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Frontiers in Materials Processing, Applications, Research and Technology

M. Muruganant 2017-11-13 This volume comprises the select proceedings of FiMPART 2015. The volume covers advances in major areas of materials research under one umbrella. This volume covers all aspects of materials research, processing, fabrication, structure/property evaluation, applications of ferrous, non-ferrous, ceramic, polymeric materials and composites including biomaterials, materials for energy, fuel cells/hydrogen storage technologies, batteries, super-capacitors, nano-materials for energy and structural applications, aerospace structural metallic materials, bulk metallic glasses and other advanced materials. The book will be useful to researchers, students, and professional working in areas related to materials innovation and applications.

[Computational Technologies for Fluid/thermal/structural/chemical Systems with Industrial Applications](#) 2004

The Pendulum Paradigm Martin Beech 2014 The pendulum is perhaps the simplest experimental devices ever constructed, and yet for all its simplicity it has historically enabled scientists to both investigate and enumerate gravity; the fundamental force that shapes the very universe. The pendulum has also allowed astronomers and geologists to measure the motion, mass and distribution of matter within the Earth, and its

stately swing is at the very heartbeat of time. This book explores the many applications of the pendulum, from its employment as a fundamental experimental device, such as in the Cavendish torsion balance for measuring the universal gravitational constant, to its everyday, practical use in geology, astronomy and horology.

Chemical Reaction Engineering and Reactor Technology Tapio O. Salmi 2011-07-01 The role of the chemical reactor is crucial for the industrial conversion of raw materials into products and numerous factors must be considered when selecting an appropriate and efficient chemical reactor. Chemical Reaction Engineering and Reactor Technology defines the qualitative aspects that affect the selection of an industrial chemical reactor and couples various reactor models to case-specific kinetic expressions for chemical processes. Offering a systematic development of the chemical reaction engineering concept, this volume explores: Essential stoichiometric, kinetic, and thermodynamic terms needed in the analysis of chemical reactors Homogeneous and heterogeneous reactors Residence time distributions and non-ideal flow conditions in industrial reactors Solutions of algebraic and ordinary differential equation systems Gas- and liquid-phase diffusion coefficients and gas-film coefficients Correlations for gas-liquid systems Solubilities of gases in liquids Guidelines for laboratory reactors and the estimation of kinetic parameters The authors pay special attention to the exact

formulations and derivations of mass energy balances and their numerical solutions. Richly illustrated and containing exercises and solutions covering a number of processes, from oil refining to the development of specialty and fine chemicals, the text provides a clear understanding of chemical reactor analysis and design.

Renewable Energy Sources: Engineering, Technology, Innovation

Marek Wróbel 2019-07-16 This book presents peer-reviewed papers based on the oral and poster presentations during the 5th International Conference on Renewable Energy Sources, which was held from June 20 to 22, 2018 in Krynica, Poland. The scope of the conference included a wide range of topics in renewable energy technology, with a major focus on biomass, solar energy and geothermal energy, but also extending to heat pumps, fuel cells, wind energy, energy storage, and the modelling and optimization of renewable energy systems. This edition of the conference had a special focus on the role of renewable energy in the reduction of air pollution in the Eastern European region. Traditionally this conference is a unique occasion for gathering Polish and international researchers' perspectives on renewable energy sources, and furthermore of balancing them against governmental policy considerations. Accordingly, the conference offered also panels to discuss best practices and solutions with local entrepreneurs and federal government bodies. The meeting attracts not only scientist but also industry representatives as well as local and federal government personnel. In 2018, the conference was organized by the University of Agriculture in Krakow in cooperation with AGH University of Science and Technology (Krakow), University of Žilina, Silesian University of Technology, International Commission of Agricultural and Biosystems Engineering (CIGR) and Polish Society of Agricultural Engineering. Honorary auspices were given by the Ministry of Science and Higher Education Republic of Poland, Rector of the University of Agriculture in Krakow and Rector of the AGH University of Science and Technology. *Synopses of Federal Demonstrations of Innovative Site Remediation Technologies* 1991

International Conference on Water Resource and Environmental

Protection 2014-07-23 The 2014 International Conference on Water Resource and Environmental Protection [WREP2014] aims to bring researchers, engineers, and students to the areas of Water Resource and Environmental Protection. WREP2014 features unique mixed topics of Water Resource and Environmental Protection in the context of building healthier ecology and environment. The conference will provide a forum for sharing experiences and original research contributions on those topics. Researchers and practitioners are invited to submit their contributions to WREP2014. This proceeding tends to collect the up-to-date, comprehensive and worldwide state-of-art knowledge on water resource and environmental protection. All of accepted papers were subjected to strict peer-reviewing by 2-4 expert referees. The papers have been selected for this proceedings based on originality, significance, and clarity for the purpose of the conference. The selected papers and additional late-breaking contributions to be presented will make an exciting technical program on WREP2014 conference. The conference program is extremely rich, featuring high-impact presentation. We hope this conference will not only provide the participants a broad overview of the latest research results on water resource and environmental protection, but also provide the participants a significant platform to build academic connections.

Coal Production and Processing Technology M.R. Riazi 2015-11-05 Coal Production and Processing Technology provides uniquely comprehensive coverage of the latest coal technologies used in everything from mining to greenhouse gas mitigation. Featuring contributions from experts in industry and academia, this book: Discusses coal geology, characterization, beneficiation, combustion, coking, gasification, and liquef

Modern Materials and Technologies for Civil and Road

Engineering Ramadhansyah Putra Jaya 2021-03-15 Selected, peer-reviewed papers from the 4th National Conference on Wind and Earthquake Engineering (4th NCWE), October 16-17, 2020, Gombang, Malasia

Kirk-Othmer Concise Encyclopedia of Chemical Technology, 2 Volume

Set Kirk-Othmer 2007-07-16 This is an easily-accessible two-volume encyclopedia summarizing all the articles in the main volumes Kirk-Othmer Encyclopedia of Chemical Technology, Fifth Edition organized alphabetically. Written by prominent scholars from industry, academia, and research institutions, the Encyclopedia presents a wide scope of articles on chemical substances, properties, manufacturing, and uses; on industrial processes, unit operations in chemical engineering; and on fundamentals and scientific subjects related to the field.

Encyclopedia of Glass Science, Technology, History, and Culture

Two Volume Set Pascal Richet 2021-02-05 This Encyclopedia begins with an introduction summarizing its scope and content. Glassmaking; Structure of Glass, Glass Physics, Transport Properties, Chemistry of Glass, Glass and Light, Inorganic Glass Families, Organic Glasses, Glass and the Environment, Historical and Economical Aspect of Glassmaking, History of Glass, Glass and Art, and outline possible new developments and uses as presented by the best known people in the field (C.A. Angell, for example). Sections and chapters are arranged in a logical order to ensure overall consistency and avoid useless repetitions. All sections are introduced by a brief introduction and attractive illustration. Newly investigated topics will be addressed, with the goal of ensuring that this Encyclopedia remains a reference work for years to come.

Materials for Additive Manufacturing Yusheng Shi 2021-02-12 *Materials for Additive Manufacturing* covers the materials utilized in the additive manufacturing field, including polymers, metals, alloys and ceramic materials. A conceptual overview of the preparation and characterization of the materials and their processing is given, beginning with theoretical aspects that help readers better understand fundamental concepts. Emerging applications in medicine, aerospace, automotive, artwork and rapid manufacturing are also discussed. This book provides a comprehensive overview of materials, along with rapid prototyping technologies. Discusses the preparation and characterization of materials used for additive manufacturing Provides descriptions of microstructures and properties of the parts produced by additive manufacturing Includes

recent industrial applications of materials processed in additive manufacturing

Extrusion Processing Technology Jean-Marie Bouvier 2014-03-31 Extrusion is the operation of forming and shaping a molten or dough-like material by forcing it through a restriction, or die. It is applied and used in many batch and continuous processes. However, extrusion processing technology relies more on continuous process operations which use screw extruders to handle many process functions such as the transport and compression of particulate components, melting of polymers, mixing of viscous media, heat processing of polymeric and biopolymeric materials, product texturization and shaping, defibering and chemical impregnation of fibrous materials, reactive extrusion, and fractionation of solid-liquid systems. Extrusion processing technology is highly complex, and in-depth descriptions and discussions are required in order to provide a complete understanding and analysis of this area: this book aims to provide readers with these analyses and discussions. *Extrusion Processing Technology: Food and Non-Food Biomaterials* provides an overview of extrusion processing technology and its established and emerging industrial applications. Potency of process intensification and sustainable processing is also discussed and illustrated. The book aims to span the gap between the principles of extrusion science and the practical knowledge of operational engineers and technicians. The authors bring their research and industrial experience in extrusion processing technology to provide a comprehensive, technical yet readable volume that will appeal to readers from both academic and practical backgrounds. This book is primarily aimed at scientists and engineers engaged in industry, research, and teaching activities related to the extrusion processing of foods (especially cereals, snacks, textured and fibrated proteins, functional ingredients, and instant powders), feeds (especially aquafeeds and petfoods), bioplastics and plastics, biosourced chemicals, paper pulp, and biofuels. It will also be of interest to students of food science, food engineering, and chemical engineering. Also available *Formulation Engineering of Foods* Edited by J.E. Norton, P.J. Fryer and I.T. Norton ISBN 978-0-470-67290-7 *Food and Industrial*

Bioproducts and Bioprocessing Edited by N.T. Dunford ISBN 978-0-8138-2105-4 Handbook of Food Process Design Edited by J. Ahmed and M.S. Rahman ISBN 978-1-4443-3011-3

Proceedings of the 20th International Conference on Fluidized Bed Combustion Guangxi Yue 2010-07-28 The proceedings of the 20th International Conference on Fluidized Bed Combustion (FBC) collect 9 plenary lectures and 175 peer-reviewed technical papers presented in the conference held in Xi'an China in May 18-21, 2009. The conference was the 20th conference in a series, covering the latest fundamental research results, as well as the application experience from pilot plants, demonstrations and industrial units regarding to the FBC science and technology. It was co-hosted by Tsinghua University, Southeast University, Zhejiang University, China Electricity Council and Chinese Machinery Industry Federation. A particular feature of the proceedings is the balance between the papers submitted by experts from industry and the papers submitted by academic researchers, aiming to bring academic knowledge to application as well as to define new areas for research. The authors of the proceedings are the most active researchers, technology developers, experienced and representative facility operators and manufacturers. They presented the latest research results, state-of-the-art development and projects, and the useful experience. The proceedings are divided into following sections: • CFB Boiler Technology, Operation and Design • Fundamental Research on Fluidization and Fluidized Combustion • CO₂ Capture and Chemical Looping • Gasification • Modeling and Simulation on FBC Technology • Environments and Pollutant Control • Sustainable Fuels The proceedings can be served as idea references for researchers, engineers, academia and graduate students, plant operators, boiler manufacturers, component suppliers, and technical managers who work on FBC fundamental research, technology development and industrial application.

Elucidating Microbial Processes in Soils and Sediments: Microscale Measurements and Modeling, 2nd Edition Philippe C. Baveye 2020-03-27

Applied Techniques to Integrated Oil and Gas Reservoir Characterization Enwenode Onajite 2021-04-26 Over the past several years, there has been a growing integration of data – geophysical, geological, petrophysical, engineering-related, and production-related – in predicting and determining reservoir properties. As such, geoscientists now must learn the technology, processes, and challenges involved within their specific functions in order to optimize planning for oil field development. Applied Techniques to Integrated Oil and Gas Reservoir Characterization presents challenging questions encountered by geoscientists in their day-to-day work in the exploration and development of oil and gas fields and provides potential solutions from experts. From basin analysis of conventional and unconventional reservoirs, to seismic attributes analysis, NMR for reservoir characterization, amplitude versus offset (AVO), well-to-seismic tie, seismic inversion studies, rock physics, pore pressure prediction, and 4D for reservoir monitoring, the text examines challenges in the industry as well as the techniques used to overcome those challenges. This book includes valuable contributions from global industry experts: Brian Schulte (Schiefer Reservoir Consulting), Dr. Neil W. Craigie (Saudi Aramco), Matthijs van der Molen (Shell International E&P), Dr. Fred W. Schroeder (ExxonMobil, retired), Dr. Tharwat Hassane (Schlumberger & BP, retired), and others. Presents a thorough understanding of the requirements of various disciplines in characterizing a wide spectrum of reservoirs Includes real-life problems and challenging questions encountered by geoscientists in their day-to-day work, along with answers from experts working in the field Provides an integrated approach among different disciplines (geology, geophysics, petrophysics, and petroleum engineering) Offers advice from industry experts to geoscience students, including career guides and interview tips

Scientific and Technical Aerospace Reports 1994 Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

Emerging Imaging Technologies in Medicine Mark A. Anastasio

2012-12-06 From the discovery of x-rays in 1895 through the emergence of computed tomography (CT) in the 1970s and magnetic resonance imaging (MRI) in the 1980s, non-invasive imaging has revolutionized the practice of medicine. While these technologies have thoroughly penetrated clinical practice, scientists continue to develop novel approaches that promise to push imaging into entirely new clinical realms, while addressing the issues of dose, sensitivity, or specificity that limit existing imaging approaches. Emerging Imaging Technologies in Medicine surveys a number of emerging technologies that have the promise to find routine clinical use in the near- (less than five years), mid- (five to ten years) and long-term (more than ten years) time frames. Each chapter provides a detailed discussion of the associated physics and technology, and addresses improvements in terms of dose, sensitivity, and specificity, which are limitations of current imaging approaches. In particular, the book focuses on modalities with clinical potential rather than those likely to have an impact mainly in preclinical animal imaging. The last ten years have been a period of fervent creativity and progress in imaging technology, with improvements in computational power, nanofabrication, and laser and detector technology leading to major new developments in phase-contrast imaging, photoacoustic imaging, and optical imaging.

The Journal of Canadian Petroleum Technology 1991

Essential Readings in Light Metals, Aluminum Reduction Technology

Geoff Bearne 2013-04-03 ONE OF A FOUR-BOOK COLLECTION

SPOTLIGHTING CLASSIC ARTICLES Landmark research findings and reviews in aluminum reduction technology Highlighting some of the most important findings and insights reported over the past five decades, this volume features many of the best original research papers and reviews on aluminum reduction technology published from 1963 to 2011. Papers have been organized into seven themes: 1. Fundamentals 2. Modeling 3. Design 4. Operations 5. Control 6. Environmental 7. Alternative processes The first six themes deal with conventional Hall-Héroult electrolytic reduction technology, whereas the last theme features papers dedicated to nonconventional processes. Each section begins with

a brief introduction and ends with a list of recommended articles for further reading, enabling researchers to explore each subject in greater depth. The papers for this volume were selected from among some 1,500 Light Metals articles. Selection was based on a rigorous review process. Among the papers, readers will find breakthroughs in science as well as papers that have had a major impact on technology. In addition, there are expert reviews summarizing our understanding of key topics at the time of publication. From basic research to advanced applications, the articles published in this volume collectively represent a complete overview of aluminum reduction technology. It will enable students, scientists, and engineers to trace the history of aluminum reduction technology and bring themselves up to date with the current state of the technology.

Age Of Fire Is Over, The: A New Approach To The Energy

Transition Vincent Petit 2021-07-21 The heart of the contemporary argument on climate change and energy transition focuses on how energy supply should be decarbonized to mitigate greenhouse gas emissions. This book proposes an alternative approach. The Age of Fire Is Over: A New Approach to the Energy Transition finds that energy transitions are not driven by supply-side driven transformations but rather by evolutions in demand patterns. Exploring the potential of recently emerged key technologies, The Age of Fire Is Over argues that the so-called Energy Transition has not yet started. In the future, key technologies will significantly transform demand and provide services at a fraction of today's cost or offer new services not yet imagined. To a large extent, energy paradigm shifts are driven by such evolutions, largely inevitable and often unanticipated, because they provide societies with greater benefits: lower costs, more jobs, and rapid adaptation. This book closes with key novel recommendations for government institutions to accelerate the energy transition, which — instead of replicating an approach from the past — should focus on these demand transformations to both advance civilization and mitigate climate change. With Foreword by Jean-Pascal Tricoire, Schneider Electric Chief Executive Officer.

Essential Readings in Light Metals, Volume 2, Aluminum Reduction

Technology Geoff Bearne 2017-03-02 ONE OF A FOUR-BOOK COLLECTION SPOTLIGHTING CLASSIC ARTICLES Landmark research findings and reviews in aluminum reduction technology Highlighting some of the most important findings and insights reported over the past five decades, this volume features many of the best original research papers and reviews on aluminum reduction technology published from 1963 to 2011. Papers have been organized into seven themes: 1. Fundamentals 2. Modeling 3. Design 4. Operations 5. Control 6. Environmental 7. Alternative processes The first six themes deal with conventional Hall-Héroult electrolytic reduction technology, whereas the last theme features papers dedicated to nonconventional processes. Each section begins with a brief introduction and ends with a list of recommended articles for further reading, enabling researchers to explore each subject in greater depth. The papers for this volume were selected from among some 1,500 Light Metals articles. Selection was based on a rigorous review process. Among the papers, readers will find breakthroughs in science as well as papers that have had a major impact on technology. In addition, there are expert reviews summarizing our understanding of key topics at the time of publication. From basic research to advanced applications, the articles published in this volume collectively represent a complete overview of aluminum reduction technology. It will enable students, scientists, and engineers to trace the history of aluminum reduction technology and bring themselves up to date with the current state of the technology.

Achievements and Trends in Material Forming Gabriela Vincze 2022-07-22 Peer-reviewed extended papers selected from the 25th International Conference on Material Forming (ESAFORM 2022) Peer-reviewed extended papers selected from the 25th International Conference on Material Forming (ESAFORM 2022), April 27-29, 2022, Portugal

General Technical Report NC. 1981

User/procurement Manual for Retardant Measurement Mass Flowmeter 1997

Publications of the National Institute of Standards and

Technology ... Catalog National Institute of Standards and Technology (U.S.) 1976

Superfund Innovative Technology Evaluation 1996

Key to the Native Perennial Grasses Albert Spear Hitchcock 1968

Light Metals 2014 John Grandfield 2016-12-23 The Light Metals symposia are a key part of the TMS Annual Meeting & Exhibition, presenting the most recent developments, discoveries, and practices in primary aluminum science and technology. Publishing the proceedings from these important symposia, the Light Metals volume has become the definitive reference in the field of aluminum production and related light metal technologies. The 2014 collection includes papers from the following symposia: •Alumina and Bauxite •Aluminum Alloys: Fabrication, Characterization and Applications •Aluminum Processing •Aluminum Reduction Technology •Cast Shop for Aluminum Production •Electrode Technology for Aluminum Production •Light-metal Matrix (Nano)-composites

Symposium Proceedings, Environmental Aspects of Fuel Conversion Technology, IV (April 1979, Hollywood, FL) 1979

Nanomineralogy Yiwen Ju 2020-12-14 In 2018, the International Symposium on Nanogeoscience was held in Guiyang, China. Scholars from around the globe gathered to discuss recent progress and development trends in various aspects of nanogeoscience, including nanomineralogy. Nanomineralogy, an important aspect of nanogeoscience, focuses on the composition, structure, and physical and chemical properties of nanoscale minerals and their interrelations with other Earth critical components. To give a sampling of the latest progress in nanomineralogy and related fields, we offer this Special Issue, which describes a full range of recent nanomineralogic achievements relating to everything from nanominerals and geochemistry, mineral nanostructures, and nanomineral deformation, to nanopores in oil and gas reservoirs, nanomineral deposits, and nanomineral material. Today, nanomineralogy faces a new strategic opportunity as well as a revolutionary challenge. We thus present this special nanomineralogy-focused issue of Minerals with the aim of

encouraging our colleagues to familiarize themselves with current developments, trends, and directions in nanomineralogy, enabling an understanding of the potential of the field as a whole. We look forward to developing further scientific research and cooperation in nanomineralogy, hoping thereby to attract and guide young scholars to participate in this field.

Superfund Innovative Technology Evaluation Superfund Innovative Technology Evaluation Program (U.S.) 1993

Management of Solid Wastes in Developing Countries Luis F. Diaz 2007
Accelerator Technology Sören Möller 2020-12-02 This book explores the physics, technology and applications of particle accelerators. It illustrates the interconnections between applications and basic physical principles, enabling readers to better understand current and upcoming technologies and see beyond the paradigmatic borders of the individual fields. The reader will discover why accelerators are no longer just toys for scientists, but have also become modern and efficient nuclear workhorses. The book starts with an introduction to the relevant technologies and radiation safety aspects of accelerating electrons and ions from several keV to roughly 250 MeV. It subsequently describes the physics behind the interactions of these particle beams with matter. Mathematical descriptions and state-of-the-art computer models of energy-loss and nuclear interactions between the particle beams and targets round out the physics coverage. On this basis, the book then presents the most important accelerator applications in science, medicine, and industry, explaining and comparing more than 20 major application fields, encompassing semiconductors, cancer treatment, and space exploration. Despite the disparate fields involved, this book demonstrates how the same essential technology and physics connects all of these applications.

Computer and Computing Technologies in Agriculture VI Daoliang Li 2013-02-26 The two-volume set IFIP AICT 392 and 393 constitutes the refereed post-conference proceedings of the 6th IFIP TC 5, SIG 5.1 International Conference on Computer and Computing Technologies in Agriculture, CCTA 2012, held in Zhangjiajie, China, in October 2012. The

108 revised papers presented were carefully selected from numerous submissions. They cover a wide range of interesting theories and applications of information technology in agriculture, including Internet of things and cloud computing; simulation models and decision-support systems for agricultural production; smart sensor, monitoring, and control technology; traceability and e-commerce technology; computer vision, computer graphics, and virtual reality; the application of information and communication technology in agriculture; and universal information service technology and service systems development in rural areas. The 55 papers included in the second volume focus on GIS, GPS, RS, and Precision Farming.

Biodegradable Matrices and Composites Alessandro Pegoretti 2020-09-23

Superfund Innovative Technology Evaluation Program Superfund Innovative Technology Evaluation Program (U.S.) 1994 Profiles 156 demonstration, emerging, and monitoring and measurement technologies being evaluated under the SITE Program.

The Key Technologies for Powertrain System of Intelligent Vehicles Based on Switched Reluctance Motors Yueying Zhu 2021-09-18 This book is intended for engineer's in automotive industry and in research community of electrical machines. This book systematically focus on all the major aspects of switched reluctance motor for intelligent electric vehicle applications, including optimization design, drive system control, regenerative braking control, and motor-suspension system control, which is particularly suited for readers who are interested to learn the theory of the motor used for intelligent electric vehicles. The comprehensive and systematic treatment of practical issues around switched reluctance motor considering vehicle requirements is one of the major features of the book. The book can benefit researchers, engineers, and graduate students in fields of switched reluctance motor, electric vehicle drive system, regenerative braking system, motor-suspension system, etc.

Research & Technology 2003

Chemical Reaction Engineering and Reactor Technology, Second

Edition Tapio O. Salmi 2019-07-11 The role of the chemical reactor is crucial for the industrial conversion of raw materials into products and numerous factors must be considered when selecting an appropriate and efficient chemical reactor. *Chemical Reaction Engineering and Reactor Technology* defines the qualitative aspects that affect the selection of an industrial chemical reactor and couples various reactor models to case-specific kinetic expressions for chemical processes. Thoroughly revised and updated, this much-anticipated Second Edition addresses the rapid academic and industrial development of chemical reaction engineering. Offering a systematic development of the chemical reaction engineering concept, this volume explores: essential stoichiometric, kinetic, and thermodynamic terms needed in the analysis of chemical reactors

homogeneous and heterogeneous reactors reactor optimization aspects residence time distributions and non-ideal flow conditions in industrial reactors solutions of algebraic and ordinary differential equation systems gas- and liquid-phase diffusion coefficients and gas-film coefficients correlations for gas-liquid systems solubilities of gases in liquids guidelines for laboratory reactors and the estimation of kinetic parameters The authors pay special attention to the exact formulations and derivations of mass energy balances and their numerical solutions. Richly illustrated and containing exercises and solutions covering a number of processes, from oil refining to the development of specialty and fine chemicals, the text provides a clear understanding of chemical reactor analysis and design.