovery that offers an attractive addition to the portfolio of existing hit generation technologies such as high-throughput screening, structure-based drug discovery and fragment-based screening. The book: Provides a valuable guide for understanding and applying DNA-encoded combinatorial chemistry Helps chemists generate and screen novel chemical libraries of large size and quality Bridges interdisciplinary areas of DNA-encoded combinatorial chemistry – synthetic and analytical chemistry, molecular biology, informatics, and biochemistry Shows medicinal and pharmaceutical chemists how to efficiently broaden available “chemical space” for drug discovery Provides expert and up-to-date summary of reported literature for DNA-encoded and DNA-directed chemistry technology and methods*

## Biomarkers in Drug Development

## A Handbook of Practice, Application, and Strategy

*John Wiley & Sons Discover how biomarkers can boost the success rate of drug development efforts As pharmaceutical companies struggle to improve the success rate and cost-effectiveness of the drug development process, biomarkers have emerged as a valuable tool. This book synthesizes and reviews the latest efforts to identify, develop, and integrate biomarkers as a key strategy in translational medicine and the drug development process. Filled with case studies, the book demonstrates how biomarkers can improve drug development timelines, lower costs, facilitate better compound selection, reduce late-stage attrition, and open the door to personalized medicine. Biomarkers in Drug Development is divided into eight parts: Part One offers an overview of biomarkers and their role in drug development. Part Two highlights important technologies to help researchers identify new biomarkers. Part Three examines the characterization and validation process for both drugs and diagnostics, and provides practical advice on appropriate statistical methods to ensure that biomarkers fulfill their intended purpose. Parts Four through Six examine the application of biomarkers in discovery, preclinical safety assessment, clinical trials, and translational medicine. Part Seven focuses on lessons*

learned and the practical aspects of implementing biomarkers in drug development programs. Part Eight explores future trends and issues, including data integration, personalized medicine, and ethical concerns. Each of the thirty-eight chapters was contributed by one or more leading experts, including scientists from biotechnology and pharmaceutical firms, academia, and the U.S. Food and Drug Administration. Their contributions offer pharmaceutical and clinical researchers the most up-to-date understanding of the strategies used for and applications of biomarkers in drug development.

## Library Journal

## Binocular Vision and Ocular Motility

## Theory and Management of Strabismus

## The Routledge Handbook of Research Methods for Social-Ecological Systems

*Routledge The Routledge Handbook of Research Methods for Social-Ecological Systems provides a synthetic guide to the range of methods that can be employed in social-ecological systems (SES) research. The book is primarily targeted at graduate students, lecturers and researchers working on SES, and has been written in a style that is accessible to readers entering the field from a variety of different disciplinary backgrounds. Each chapter discusses the types of SES questions to which the particular methods are suited and the potential resources and skills required for their implementation, and provides practical examples of the application of the methods. In addition, the book contains a conceptual and practical introduction to SES research, a discussion of key gaps and frontiers in SES research methods, and a glossary of key terms in SES research. Contributions from 97 different authors, situated at SES research hubs in 16 countries around the world, including South Africa, Sweden, Germany and Australia, bring a wealth of expertise and experience to this book. The first book to provide a guide and introduction specifically focused on methods for studying SES, this book will be of great interest to students and scholars of sustainability science, environmental management, global environmental change studies and environmental governance. The book will also be of interest to upper-level undergraduates and professionals working at the science-policy interface in the environmental arena.*

## Injection and Mixing in Turbulent Flow

*Amer Inst of Aeronautics & Good, No Highlights, No Markup, all pages are intact, Slight Shelfwear, may have the corners slightly dented, may have slight color changes/slightly damaged spine.*

## Handbook of Cognition and Emotion

*Guilford Press Comprehensively examining the relationship between cognition and emotion, this authoritative handbook brings together leading investigators from multiple psychological subdisciplines. Biological underpinnings of the cognition-emotion interface are reviewed, including the role of neurotransmitters and hormones. Contributors explore how key cognitive processes -- such as attention, learning, and memory -- shape emotional phenomena, and vice versa. Individual differences in areas where cognition and emotion interact -- such as agreeableness and emotional intelligence -- are addressed. The volume also analyzes the roles of cognition and emotion in anxiety, depression, borderline personality disorder, and other psychological disorders.*

## Nondestructive Characterization of Materials IV

*Springer Science & Business Media There is a great deal of interest in extending nondestructive technologies beyond the location and identification of cracks and voids. Specifically there is growing interest in the application of nondestructive evaluation (NOE) to the measurement of physical and mechanical properties of materials. The measurement of materials properties is often referred to as materials characterization; thus nondestructive techniques applied to characterization become nondestructive characterization (NDC). There are a number of meetings, proceedings and journals focused upon nondestructive technologies and the detection and identification of cracks and voids. However, the series of symposia, of which these proceedings represent the fourth, are the only meetings uniquely focused upon nondestructive characterization. Moreover, these symposia are especially concerned with stimulating communication between the materials, mechanical and manufacturing engineer and the NDE technology oriented engineer and scientist. These symposia recognize that it is the welding of these areas of expertise that is necessary for practical development and application of NDC technology to measurements of components for in service life time and sensor technology for intelligent processing of materials. These proceedings are from the fourth international symposia and are edited by c.o. Ruud, J. F. Bussiere and R.E. Green, Jr. . The dates, places, etc of the symposia held to date are as follows: Symposia on Nondestructive Methods for TITLE: Material Property Determination DATES: April 6-8, 1983 PLACE: Hershey, PA, USA CHAIRPERSONS: C.O. Ruud and R.E. Green, Jr.*

## National Water Information System (NWIS).

# Handbook of Non-Invasive Methods and the Skin, Second Edition

*CRC Press* firmly established as the leading international reference in this field, *Non-Invasive Methods and the Skin* broke new ground with its comprehensive coverage of methods used in both clinical and experimental dermatology. Completely revised and updated, containing more than twice as much information, the Second Edition continues the tradition. The authors' thorough research and clear organization make this book a baseline reference for those using noninvasive biophysical methods to study the skin. Arranged by physical modality and structured to provide educational and practical information, the second edition, like its predecessor, will prove to be of value to young researchers and senior scientists alike. The coverage of major evaluation and measurement methods share a consistent format, including scope, sources of error, application, and validity. This edition incorporates 69 revised chapters with more than 90 new chapters covering topics such as computer technique, imaging techniques, skin friction, barrier functions, and more. New chapters provide coverage of: computers, computer techniques, and image analysis imaging techniques, including clinical photography legal situations and guidelines behind instrumental use skin friction barrier functions important new techniques such as *in vitro* confocal microscopy, OCT, and Raman spectroscopy veterinary/animal research use of methods The truly interdisciplinary, international panel of contributors includes experts from the specialties of dermatology, bioengineering, pathology, manufacturing engineering, medical physics, pharmacology, microbiology, neurology, surgery, obstetrics and gynecology, cardiovascular research, and pharmacy from academic institutions and hospitals in countries such as Denmark, Germany, the United Kingdom, the United States, Japan, Israel, Taiwan, and Singapore. The revision is extensive and covers a broad spectrum of methods while providing the same caliber of authoritative information that made the previous edition so popular. Application oriented, practical, and instructive, this Second Edition will meet the needs of the researchers today, and in years to come.

## High Performance Computing

### ISC High Performance 2020 International Workshops, Frankfurt, Germany, June 21–25, 2020, Revised Selected Papers

*Springer Nature* This book constitutes the refereed post-conference proceedings of 10 workshops held at the 35th International ISC High Performance 2020 Conference, in Frankfurt, Germany, in June 2020: First Workshop on Compiler-assisted Correctness Checking and Performance Optimization for HPC (C3PO); First International Workshop on the Application of Machine Learning Techniques to Computational Fluid Dynamics Simulations and Analysis (CFDML); HPC I/O in the Data Center Workshop (HPC-IODC); First Workshop "Machine Learning on HPC Systems" (MLHPCS); First International Workshop on Monitoring and Data Analytics (MODA); 15th Workshop on Virtualization in High-Performance Cloud Computing (VHPC). The 25 full papers included in this volume were carefully reviewed and selected. They cover all aspects of research, development, and application of large-scale, high performance experimental and commercial systems. Topics include high-performance computing (HPC), computer architecture and hardware, programming models, system software, performance analysis and modeling, compiler analysis and optimization techniques, software sustainability, scientific applications, deep learning.

## Atomization and Sprays

*CRC Press* The second edition of this long-time bestseller provides a framework for designing and understanding sprays for a wide array of engineering applications. The text contains correlations and design tools that can be easily understood and used in relating the design of atomizers to the resulting spray behavior. Written to be accessible to readers with a modest technical background, the emphasis is on application rather than in-depth theory. Numerous examples are provided to serve as starting points for using the information in the book. Overall, this is a thoroughly updated edition that still retains the practical focus and readability of the original work by Arthur Lefebvre.

## Handbook of Research on Educational Communications and Technology

### A Project of the Association for Educational Communications and Technology

*Routledge* First Published in 2008. *Routledge* is an imprint of *Taylor & Francis*, an informa company.

# Encyclopedic Handbook of Integrated Optics

*CRC Press* As optical technologies move closer to the core of modern computer architecture, there arise many challenges in building optical capabilities from the network to the motherboard. Rapid advances in integrated optics technologies are making this a reality. However, no comprehensive, up-to-date reference is available to the technologies and principles underlying the field. The *Encyclopedic Handbook of Integrated Optics* fills this void, collecting the work of 53 leading experts into a compilation of the most important concepts, phenomena, technologies, and terms covering all related fields. This unique book consists of two types of entries: the first is a detailed, full-length description; the other, a concise overview of the topic. Additionally, the coverage can be divided into four broad areas: A survey of the basics of integrated optics, exploring theory, practical concerns, and the fundamentals behind optical devices Focused discussion on devices and components such as arrayed waveguide grating, various types of lasers, optical amplifiers, and optoelectronic devices In-depth examination of subsystems including MEMS, optical pickup, and planar lightwave circuits Finally, systems considerations such as multiplexing, demultiplexing, 3R circuits, transmission, and reception Offering a broad and complete treatment of the field, the *Encyclopedic Handbook of Integrated Optics* is the complete guide to the fundamentals, principles, and applications of integrated optics technology.

## Government Reports Announcements & Index

## Evidence-Based Critical Care

*Springer* This is the premier evidence-based textbook in critical care medicine. The Third Edition features updated and revised chapters, numerous new references, streamlined content, and new chapters on key topics such as the new paradigm in critical care medicine, cardiac output monitoring, surgical optimization, vital signs, and arterial blood gas analysis. The book maintains the author's trademark humor and engaging writing style and is suitable for a broad and diverse audience of medical students, residents, fellows, physicians, nurses, and respiratory therapists who seek the latest and best evidence in critical care. From reviews of previous editions: "This is an excellent introduction to the concept of evidence-based medicine...The writing is clear, logical, and highly organized, which makes for fast and enjoyable reading. I believe this book will get daily use in most intensive care units, by a wide range of readers." -*Respiratory Care* "This is one of the most comprehensive handbooks on critical care medicine with a strong emphasis on evidence base...Overall, this book should be useful for junior doctors or intensive care trainees who are starting their term in an intensive care unit." -*Anaesthesia and Intensive Care*

## Crop Wild Relatives

## A Manual of in situ Conservation

*Routledge* Crop wild relatives (CWR) are plant species which are more or less closely related to crops. They are a vital resource by providing a pool of genetic variation that can be used in breeding new and better adapted varieties of crops that are resistant to stress, disease, drought and other factors. They will be increasingly important in allowing crops to adapt to the impacts of climate, thus safeguarding future agricultural production. Until recently, the main conservation strategy adopted for CWR has been ex situ - through the maintenance of samples as seed or vegetative material in various kinds of genebank or other facilities. Now the need to conserve CWR in their natural surroundings (in situ) is increasingly recognized. Recent research co-ordinated by *Bioversity International* has produced a wealth of information on good practices and lessons learned for their effective conservation. This book captures the important practical experiences of countries participating in this work and describes them for the wider conservation community. It includes case studies and examples from Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan, which are important centres of diversity for crop wild relatives, and covers four geographical regions - the Caucasus, South America, Africa and the Asia-Pacific Region. It provides practical, relevant information and guidance for the scaling-up of actions targeting CWR conservation around the world.

## Strategies for Team Science Success

## Handbook of Evidence-Based Principles for Cross-Disciplinary Science and Practical Lessons Learned from Health Researchers

*Springer Nature* Collaborations that integrate diverse perspectives are critical to addressing many of our complex scientific and societal problems. Yet those engaged in cross-disciplinary team science often face institutional barriers and collaborative challenges. *Strategies for Team Science Success* offers readers a comprehensive set of actionable strategies for reducing barriers and overcoming challenges and includes practical guidance for how to implement effective team science practices. More than 100 experts--including scientists, administrators, and funders from a wide range of disciplines and professions-- explain evidence-based principles, highlight state-of-the-art strategies, tools, and resources, and share first-person accounts of how they've applied them in their own successful team science initiatives. While many examples draw from cross-disciplinary team science initiatives in the health domain, the

handbook is designed to be useful across all areas of science. *Strategies for Team Science Success* will inspire and enable readers to embrace cross-disciplinary team science, by articulating its value for accelerating scientific progress, and by providing practical strategies for success. Scientists, administrators, funders, and others engaged in team science will also leave equipped to develop new policies and practices needed to keep pace in our rapidly changing scientific landscape. Scholars across the Science of Team Science (SciTS), management, organizational, behavioral and social sciences, public health, philosophy, and information technology, among other areas of scholarship, will find inspiration for new research directions to continue advancing cross-disciplinary team science.

## The Gene Ontology Handbook

This book provides a practical and self-contained overview of the Gene Ontology (GO), the leading project to organize biological knowledge on genes and their products across genomic resources. Written for biologists and bioinformaticians, it covers the state-of-the-art of how GO annotations are made, how they are evaluated, and what sort of analyses can and cannot be done with the GO. In the spirit of the *Methods in Molecular Biology* book series, there is an emphasis throughout the chapters on providing practical guidance and troubleshooting advice. Authoritative and accessible, *The Gene Ontology Handbook* serves non-experts as well as seasoned GO users as a thorough guide to this powerful knowledge system. This work was published by Saint Philip Street Press pursuant to a Creative Commons license permitting commercial use. All rights not granted by the work's license are retained by the author or authors.

## Medicinal Natural Products

### A Biosynthetic Approach

John Wiley & Sons This guide covers classes of natural products in medicine, whether derived from plants, micro-organisms or animals. Structured according to biosynthetic pathway, it is written from a chemistry-based approach.

## Cognition and Emotion

Oxford University Press, USA Recent years have witnessed a revival of research in the interplay between cognition and emotion. The reasons for this renaissance are many and varied. In the first place, emotion theorists have come to recognize the pivotal role of cognitive factors in virtually all aspects of the emotion process, and to rely on basic cognitive factors and insight in creating new models of affective space. Also, the successful application of cognitive therapies to affective disorders has prompted clinical psychologists to work towards a clearer understanding of the connections between cognitive processes and emotional problems. And whereas the cognitive revolutionaries of the 1960s regarded emotions with suspicion, viewing them as nagging sources of "hot" noise in an otherwise cool, rational, and computer-like system of information processing, cognitive researchers of the 1990s regard emotions with respect, owing to their potent and predictable effects on tasks as diverse as object perception, episodic recall, and risk assessment. These intersecting lines of interest have made cognition and emotion one of the most active and rapidly developing areas within psychological science. Written in debate format, this book covers developing fields such as social cognition, as well as classic areas such as memory, learning, perception and categorization. The links between emotion and memory, learning, perception, categorization, social judgements, and behavior are addressed. Contributors come from the U.S., Canada, Australia, and France.

## Drug Absorption Studies

### In Situ, In Vitro and In Silico Models

Springer Science & Business Media This is a well thought-out, highly practical text covering contemporary 'in vitro' techniques for drug absorption studies. Starting at the molecular level of investigation, it continues with cell monolayer models (both primary and cell lines) and culminates with in situ techniques as a final testing format. In addition, chapters on high-throughput assays, in vitro-in vivo correlation, bioinformatics and regulatory issues are covered, giving a comprehensive overview of available models and techniques. Moreover, an appendix consisting of a number of practical protocols is available online, updated as needed, and should prove very helpful to apply the techniques directly to the benchside.

## Imaging of Traumatic Brain Injury

Thieme *Imaging of Traumatic Brain Injury* is a radiological reference that covers all aspects of neurotrauma imaging and provides a clinical overview of traumatic brain injury (TBI). It describes the imaging features of acute head trauma, the pathophysiology of TBI, and the application of advanced imaging technology to brain-injured patients. Key Features: Covers acute as well as chronic traumatic brain injury Written in an easily accessible format, with pearls and summary boxes at the end of each chapter Includes state-of-the-art imaging techniques, including the multiplanar format, the utility of multiplanar reformats, perfusion imaging, susceptibility weighted imaging, and advanced MRI techniques Contains over 250 high-quality images This book will serve as a practical reference for practicing radiologists as well as radiology residents and fellows, neurosurgeons, trauma surgeons, and emergency physicians.

# MEMS Materials and Processes Handbook

*Springer Science & Business Media MEMS Materials and Processes Handbook* is a comprehensive reference for researchers searching for new materials, properties of known materials, or specific processes available for MEMS fabrication. The content is separated into distinct sections on "Materials" and "Processes". The extensive "Material Selection Guide" and a "Material Database" guides the reader through the selection of appropriate materials for the required task at hand. The "Processes" section of the book is organized as a catalog of various microfabrication processes, each with a brief introduction to the technology, as well as examples of common uses in MEMS.

# Handbook of Ethics, Values, and Technological Design

## Sources, Theory, Values and Application Domains

*Springer* This handbook enumerates every aspect of incorporating moral and societal values into technology design, reflects the fact that the latter has moved on from strict functionality to become sensitive to moral and social values such as sustainability and accountability. Aimed at a broad readership that includes ethicists, policy makers and designers themselves, it proffers a detailed survey of how technological, and institutional, design must now reflect awareness of ethical factors such as sustainability, human well-being, privacy, democracy and justice, inclusivity, trust, accountability, and responsibility (both social and environmental). Edited by a trio of highly experienced academic philosophers with a specialized interest in the ethical dimensions of technology and human creativity, this syncretic handbook collates an array of published material and offers a studied, practical introduction to the field. The volume addresses myriad aspects at the intersection of technology design and ethics, enabling designers to adopt a constructive approach in anticipating, preventing, and resolving societal and ethical issues affecting their work. It covers underlying theory; discrete values such as democracy, human well-being, sustainability and justice; and application domains themselves, which include architecture, bio- and nanotechnology, and military hardware. As the first exhaustive survey of a field whose importance is characterized by almost exponential growth, it represents a compelling addition to a formerly atomized literature.

# Data Mining: Concepts and Techniques

*Elsevier Data Mining: Concepts and Techniques* provides the concepts and techniques in processing gathered data or information, which will be used in various applications. Specifically, it explains data mining and the tools used in discovering knowledge from the collected data. This book is referred as the knowledge discovery from data (KDD). It focuses on the feasibility, usefulness, effectiveness, and scalability of techniques of large data sets. After describing data mining, this edition explains the methods of knowing, preprocessing, processing, and warehousing data. It then presents information about data warehouses, online analytical processing (OLAP), and data cube technology. Then, the methods involved in mining frequent patterns, associations, and correlations for large data sets are described. The book details the methods for data classification and introduces the concepts and methods for data clustering. The remaining chapters discuss the outlier detection and the trends, applications, and research frontiers in data mining. This book is intended for Computer Science students, application developers, business professionals, and researchers who seek information on data mining. Presents dozens of algorithms and implementation examples, all in pseudo-code and suitable for use in real-world, large-scale data mining projects Addresses advanced topics such as mining object-relational databases, spatial databases, multimedia databases, time-series databases, text databases, the World Wide Web, and applications in several fields Provides a comprehensive, practical look at the concepts and techniques you need to get the most out of your data

# Intelligent Energy Field Manufacturing

## Interdisciplinary Process Innovations

*CRC Press* Edited by prominent researchers and with contributions from experts in their individual areas, *Intelligent Energy Field Manufacturing: Interdisciplinary Process Innovations* explores a new philosophy of engineering. An in-depth introduction to Intelligent Energy Field Manufacturing (EFM), this book explores a fresh engineering methodology that not only integrates but goes beyond methodologies such as Design for Six Sigma, Lean Manufacturing, Concurrent Engineering, TRIZ, green and sustainable manufacturing, and more. This book gives a systematic introduction to classic non-mechanical manufacturing processes as well as offering big pictures of some technical frontiers in modern engineering. The book suggests that any manufacturing process is actually a process of injecting human intelligence into the interaction between material and the various energy fields in order to transfer the material into desired configurations. It discusses technological innovation, dynamic M-PIE flows, the generalities of energy fields, logic functional materials and intelligence, the open scheme of intelligent EFM implementation, and the principles of intelligent EFM. The book takes a highly interdisciplinary approach that includes research frontiers such as micro/nano fabrication, high strain rate processes, laser shock forming, materials science and engineering, bioengineering, etc., in addition to a detailed treatment of the so called "non-traditional" manufacturing processes, which covers waterjet machining, laser material processing, ultrasonic material processing, EDM/ECM, etc. Filled with illustrative pictures, figures, and tables that make technical materials more absorbable, the book cuts across multiple engineering disciplines. The majority of books in this area report the facts of proven knowledge, while the behind-the-scenes thinking is usually neglected. This book examines the big picture of manufacturing in depth before diving into the details of an individual process, demonstrating how innovations are achieved. It lowers barriers to technical innovation, meets new engineering challenges, and systematically introduces manufacturing processes.

# Nanotechnology in Endodontics

## Current and Potential Clinical Applications

*Springer* This book provides detailed information on the emerging applications of nanomaterials and nanoparticles within endodontics, highlighting the exciting potential clinical impact of nanotechnology in the field. The range of applications covered is diverse, encompassing drug and gene delivery, tissue engineering, antibacterial strategies, dentin tissue stabilization, dentin pulp regeneration and use in restorative and endodontic materials. Important scientific background information relating to each application is provided, with clear coverage of basic principles. In addition, potential pitfalls are identified and explained. The cytotoxicity of nanomaterials and nanoparticles is also addressed in a separate chapter. The book will be of value both for endodontic practitioners and for all scientists and graduate students who are interested in the application of nanotechnology in endodontics.

## Bibliography on Flame Spectroscopy

### Analytical Applications 1800-1966

## Face Image Analysis by Unsupervised Learning

*Springer Science & Business Media* Face Image Analysis by Unsupervised Learning explores adaptive approaches to image analysis. It draws upon principles of unsupervised learning and information theory to adapt processing to the immediate task environment. In contrast to more traditional approaches to image analysis in which relevant structure is determined in advance and extracted using hand-engineered techniques, Face Image Analysis by Unsupervised Learning explores methods that have roots in biological vision and/or learn about the image structure directly from the image ensemble. Particular attention is paid to unsupervised learning techniques for encoding the statistical dependencies in the image ensemble. The first part of this volume reviews unsupervised learning, information theory, independent component analysis, and their relation to biological vision. Next, a face image representation using independent component analysis (ICA) is developed, which is an unsupervised learning technique based on optimal information transfer between neurons. The ICA representation is compared to a number of other face representations including eigenfaces and Gabor wavelets on tasks of identity recognition and expression analysis. Finally, methods for learning features that are robust to changes in viewpoint and lighting are presented. These studies provide evidence that encoding input dependencies through unsupervised learning is an effective strategy for face recognition. Face Image Analysis by Unsupervised Learning is suitable as a secondary text for a graduate-level course, and as a reference for researchers and practitioners in industry.

## Expanding the Lexicon

### Linguistic Innovation, Morphological Productivity, and Ludicity

*Walter de Gruyter GmbH & Co KG* The creation of new lexical units and patterns has been studied in different research frameworks, focusing on either system-internal or system-external aspects, from which no comprehensive view has emerged. The volume aims to fill this gap by studying dynamic processes in the lexicon – understood in a wide sense as not being necessarily limited to the word level – by bringing together approaches directed to morphological productivity as well as approaches analyzing general types of lexical innovation and the role of discourse-related factors. The papers deal with ongoing changes as well as with historical processes of change in different languages and reflect on patterns and specific subtypes of lexical innovation as well as on their external conditions and the speakers' motivations for innovating. Moreover, the diffusion and conventionalization of innovations will be addressed. In this way, the volume contributes to understanding the complex interplay of structural, cognitive and functional factors in the lexicon as a highly dynamic domain.

## The Academic Medicine Handbook

### A Guide to Achievement and Fulfillment for Academic Faculty

*Springer* Attaining professional success and finding personal happiness in academic medicine is not an easy path, yet both are critical if the future is to be brighter through better science, better clinical care, better training, better responsiveness to communities, and better stewardship and leadership in the health professions. This concise, easy to read title consists of "mini" chapters intended as a resource to assist early- and middle-career physicians, clinicians, and scientists in understanding the unique mission of academic medicine and building creative, effective, and inspiring careers in academic health organizations. Organized in eight sections, the Guide covers such areas as finding your path in academic medicine, getting established at an institution, approaching work with

colleagues, writing and reviewing manuscripts, conducting empirical research, developing administrative skills, advancing your academic career, and balancing your professional and personal life. Each chapter includes pointers and valuable career and “best practices” strategies in relation to the topic area. An exciting addition to the professional development literature, *Achievement and Fulfillment in Academic Medicine: A Comprehensive Guide* is an indispensable resource for anyone seeking to achieve a fulfilling career in academic medicine.

## Fluid Machinery

### Performance, Analysis, and Design

*CRC Press Fluid Machinery: Performance, Analysis, and Design* provides a comprehensive introduction to the fluid mechanics of turbomachinery. By focusing on the preliminary design and selection of equipment to meet a set of performance specifications—including size, noise, and cost limitations—the author promotes a basic but thorough understanding of the subject. His pragmatic approach exposes students to a realistic array of conflicting requirements and real-world industrial applications, while providing a solid background for more advanced study. Coverage of both gas and hydraulic turbines and emphasis on industrial issues and equipment makes this book ideal for mechanical engineering students. *Fluid Machinery* uses extensive illustration, examples, and exercises to prepare students to confront industrial applications with confidence.

## Reliable Computer Systems

### Design and Evaluatuion

*Digital Press Enhance your hardware/software reliability* Enhancement of system reliability has been a major concern of computer users and designers | and this major revision of the 1982 classic meets users' continuing need for practical information on this pressing topic. Included are case studies of reliable systems from manufacturers such as Tandem, Stratus, IBM, and Digital, as well as coverage of special systems such as the Galileo Orbiter fault protection system and AT&T telephone switching processors.