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KEY=EVALUATION - UNDERWOOD RIVERS

SURFACE ENGINEERING TECHNIQUES AND APPLICATIONS: RESEARCH ADVANCEMENTS

RESEARCH ADVANCEMENTS

IGI Global Surface engineering includes many facets of materials science that help regulate the function, quality, and safety of products such as automotive, textile, and electronic materials. New technologies are developing to help enhance the surface performance. Surface Engineering Techniques and Applications: Research Advancements provides recent developments in surface engineering techniques and applications. It details scientific and technological results while also giving insight to current research, economic impact, and environmental concerns so that academics, practitioners, and professionals in the field, as well as students studying these areas, can deepen their understanding of new surface processes.

SUSTAINABLE MATERIAL FORMING AND JOINING

CRC Press The main objective of the book is to expose readers to the basics of sustainable material forming and joining technologies, and to discuss the relationship between conventional and sustainable processes. It also provides case studies for sustainable issues in material forming and joining processes, workouts for converting conventional processes to green processes, and highlights the importance of awareness on sustainable and green manufacturing through education. The book will include green and sustainability concepts in material forming like bulk forming and sheet forming emphasizing hot forming, materials development, lubrication, and minimizing defects. Key Features Conceptualizes green and sustainability issues towards efficient material forming and joining Addresses important aspects of sustainable manufacturing by forming operations Presents comparison between traditional and sustainable manufacturing processes Includes practical case studies from industry experts Discusses green and sustainability concepts in material forming like bulk forming and sheet forming emphasizing hot forming, materials development, lubrication, and minimizing defects

3D PRINTING: BREAKTHROUGHS IN RESEARCH AND PRACTICE

BREAKTHROUGHS IN RESEARCH AND PRACTICE

IGI Global The advancement of modern technology has allowed for impressive developments in manufacturing processes. Out of these developments, 3D printing has emerged as a new method. 3D Printing: Breakthroughs in Research and Practice is a comprehensive reference source for the latest research and advances on 3D printing processes, technologies, and methods. Highlighting emerging perspectives on manufacturing and industrial applications, this book is ideally designed for professionals, practitioners, students, and researchers interested in the latest developments and uses of 3D printing.

ADVANCED MANUFACTURING TECHNIQUES USING LASER MATERIAL PROCESSING

IGI Global The use of lasers in material processing has become a useful method for transforming industrial materials into finished products. The benefits of laser material processing are vast, including increased precision, high processing speed, and dustless cutting and drilling. Advanced Manufacturing Techniques Using Laser Material Processing explores the latest methodologies for using lasers in materials manufacturing and production, the benefits of using lasers in industrial settings, as well as future outlooks for this technology. This innovative publication is an essential reference source for professionals, researchers, and graduate-level students studying manufacturing technologies and industrial engineering.

SCIENTIFIC AND TECHNICAL AEROSPACE REPORTS

ASSET AND INFRASTRUCTURE MANAGEMENT FOR AIRPORTS

PRIMER AND GUIDEBOOK

Transportation Research Board This guidebook addresses asset and infrastructure management applicable to all areas of the operation of an airport. The primer portion of the report includes an overview of an asset and infrastructure management program and explores the benefits and costs of implementation. The guidebook portion of the report provides examples from various airports and is designed to be a reference for integrating proven asset and infrastructure management practices and techniques at airports of all sizes. The report defines an asset and infrastructure management program and its components and how a program relates to daily operations and longer-term planning. In addition, the project that developed ACRP Report 69 also produced a PowerPoint presentation, which can be used to present the benefits of a program to stakeholders--

OPTICALLY INDUCED NANOSTRUCTURES

BIOMEDICAL AND TECHNICAL APPLICATIONS

Walter de Gruyter GmbH & Co KG Nanostructuring of materials is a task at the heart of many modern disciplines in mechanical engineering, as well as optics, electronics, and the life sciences. This book includes an introduction to the relevant nonlinear optical processes associated with very short laser pulses for the generation of structures far below the classical optical diffraction limit of about 200 nanometers as well as coverage of state-of-the-art technical and biomedical applications. These applications include silicon and glass wafer processing, production of nanowires, laser transfection and cell reprogramming, optical cleaning, surface treatments of implants, nanowires, 3D nanoprinting, STED lithography, friction modification, and integrated optics. The book highlights also the use of modern femtosecond laser microscopes and nanoscopes as novel nanoprocessing tools.

OSSEOCONDUCTIVE SURFACE ENGINEERING FOR ORTHOPEDIC IMPLANTS

BIOMATERIALS ENGINEERING

Academic Press Osseointegrative Surface Engineering for Orthopedic Implants provides a comprehensive overview of the state of the art of osseointegration based on surface-mediated engineering. It offers a practical approach to the design and development of implant surface engineering, by reviewing and discussing the usability and efficacy of each processing technique. The reader can learn about the variety, characteristics, advantages, challenges, and optimum parameters for each process—enabling targeted selection of coatings and technologies to enhance long-term implant-bone integration. Practical and engineering notions in the field of osseointegrative surface engineering are reviewed and discussed using scientific principles and concepts. Engineering cases are analyzed in depth giving a thorough exploration and description of the engineering and scientific concepts for all osseointegrative surface engineering processes. Chapters integrate topics and are organized in such a way as to build on themes and practice.

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LASER-BASED ADDITIVE MANUFACTURING OF METAL PARTS

MODELING, OPTIMIZATION, AND CONTROL OF MECHANICAL PROPERTIES

CRC Press Laser-Based Additive Manufacturing (LBAM) technologies, hailed by some as the "third industrial revolution," can increase product performance, while reducing time-to-market and manufacturing costs. This book is a comprehensive look at new technologies in LBAM of metal parts, covering topics such as mechanical properties, microstructural features, thermal behavior and solidification, process parameters, optimization and control, uncertainty quantification, and more. The book is aimed at addressing the needs of a diverse cross-section of engineers and professionals.

GREEN MATERIALS AND ADVANCED MANUFACTURING TECHNOLOGY

CONCEPTS AND APPLICATIONS

CRC Press This book includes recent theoretical and practical advancements in green composite materials and advanced manufacturing technology. It provides important original and theoretical experimental results which use nonroutine technologies often unfamiliar to some readers and covers novel applications of more familiar experimental techniques and analyses of composite problems. Green Materials and Advanced Manufacturing Technology: Concepts and Applications provides insight and a better understanding into the development of green composite materials and advanced manufacturing technology used in various manufacturing sectors. It highlights recent trends in the fields of green composites, metal matrix composites, ceramic matrix composites, surface modification using laser cladding, types of dust collectors in waste management and recycling in industries, machinability studies of metals and composites using surface grinding, drilling, electrical discharge machining, joining of metals using friction stir welding, shielded metal arc welding, and linear friction welding. This book is written for engineering students, postgraduate students, research scholars, faculty members, and industry professionals who are engaged in green composite materials and development of advanced manufacturing technology.

HANDBOOK OF LIQUIDS-ASSISTED LASER PROCESSING

Elsevier Laser processing of solid materials has been commonly performed in gas ambient. Having the workpiece immersed into liquid, having a liquid film on it, or soaking the material with liquid gives several advantages such as removal of the debris, lowering the heat load on the workpiece, and confining the vapour and plasma, resulting in higher shock pressure on the surface. Introduced in the 1980s, neutral liquids assisted laser processing (LALP) has proved to be advantageous in the cutting of heat-sensitive materials, shock peening of machine parts, cleaning of surfaces, fabrication of micro-optical components, and for generation of nanoparticles in liquids. The liquids used range from water through organic solvents to cryoliquids. The primary aim of Handbook of Liquids-Assisted Laser Processing is to present the essentials of previous research (tabulated data of experimental conditions and results), and help researchers develop new processing and diagnostics techniques (presenting data of liquids and a review of physical phenomena associated with LALP). Engineers can use the research results and technological innovation information to plan their materials processing tasks. Laser processing in liquids has been applied to a number of different tasks in various fields such as mechanical engineering, microengineering, chemistry, optics, and bioscience. A comprehensive glossary with definitions of the terms and explanations has been added. The book covers the use of chemically inert liquids under normal conditions. Laser chemical processing examples are presented for comparison only. First book in this rapidly growing field impacting mechanical and micro/nano-engineering Covers different kinds of liquid-assisted laser processing of a large variety of materials Covers lasers emitting from UV to IR with pulse lengths down to femtoseconds Reviews over 500 scientific articles and 300 inventions and tabulates their main features Gives a qualitative and quantitative description of the physical phenomena associated with LALP Tabulates 61 parameters for 100 liquids Glossary of over 200 terms and abbreviations

AUTOMOTIVE TRIBOLOGY

Springer Nature This book presents a comprehensive study of all important aspects of tribology. It covers issues and their remedies adopted by researchers working on automobile systems. The book is broadly divided in to three sections, viz. (i) new materials for automotive applications, (ii) new lubricants for automotive applications, and (iii) impact of surface morphologies for automotive applications. The rationale for this division is to provide a comprehensive and categorical review of the developments in automotive tribology. The book covers tribological aspects of engines, and also discusses influence of new materials, such as natural fibers, metal foam materials, natural fiber reinforced polymer composites, carbon fiber/silicon nitride polymer composites and aluminium matrix composites. The book also looks at grease lubrication, effectiveness and sustainability of solid/liquid additives in lubrication, and usage of biolubricants. In the last section the book focuses on brake pad materials, shot peening method, surface texturing, magnetic rheological fluid for smart automobile brake and clutch systems, and application of tribology in automobile systems. This book will be of interest to students, researchers, and professionals from the automotive industry.

ISSUES IN GENERAL PHYSICS RESEARCH: 2011 EDITION

ScholarlyEditions Issues in General Physics Research / 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about General Physics Research. The editors have built Issues in General Physics Research: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about General Physics Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in General Physics Research: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

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.

LASER SCANNING

AN EMERGING TECHNOLOGY IN STRUCTURAL ENGINEERING

CRC Press This book provides an overview on the evolution of laser scanning technology and its noticeable impact in the structural engineering domain. It provides an up-to-date synthesis of the state-of-the-art of the technology for the reverse engineering of built constructions, including terrestrial,

mobile, and different portable solutions, for laser scanning. Data processing of large point clouds has experienced an important advance in the last years, and thus, an intense activity in the development of automated data processing algorithms has been noticed. Thus, this book aims to provide an overview of state-of-the-art algorithms, different best practices and most recent processing tools in connection to particular applications. Readers will find this a comprehensive book, that updates the practice of laser scanning for researchers and professionals not only from the geomatic domain, but also other fields such as structural and construction engineering. A set of successful applications to structural engineering are illustrated, including also synergies with other technologies, that can inspire professionals to adopt laser scanning in their day-to-day activity. This cutting-edge edited volume will be a valuable resource for students, researchers and professional engineers with an interest in laser scanning and its applications in the structural engineering domain.

BISMUTH

ADVANCED APPLICATIONS AND DEFECTS CHARACTERIZATION

BoD – Books on Demand Bismuth (Bi) is a post-transition metal element with the atomic number of 83, which belongs to the pnictogen group elements in Period 6 in the elemental periodic table. As a heavy metal, the hazard of Bi is unusually low in contrast to its neighbors Pb and Sb. This property, along with other typical characteristics like strong diamagnetism and low thermal conductivity, makes Bi attractive in industrial applications. There are more than 100 commercial bismuth products, from pharmaceutical to industrial catalysts. Based on the wide applications of Bi materials, this book goes further and mainly focuses on the potential uses of Bi-based materials, which consist of nine chapters. In addition, a special chapter concerning the defect in bismuth is also presented.

LASER RADAR

PROGRESS AND OPPORTUNITIES IN ACTIVE ELECTRO-OPTICAL SENSING

National Academies Press In today's world, the range of technologies with the potential to threaten the security of U.S. military forces is extremely broad. These include developments in explosive materials, sensors, control systems, robotics, satellite systems, and computing power, to name just a few. Such technologies have not only enhanced the capabilities of U.S. military forces, but also offer enhanced offensive capabilities to potential adversaries - either directly through the development of more sophisticated weapons, or more indirectly through opportunities for interrupting the function of defensive U.S. military systems. Passive and active electro-optical (EO) sensing technologies are prime examples. Laser Radar considers the potential of active EO technologies to create surprise; i.e., systems that use a source of visible or infrared light to interrogate a target in combination with sensitive detectors and processors to analyze the returned light. The addition of an interrogating light source to the system adds rich new phenomenologies that enable new capabilities to be explored. This report evaluates the fundamental, physical limits to active EO sensor technologies with potential military utility; identifies key technologies that may help overcome the impediments within a 5-10 year timeframe; considers the pros and cons of implementing each existing or emerging technology; and evaluates the potential uses of active EO sensing technologies, including 3D mapping and multi-discriminate laser radar technologies.

COHERENCE AND ULTRASHORT PULSE LASER EMISSION

BoD – Books on Demand In this volume, recent contributions on coherence provide a useful perspective on the diversity of various coherent sources of emission and coherent related phenomena of current interest. These papers provide a preamble for a larger collection of contributions on ultrashort pulse laser generation and ultrashort pulse laser phenomena. Papers on ultrashort pulse phenomena include works on few cycle pulses, high-power generation, propagation in various media, to various applications of current interest. Undoubtedly, Coherence and Ultrashort Pulse Emission offers a rich and practical perspective on this rapidly evolving field.

EVIDENCE-BASED PROCEDURAL DERMATOLOGY

Springer This book compiles the best evidence in procedural dermatology, including skin cancer surgery, laser techniques, minimally invasive cosmetic surgery, and emerging techniques. Building on the highly successful first edition, this volume provides much expanded coverage of a range of topics. The best information is provided to reveal the most appropriate interventions for particular indications, optimal treatment techniques, and strategies for avoiding adverse events. Evidence-Based Procedural Dermatology, 2nd edition, includes two types of chapters: procedures and indications. Each chapter is designed to be clear and concise, with tables and flowcharts to showcase main findings. Each cited study is tagged with a level of evidence, and every recommendation includes a strength of evidence score. More than double the length of the first edition, this newest edition includes added procedures and interventions like: new lasers and energy devices for skin resurfacing and pigmentation; non-invasive fat reduction and skin tightening using cryolipolysis, radiofrequency, ultrasound, and chemical adipocytolysis; specific post-skin cancer excision reconstruction techniques; and novel approaches for melanoma.

SUSTAINABILITY IN THE TEXTILE AND APPAREL INDUSTRIES

PRODUCTION PROCESS SUSTAINABILITY

Springer Nature This book is part of a five-volume set that explores sustainability in textile industry practices globally. Case studies are provided that cover the theoretical and practical implications of sustainable textile issues, including environmental footprints of textile manufacturing, consumer behavior, eco-design in clothing and apparels, supply chain sustainability, the chemistry of textile manufacturing, waste management and textile economics. The set will be of interest to researchers, engineers, industrialists, R&D managers and students working in textile chemistry, economics, materials science, and sustainable consumption and production. This volume addresses the technologies and mechanical processes of textile production, and what sustainable methods can be employed to achieve improved safety and environmental health. The book covers sustainable aspects of printing, dyeing, coloration, weaving, knitting, tailoring, surface design and antimicrobial finishing for environmentally friendly textile and apparel products.

PRACTICAL INTRODUCTION TO LASER DERMATOLOGY

Springer Nature This title introduces readers to the use of lasers in dermatology/aesthetic practice and focuses on the fundamentals of lasers and light-based devices and their clinical application. Each chapter addresses the use of lasers in the treatment of a variety of skin conditions, detailing mechanisms of action, pre-treatment preparation, post-treatment advice, follow-up, and potential complications and pitfalls. Besides discussing ablative, vascular, pigment-specific and epilation lasers, and intense pulsed light, the book also reviews the use of light-emitting diodes, low-level laser therapy and radio frequency devices. In addition, cosmeceuticals complementing laser treatments are also discussed. Readers will also find the chapter on self-assessment questionnaires especially useful. Practical Introduction to Laser Dermatology provides detailed explanation of the topics, while the chapters are supported by illustrative case studies that will enable readers to develop a deeper understanding of the subject of lasers in dermatology. Using clinically relevant illustrations, it provides a comprehensive resource on a variety of laser technologies for novice readers and trained laser clinicians.

ADDITIVE MANUFACTURING OF HIGH-PERFORMANCE METALS AND ALLOYS

MODELING AND OPTIMIZATION

BoD – Books on Demand Freedoms in material choice based on combinatorial design, different directions of process optimization, and computational tools are a significant advantage of additive manufacturing technology. The combination of additive and information technologies enables rapid prototyping and rapid manufacturing models on the design stage, thereby significantly accelerating the design cycle in mechanical engineering. Modern and high-demand powder bed fusion and directed energy deposition methods allow obtaining functional complex shapes and functionally graded structures. Until now, the experimental parametric analysis remains as the main method during AM optimization. Therefore, an additional goal of this book is to introduce readers to new modeling and material's optimization approaches in the rapidly changing world of additive manufacturing of high-performance metals and alloys.

PAVEMENT MANAGEMENT FOR AIRPORTS, ROADS, AND PARKING LOTS

Springer Emphasizing sound, cost-effective management rather than emergency repairs, this comprehensive volume offers practical guidelines on evaluating and managing pavements for airports, roads, and parking lots. The author focuses on the implementation and maintenance of successful management strategies for both network and project levels, with repair techniques also described. Detailed chapters: 1) outline step-by-step procedures for project and network level pavement management 2) illustrate effective cost analysis and budget planning for pavement maintenance 3) guide the reader in the selection and use of non-destructive deflection, roughness measurement, and friction measurement equipment 4) present state-of-the-art pavement rehabilitation and condition prediction techniques 5) demonstrates the Pavement Condition Index (PCI) procedure for airfields and surfaced and unsurfaced roads. Extensive appendices serve as a field manual for identifying all types of pavement distress and their causes, and hundred of photographs facilitate accurate pavement evaluation. Civil and pavement engineers will find complete information on pavement inspection, evaluation, and management in this indispensable reference.

31ST AIAA THERMOPHYSICS CONFERENCE

JUNE 17-20, 1996/NEW ORLEANS, LA.

APPLIED MECHANICS REVIEWS

INTERNATIONAL REVIEW OF CELL AND MOLECULAR BIOLOGY

Academic Press International Review of Cell & Molecular Biology presents current advances and comprehensive reviews in cell biology—both plant and animal. Articles address structure and control of gene expression, nucleocytoplasmic interactions, control of cell development and differentiation, and cell transformation and growth. * Authored by some of the foremost scientists in the field * Provides up-to-date information and directions for future research * Valuable reference material for advanced undergraduates, graduate students and professional scientists

LASER-BASED OPTICAL DETECTION OF EXPLOSIVES

CRC Press Laser-Based Optical Detection of Explosives offers a comprehensive review of past, present, and emerging laser-based methods for the detection of a variety of explosives. This book: Considers laser propagation safety and explains standard test material preparation for standoff optical-based detection system evaluation Explores explosives detection using deep ultraviolet native fluorescence, Raman spectroscopy, laser-induced breakdown spectroscopy, reflectometry, and hyperspectral imaging Examines photodissociation followed by laser-induced fluorescence, photothermal methods, cavity-enhanced absorption spectrometry, and short-pulse laser-based techniques Describes the detection and recognition of explosives using terahertz-frequency spectroscopic techniques Each chapter is authored by a leading expert on the respective technology, and is structured to supply historical perspective, address current advantages and challenges, and discuss novel research and applications. Readers are left with an in-depth understanding and appreciation of each technology's capabilities and potential for standoff hazard detection.

METAL MICRO-FORMING

MDPI The miniaturization of industrial products is a global trend. Metal forming technology is not only suitable for mass production and excellent in productivity and cost reduction, but it is also a key processing method that is essential for products that utilize advantage of the mechanical and functional properties of metals. However, it is not easy to realize the processing even if the conventional metal forming technology is directly scaled down. This is because the characteristics of materials, processing methods, die and tools, etc., vary greatly with miniaturization. In metal micro forming technology, the size effect of major issues for micro forming have also been clarified academically. New processing methods for metal micro forming have also been developed by introducing new special processing techniques, and it is a new wave of innovation toward high precision, high degree of processing, and high flexibility. To date, several special issues and books have been published on micro-forming technology. This book contains 11 of the latest research results on metal micro forming technology. The editor believes that it will be very useful for understanding the state-of-the-art of metal micro forming technology and for understanding future trends.

SENSORS AND TECHNIQUES FOR 3D OBJECT MODELING IN UNDERWATER ENVIRONMENTS

MDPI This book is a printed edition of the Special Issue "Sensors and Techniques for 3D Object Modeling in Underwater Environments" that was published in Sensors

OIL SPILL SCIENCE AND TECHNOLOGY

Gulf Professional Publishing The National Academy of Sciences estimate that 1.7 to 8.8 million tons of oil are released into world's water every year, of which more than 70% is directly related to human activities. The effects of these spills are all too apparent: dead wildlife, oil covered marshlands and contaminated water chief among them. This reference will provide scientists, engineers and practitioners with the latest methods use for identify and eliminating spills before they occur and develop the best available techniques, equipment and materials for dealing with oil spills in every environment. Topics covered include: spill dynamics and behaviour, spill treating agents, and cleanup techniques such as: in situ burning, mechanical containment or recovery, chemical and biological methods and physical methods are used to clean up shorelines. Also included are the fate and effects of oil spills and means to assess damage. Covers spill dynamics and behaviour Definitive guide to spill treating agents Complete coverage of cleanup techniques Includes fate and effects of oil spills and means to assess damage

ELECTROCHEMICAL SURFACE SCIENCE: BASICS AND APPLICATIONS

MDPI Electrochemical surface science (EC-SS) is the natural advancement of traditional surface science (where gas-vacuum/solid interfaces are studied) to liquid (solution)/electrified solid interfaces. Such a merging between two different disciplines—i.e., surface science (SS) and electrochemistry—officially advanced ca. three decades ago. The main characteristic of EC-SS versus electrochemistry is the reductionist approach undertaken, inherited from SS and aiming to understand the microscopic processes occurring at electrodes on the atomic level. A few of the exemplary keystone tools of EC-SS include EC-scanning probe microscopies, operando and in situ spectroscopies and electron microscopies, and differential EC mass spectrometry (DEMS). EC-SS indirectly (and often unconsciously) receives a great boost from the requirement for rational design of energy conversion and storage devices for the next generation of energetic landscapes. As a matter of fact, the number of material science groups deeply involved in such a challenging field has tremendously expanded and, within such a panorama, EC and SS investigations are intimately combined in a huge number of papers. The aim of this Special Issue is to offer an open access forum where researchers in the field of electrochemistry, surface science, and materials science could outline the great advances that can be reached by exploiting EC-SS approaches. Papers addressing both the basic science and more applied issues in the field of EC-SS and energy conversion and storage materials have been published in this Special Issue.

THE SAGE HANDBOOK OF REMOTE SENSING

SAGE Publications Remote sensing acquires and interprets small or large-scale data about the Earth from a distance. Using a wide range of spatial, spectral, temporal, and radiometric scales remote sensing is a large and diverse field for which this Handbook will be the key research reference. Illustrated throughout, an essential resource for the analysis of remotely sensed data, The SAGE Handbook of Remote Sensing provides researchers with a definitive statement of the core concepts and methodologies in the discipline.

COMPREHENSIVE MATERIALS PROCESSING

Newnes Comprehensive Materials Processing provides students and professionals with a one-stop resource consolidating and enhancing the literature of the materials processing and manufacturing universe. It provides authoritative analysis of all processes, technologies, and techniques for converting industrial materials from a raw state into finished parts or products. Assisting scientists and engineers in the selection, design, and use of materials, whether in the lab or in industry, it matches the adaptive complexity of emergent materials and processing technologies. Extensive traditional article-level academic discussion of core theories and applications is supplemented by applied case studies and advanced multimedia features. Coverage encompasses the general categories of solidification, powder, deposition, and deformation processing, and includes discussion on plant and tool design, analysis and characterization of processing techniques, high-temperatures studies, and the influence of process scale on component characteristics and behavior. Authored and reviewed by world-class academic and industrial specialists in each subject field Practical tools such as integrated case studies, user-defined process schemata, and multimedia modeling and functionality Maximizes research efficiency by collating the most important and established information in one place with integrated applets linking to relevant outside sources

IMAGING IN DERMATOLOGY

Academic Press *Imaging in Dermatology* covers a large number of topics in dermatological imaging, the use of lasers in dermatology studies, and the implications of using these technologies in research. Written by the experts working in these exciting fields, the book explicitly addresses not only current applications of nanotechnology, but also discusses future trends of these ever-growing and rapidly changing fields, providing clinicians and researchers with a clear understanding of the advantages and challenges of laser and imaging technologies in skin medicine today, along with the cellular and molecular effects of these technologies. Outlines the fundamentals of imaging and lasers for dermatology in clinical and research settings Provides knowledge of current and future applications of dermatological imaging and lasers Coherently structured book written by the experts working in the fields covered

MATERIALS FOR SUSTAINABLE ENERGY

QUALITY MANAGEMENT OF PAVEMENT CONDITION DATA COLLECTION

Transportation Research Board "TRB's National Cooperative Highway Research Program (NCHRP) Synthesis 401: Quality Management of Pavement Condition Data Collection explores the quality management practices being employed by public highway agencies for automated, semi-automated, and manual pavement data collection and delivery"--Publisher's description.

METAL ADDITIVE MANUFACTURING

John Wiley & Sons *METAL ADDITIVE MANUFACTURING* A comprehensive review of additive manufacturing processes for metallic structures Additive Manufacturing (AM)—also commonly referred to as 3D printing—builds three-dimensional objects by adding materials layer by layer. Recent years have seen unprecedented investment in additive manufacturing research and development by governments and corporations worldwide. This technology has the potential to replace many conventional manufacturing processes, enable the development of new industry practices, and transform the entire manufacturing enterprise. *Metal Additive Manufacturing* provides an up-to-date review of all essential physics of metal additive manufacturing techniques with emphasis on both laser-based and non-laser-based additive manufacturing processes. This comprehensive volume covers fundamental processes and equipment, governing physics and modelling, design and topology optimization, and more. The text addresses introductory, intermediate, and advanced topics ranging from basic additive manufacturing process classification to practical and material design aspects of additive manufacturability. Written by a panel of expert authors in the field, this authoritative resource: Provides a thorough analysis of AM processes and their theoretical foundations Explains the classification, advantages, and applications of AM processes Describes the equipment required for different AM processes for metallic structures, including laser technologies, positioning devices, feeder and spreader mechanisms, and CAD software Discusses the opportunities, challenges, and current and emerging trends within the field Covers practical considerations, including design for AM, safety, quality assurance, automation, and real-time control of AM processes Includes illustrative cases studies and numerous figures and tables Featuring material drawn from the lead author's research and professional experience on laser additive manufacturing, *Metal Additive Manufacturing* is an important source for manufacturing professionals, research and development engineers in the additive industry, and students and researchers involved in mechanical, mechatronics, automatic control, and materials engineering and science.

HANDBOOK OF RESEARCH ON ADVANCES AND APPLICATIONS IN REFRIGERATION SYSTEMS AND TECHNOLOGIES

IGI Global In recent years, the sustainability and safety of perishable foods has become a major consumer concern, and refrigeration systems play an important role in the processing, distribution, and storage of such foods. To improve the efficiency of food preservation technologies, it is necessary to explore new technological and scientific advances both in materials and processes. The *Handbook of Research on Advances and Applications in Refrigeration Systems and Technologies* gathers state-of-the-art research related to thermal performance and energy-efficiency. Covering a diverse array of subjects—from the challenges of surface-area frost-formation on evaporators to the carbon footprint of refrigerant chemicals—this publication provides a broad insight into the optimization of cold-supply chains and serves as an essential reference text for undergraduate students, practicing engineers, researchers, educators, and policymakers.

LASER-ASSISTED FABRICATION OF MATERIALS

Springer Science & Business Media Laser assisted fabrication involves shaping of materials using laser as a source of heat. It can be achieved by removal of materials (laser assisted cutting, drilling, etc.), deformation (bending, extrusion), joining (welding, soldering) and addition of materials (surface cladding or direct laser cladding). This book on 'Laser assisted Fabrication' is aimed at developing in-depth engineering concepts on various laser assisted macro and micro-fabrication techniques with the focus on application and a review of the engineering background of different micro/macro-fabrication techniques, thermal history of the treated zone and microstructural development and evolution of properties of the treated zone.