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Thermal Engineering Volume 2 Apr 23 2022 This highly informative and carefully presented book offers a comprehensive overview of the fundamentals of thermal engineering. The book focuses both on the fundamentals and more complex topics such as the basics of thermodynamics, Zeroth Law of thermodynamics, first law of thermodynamics, application of first law of thermodynamics, second law of thermodynamics, entropy, availability and irreversibility, properties of pure substance, vapor power cycles, introduction to working of IC engines, air-standard cycles, gas turbines and jet propulsion, thermodynamic property relations and combustion. The author has included end-of-chapter problems and worked examples to augment learning and self-testing. This book is a useful reference to undergraduate students in the area of mechanical engineering.

Proceedings of the Indian Science Congress Nov 06 2020

Vehicle Thermal Management Dec 20 2021

Advances in Design, Simulation and Manufacturing V Jul 03 2020 This book reports on topics at the interface between manufacturing and materials engineering, with a special emphasis on smart and sustainable manufacturing. It describes innovative research in design engineering and manufacturing technology, covering the development and characterization of advanced materials alike. It also discusses key aspects related to ICT in engineering education. Based on the 5th International Conference on Design, Simulation, Manufacturing: The Innovation Exchange (DSMIE-2022), held on June 7-10, 2022, in Poznan, Poland, this first volume of a 2-volume set provides academics and professionals with extensive information on trends and technologies, and challenges and practice-oriented experience in all the above-mentioned areas.

Thermodynamics and Heat Power Feb 07 2021 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.

Thermal Food Engineering Operations Jun 25 2022 Thermal Food Engineering Operations Presenting cutting-edge information on new and emerging food engineering processes, Thermal Food Engineering Operations, the first volume in the new series, “Bioprocessing in Food Science,” is an essential reference on the modeling, quality, safety, and technologies associated with food processing operations today. As the demand for healthy food increases in the current global scenario, manufacturers are searching for new possibilities for occupying a greater share in the rapidly changing food market. Compiled reports and updated knowledge on thermal processing of food products are imperative for commercial enterprises and manufacturing units. In the current scenario, academia, researchers, and food industries are working in a scattered manner and different technologies developed at each level are not compiled to implement for the benefits of different stakeholders. However, advancements in bioprocesses are required at all levels for the betterment of food industries and consumers. This series of groundbreaking edited volumes will be a comprehensive compilation of all the research that has been carried out so far, their practical applications, and the future scope of research and development in the food bioprocessing industry. This first volume includes all the conventional and novel thermal technologies based on conduction, convection, and radiation principles and covers the basics of microbial inactivation with heat treatments, aseptic processing, retorting, drying, dehydration, combined high-pressure thermal treatments, and safety and quality concerns in food processing. Before studying the novel non-thermal processes and the concept of minimal processing, comprehensive knowledge about the conventional thermal technologies is desired along with benefits, constraints, equipment, and implementation of these technologies. Whether for the engineer, scientist, or student, this series is a must-have for any library. This outstanding new volume: Discusses food safety and quality and thermal processing, laying the groundwork for further study and research Provides case studies of solid–liquid and supercritical fluid extraction Explores pasteurization, ohmic heating, irradiation, and more Presents cutting-edge information on new and emerging food engineering processes Audience: Process and chemical engineers, chemists, engineers in other disciplines, managers, researchers, scientists, students, and teachers working in the field of food engineering and processing

Developments and Changes in Science Based Technologies Jan 21 2022 With scientific developments, certain new technologies based on such scientific principles have now been adopted worldwide. This has resulted in complete or partial eradication of some old technologies. Changes in technologies have become more apparent after the midtwentieth century. The world prosperity has improved now, and constrains of the Second World War are no longer felt. Thus the light production using incandescent lightbulb has now become a thing of the past, while fluorescence-based light production has resulted in saving large amounts of generated electric power. Thermal steam-powered (coal-based) locomotive are now completely replaced by diesel and electricity-powered locomotives. Technological changes are constantly being reported in the news. Even before this book was published, in which the replacement of electronic tubes (valves) by silicon-based transistors was included as a chapter, now there is report of carbon nanotubes replacing transistors. In agriculture, there has been a report of a genetically engineered plant (TomTato) that shall produce both potatoes and tomatoes. Human memory is short-lived. The purpose of the present book is to demonstrate such changes, with selected examples only. I hope more of the younger generation shall learn that the technologies, which they are now using, had their old predecessors. Human memory is short-lived. The new generation may not be aware of a once-useful technology getting extinct or being replaced due to the development of a better and stronger new technology. Examples of such changes are numerous, but here we have only used selected examples to illustrate such changes.

Electrocaloric Materials Oct 06 2020 Since the 1997 Kyoto protocol of reduction of greenhouse gas emissions, the development of novel refrigerators has been a priority within the scientific community. Although magnetocaloric materials are promising candidates, they still need a large magnetic field to induce a giant ΔT as well as powerful and costly magnets. However, in electrocaloric materials (ECMs) a temperature change may be achieved by applying or removing an electric field. Since a giant electrocaloric effect on ferroelectric thin films was reported in Science in 2006, researchers have been inspired to explore such effect in different ferroelectric thin films. This book reviews electrocaloric effects observed in bulk materials as well as recent promising advances in thin films, with special emphasis on the ferroelectric, antiferroelectric and relaxor nature of ECMs. It reports a number of considerations about the future of ECMs as a means of achieving an efficient, ecologically sustainable and low cost refrigerator.

The Limits of Organic Life in Planetary Systems Jan 27 2020 The search for life in the solar system and beyond has to date been governed by a model based on what we know about life on Earth (terran life). Most of NASA’s mission planning is focused on locations where liquid water is possible and emphasizes searches for structures that resemble cells in terran organisms. It is possible, however, that life exists that is based on chemical reactions that do not involve carbon compounds, that occurs in solvents other than water, or that involves oxidation-reduction reactions without oxygen gas. To assist NASA incorporate this possibility in its efforts to search for life, the NRC was asked to carry out a study to evaluate whether nonstandard biochemistry might support life in solar system and conceivable extrasolar environments, and to define areas to guide research in this area. This book presents an exploration of a limited set of hypothetical chemistries of life, a review of current knowledge concerning key questions or hypotheses about nonterran life, and suggestions for future research.

Heat Shock Proteins in Veterinary Medicine and Sciences Oct 18 2021 This books provides up-to-date reviews on current advances of the role of HSP in veterinary medicine and research. Key basic and clinical research laboratories from major universities, veterinary hospitals and pharmaceutical companies around the world have contributed chapters that review present research activity and importantly project this field into the future. For easy readability, the book is sub divided into sections on HSP in the following aspects of Veterinary Medicine, including, I - Domestic Animals, II - Poultry, III - Aquatic and IV - Parasites. The book is a must read for heat shock protein researchers in general and specifically those involved in clinical and research in veterinary medicine.

Advances in Heat Transfer Aug 23 2019 Advances in Heat Transfer

Indian Books in Print Aug 16 2021

Iranian Journal of Science and Technology Feb 19 2022

Contemporary Environmental Issues and Challenges in Era of Climate Change Dec 08 2020 Over the last few decades, unprecedented global population growth has led to increased demand for food and shelter. At the same time, extraction of natural resources beyond the Earth’s resilience capacity has had a devastating effect on ecosystems and environmental health. Furthermore, climate change is having a significant impact in a number of areas, including the global hydrological cycle, ecosystem functioning, coastal vulnerability, forest ecology, food security, and agricultural sustainability. According to the Intergovernmental Panel on Climate Change (IPCC), only immediate and sustained action will prevent climate change causing irreversible and potentially catastrophic damage to our environment. This book presents various scientific views and concepts, research, reviews, and case studies on contemporary environmental issues in changing climate scenarios and highlights different adaptation measures. Increasing awareness of modern-day patterns of climate change, it addresses questions often raised by environmental scientists, researchers, policymakers and general readers.

Preventing the Forward Contamination of Mars Mar 23 2022 Recent spacecraft and robotic probes to Mars have yielded data that are changing our understanding significantly about the possibility of existing or past life on that planet. Coupled with advances in biology and life-detection techniques, these developments place increasing importance on the need to protect Mars from contamination by Earth-borne organisms. To help with this effort, NASA requested that the NRC examine existing planetary protection measures for Mars and recommend changes and further research to improve such measures. This report discusses policies, requirements, and techniques to protect Mars from organisms originating on Earth that could interfere with scientific investigations. It provides recommendations on cleanliness and biological burden levels of Mars-bound spacecraft, methods to reach those levels, and research to reduce uncertainties in preventing forward contamination of Mars.

Proceedings of the ... National Heat Transfer Conference Dec 28 2019

Metal Sprays and Spray Deposition Sep 28 2022 This book describes and illustrates metal spray and spray deposition from the process engineering, metallurgical, and application viewpoints. The authors include step-by-step fundamental information for the metal spray process and detail current engineering developments and applications. They offer industry insight on non-equilibrium solidification processes for yielding stable metal structures and properties.

Science Abstracts Apr 11 2021

Nuclear Science Abstracts Jan 01 2023

Thermal Spray Oct 25 2019

Thermal Engineering Jan 09 2021 This Book On Thermal Engineering (Printed In Two Colours) Has Been Written For The Students Preparing The Subject For B.E. Examinations Of Various Indian Universities, A.M.I.E. And Competitive Examinations (E.G., U.P.S.C., Gate Etc.). The Book Contains 29 Chapters In All, And Deals The Subject Matter Exhaustively.Salient Features: The Presentation Of The Subject Matter Is Very Systematic And The Language Of The Text Is Lucid, Direct And Easy To Understand. Each Chapter Of Book Is Saturated With Much Needed Text Supported By Neat And Self-Explanatory Diagrams To Make The Subject Self-Speaking To A Great Extent. A Large Number Of Solved Examples, Questions Selected From Various Universities, U.P.S.C., Gate Etc., Examination Question Papers, Properly Graded, Have Been Added In Various Chapters To Enable The Students To Attempt Different Types Of Questions In The Examination Without Any Difficulty. At The End Of Each Chapter Highlights, Objective Type Questions, Theoretical Questions And Unsolved Examples Have Been Added To Make The Book A Complete Unit In All Respects.

Computational Fluid Dynamics in Industrial Combustion Nov 18 2021 Although many books have been written on computational fluid dynamics (CFD) and many written on combustion, most contain very limited coverage of the combination of CFD and industrial combustion. Furthermore, most of these books are written at an advanced academic level, emphasize theory over practice, and provide little help to engineers who need to use CFD for combustion modeling. Computational Fluid Dynamics in Industrial Combustion fills this gap in the literature. Focusing on topics of interest to the practicing engineer, it codifies the many relevant books, papers, and reports written on this combined subject into a single, coherent reference. It looks at each topic from a somewhat narrow perspective to see how that topic affects modeling in industrial combustion. The editor and his team of expert authors address these topics within three main sections: Modeling Techniques-The basics of CFD modeling in combustion Industrial Applications-Specific applications of CFD in the steel, aluminum, glass, gas turbine, and petrochemical industries Advanced Techniques-Subjects rarely addressed in other texts, including design optimization, simulation, and visualization Rapid increases in computing power and significant advances in commercial CFD codes have led to a tremendous increase in the application of CFD to industrial combustion. Thorough and clearly representing the techniques and issues confronted in industry, Computational Fluid Dynamics in Industrial Combustion will help bring you quickly up to date on current methods and gain the ability to set up and solve the various types of problems you will encounter.

Handbook of Milk of Non-Bovine Mammals Sep 04 2020 THE ONLY SINGLE-SOURCE GUIDE TO THE LATEST SCIENCE, NUTRITION, AND APPLICATIONS OF ALL THE NON-BOVINE MILKS CONSUMED AROUND THE WORLD Featuring contributions by an international team of dairy and nutrition experts, this second edition of the popular Handbook of Milk of Non-Bovine Mammals provides comprehensive coverage of milk and dairy products derived from all non-bovine dairy species. Milks derived from domesticated dairy species other than the cow are an essential dietary component for many countries around the world. Especially in developing and under-developed countries, milks from secondary dairy species are essential sources of nutrition for the humanity. Due to the unavailability of cow milk and the low consumption of meat, the milks of non-bovine species such as goat, buffalo, sheep, horse, camel, Zebu, Yak, mare and reindeer are critical daily food sources of protein, phosphate and calcium. Furthermore, because of hypoallergenic properties of certain species milk including goats, mare and camel are increasingly recommended as substitutes in diets for those who suffer from cow milk allergies. This book: Discusses key aspects of non-bovine milk production, including raw milk production in various regions worldwide Describes the compositional, nutritional, therapeutic, physio-chemical, and microbiological characteristics of all non-bovine milks Addresses processing technologies as well as various approaches to the distribution and consumption of manufactured milk products Expounds characteristics of non-bovine species milks relative to those of human milk, including nutritional, allergenic, immunological, health and cultural factors. Features six new chapters, including one focusing on the use of non-bovine species milk components in the manufacture of infant formula products Thoroughly updated and revised to reflect the many advances that have occurred in the dairy industry since the publication of the acclaimed first edition, Handbook of Milk of Non-Bovine Mammals, 2nd Edition is an essential reference for dairy scientists, nutritionists, food chemists, animal scientists, allergy specialists, health professionals, and allied professionals.

Biographical Memoirs of Fellows of the Indian National Science Academy Mar 30 2020

Solar Energy: Engineering of Solar Energy Systems Jun 01 2020 The main advantages of solar energy are inexhaustibility and wide accessibility, as well as the relative environmental friendliness of its transformation into other forms of energy. The widespread use of solar energy requires the creation of functionally complete systems which convert solar energy into an element of a given technological process. The collection “Engineering of Solar Energy Systems” consists of papers published by Trans Tech Publications Inc. from 2010 to 2014 inclusive and covers a wide range of advanced achievements in the field of creating and designing systems for technological use of solar energy. The compiled scientific papers are presented in eight chapters: Chapter 1: Solar Systems for Heating, Cooling and Ventilation Chapter 2: Solar Energy in Environmental Treatment and Water Desalination Chapter 3: Solar Hydrogen Production Chapter 4: Systems for Electricity Supply Based on Solar Energy Chapter 5: Design of Components and Equipment for Solar Systems Chapter 6: Mechatronics, Control and Automation in Solar Energetics Chapter 7: Integration of Solar Technologies in the Architecture of Buildings Chapter 8: Engineering Management in Solar Energetics, which cover many aspects of scientific and engineering activities.

Frontiers of Earth Science May 01 2020 This book incorporate papers describing new and exciting results and timely reviews integrating an immense amount of knowledge in the field. Frontiers of Earth Science, the inter-and intra-disciplinary volume sets out to imbibe sixty selectively invited research papers from distinguished earth scientists. The volume incorporate sections on Mineral deposits, Climate Change and Environment, Remote Sensing, Stratigraphy and Palaeobiology, Petrology, Groundwater and Seismology and Tectonics. The book is an everlasting and invaluable documents and reference for academia, industry and planners specialized in the field of the Earth Science and for those who need updated information of current research. The volume will also be equally significant for advance level students and research scholars throughout the world.

Issues in Mechanical Engineering: 2011 Edition Jul 27 2022 Issues in Mechanical Engineering / 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Mechanical Engineering. The editors have built Issues in Mechanical Engineering: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Mechanical Engineering 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 Mechanical Engineering: 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/>.

Heat Treatments for Postharvest Pest Control Aug 04 2020 This book, which consists of 13 chapters, provides fundamental and up-to-date published information on thermal treatments for the management of postharvest pests associated with agricultural commodity structures. Specific topics that are covered include: (i) regulatory issues for quarantine and phytosanitary treatments; (ii) basic information on temperature measurement, heat transfer, and thermal death kinetics of insects; (iii) biological responses of agricultural commodities and insect pests; (iv) biological responses of plants, insects and pathogens to heat; and (v) an introduction to current and potential quarantine treatments based on hot air, hot water, and radio frequency energy. This book should serve as an important resource for readers who are interested in knowledge, methods and strategies used in the development of environmentally friendly processes based on thermal energy. This book may also be suited for readers in the academe, industry and government.

Hybrid Genetic Optimization for IC Chips Thermal Control Jun 13 2021 The continuous miniaturization of integrated circuit (IC) chips and the increase in the sleekness of the design of electronic components have led to the monumental rise of volumetric heat generation in electronic components. Hybrid Genetic Optimization for IC Chips Thermal Control: With MATLAB® Applications focuses on the detailed optimization strategy carried out to enhance the performance (temperature control) of the IC chips oriented at different positions on a switch-mode power supply (SMPS) board and cooled using air under various heat transfer modes. Seven asymmetric protruding IC chips mounted at different positions on an SMPS board are considered in the present study that is supplied with non-uniform heat fluxes. Key Features: Provides guidance on performance enhancement and reliability of IC chips Provides a detailed hybrid optimization strategy for the optimal arrangement of IC chips on a board The MATLAB program for the hybrid optimization strategy along with its stability analysis is carried out in a detailed manner Enables thermal design engineers to identify the positioning of IC chips on the board to increase their reliability and working cycle

Solar Thermal Systems: Thermal Analysis and its Application Nov 26 2019 This book encapsulates current information about the science behind solar energy and the solar thermal systems available to meet domestic needs. Several scholars have contributed to the chapters in the text in an effort to distill research-oriented topics for learners. The book starts with an explainer on the fundamentals of thermodynamics, heat transfer and solar energy in the first 2 chapters. The basics of some solar thermal devices along with their thermal modeling are covered in the next few chapters, along with solar distillation systems. This is followed by information about the design, development and applications of solar cookers along with their thermal modeling. Thermal modeling of semi-transparent PVT systems and their applications are discussed in Chapter 9. Chapter 10 covers the development in solar photovoltaic technology. Chapter 11 and Chapter 12 discusses thermal modeling of greenhouse solar dryers and presents a case study on a hybrid active greenhouse solar dryer. Chapter 13 covers the thermal analysis of photovoltaic thermal (PVT) air heaters employing thermoelectric modules (TEM). The applications of various solar systems in building sectors and the development in this field are covered in Chapter 14. Chapter 15 deals with energy and environ- economics analysis of bio-gas integrated semi-transparent photo-voltaic thermal (Bi-iSPVT) systems for Indian climates. The book has a broad scope and is intended as a resource for students, researchers and teachers in universities, industries, and national and commercial laboratories to help learn the fundamentals and in-depth knowledge of thermal modeling and recent developments in solar heating systems.

Application of Thermo-fluid Processes in Energy Systems Jul 15 2021 This book provides essential information on and case studies in the fields of energy technology, clean energy, energy efficiency, sustainability and the environment relevant to academics, researchers, practicing engineers, technologists and students. The individual chapters present cutting-edge research on key issues and recent developments in thermo-fluid processes, including but not limited to: energy technologies in process industries, applications of thermo-fluid processes in mining industries, applications of electrostatic precipitators in thermal power plants, biofuels, energy efficiency in building systems, etc. Helping readers develop an intuitive understanding of the relevant concepts in and solutions for achieving sustainability in medium and large-scale industries, the book offers a valuable resource for undergraduate, honors and postgraduate research students in the field of thermo-fluid engineering.

Nuclear Science Abstracts Oct 30 2022

Syntheses and Applications of Carbon Nanotubes and Their Composites Sep 16 2021 Carbon nanotubes are rolled up graphene sheets with a quasi-one-dimensional structure of nanometer-scale diameter. In these last twenty years, carbon nanotubes have attracted much attention from physicists, chemists, material scientists, and electronic device engineers, because of their excellent structural, electronic, optical, chemical and mechanical properties. More recently, demand for innovative industrial applications of carbon nanotubes is increasing. This book covers recent research topics regarding syntheses techniques of carbon nanotubes and nanotube-based composites, and their applications. The chapters in this book will be helpful to many students, engineers and researchers working in the field of carbon nanotubes.

Vehicle Thermal Management Nov 30 2022 The efficiency of thermal systems (HVAC, engine cooling, transmission, and power steering) has improved greatly over the past few years. Operating these systems typically requires a significant amount of energy, however, which could adversely affect vehicle performance. To provide customers the level of comfort that they demand in an energy-efficient manner, innovative approaches must be developed. Vehicle Thermal Management: Heat Exchangers & Climate Control is an essential resource for engineers and designers working on thermal systems, presenting the most recent and relevant technical papers that focus on this important vehicle component. Chapters include: Heating and Air Conditioning Engine Cooling Underhood Thermal Environment Heat Transfer in Engines Heat Exchangers New Technologies

Thermal Engineering Volume 1 May 25 2022 This highly informative and carefully presented book offers a comprehensive overview of the fundamentals of thermal engineering. The book focuses both on the fundamentals and more complex topics such as the basics of thermodynamics, Zeroth Law of thermodynamics, first law of thermodynamics, application of first law of thermodynamics, second law of thermodynamics, entropy, availability and irreversibility, properties of pure substance, vapor power cycles, introduction to working of IC engines, air-standard cycles, gas turbines and jet propulsion, thermodynamic property relations and combustion. The author has included end-of-chapter problems and worked examples to augment learning and self-testing. This book is a useful reference to undergraduate students in the area of mechanical engineering.

Techno-Societal 2018 May 13 2021 This book, divided in two volumes, originates from Techno-Societal 2018: the 2nd International Conference on Advanced Technologies for Societal Applications, Maharashtra, India, that brings together faculty members of various engineering colleges to solve Indian regional relevant problems under the guidance of eminent researchers from various reputed organizations. The focus is on technologies that help develop and improve society, in particular on issues such as the betterment of differently abled people, environment impact, livelihood, rural employment, agriculture, healthcare, energy, transport, sanitation, water, education. This conference aims to help innovators to share their best practices or products developed to solve specific local problems which in turn may help the other researchers to take inspiration to solve problems in their region. On the other hand, technologies proposed by expert researchers may find applications in different regions. This offers a multidisciplinary platform for researchers from a broad range of disciplines of Science, Engineering and Technology for reporting innovations at different levels.

Indian Science Abstracts Feb 28 2020

50 Years of CFD in Engineering Sciences Aug 28 2022 Prof. D. Brian Spalding, working with a small group of students and colleagues at Imperial College, London in the mid-to late-1960's, single-handedly pioneered the use of Computational Fluid Dynamics (CFD) for engineering practice. This book brings together advances in computational fluid dynamics in a collection of chapters authored by leading researchers, many of them students or associates of Prof. Spalding. The book intends to capture the key developments in specific fields of activity that have been transformed by application of CFD in the last 50 years. The focus is on review of the impact of CFD on these selected fields and of the novel applications that CFD has made possible. Some of the chapters trace the history of developments in a specific field and the role played by Spalding and his contributions. The volume also includes a biographical summary of Brian Spalding as a person and as a scientist, as well as tributes to Brian Spalding by those whose life was impacted by his innovations. This volume would be of special interest to researchers, practicing engineers, and graduate students in various fields, including aerospace, energy, power and propulsion, transportation, combustion, management of the environment, health and pharmaceutical sciences.

Engineering Applications of Nanotechnology Mar 11 2021 This book focuses on the use of nanotechnology in several fields of engineering. Among others, the reader will find valuable information as to how nanotechnology can aid in extending the life of component materials exposed to corrosive atmospheres, in thermal fluid energy conversion processes, anti-reflection coatings on photovoltaic cells to yield enhanced output from solar cells, in connection with friction and wear reduction in automobiles, and buoyancy suppression in free convective heat transfer. Moreover, this unique resource presents the latest research on nanoscale transport phenomena and concludes with a look at likely future trends.

Computational Methods and Experimental Measurements XVIII Sep 24 2019 Papers presented at the CMEM 2017 conference form this book, which includes research from scientists, researchers and specialists who perform experiments, develop computer codes and carry out measurements on prototypes. A wide variety of topics related to new experimental and computational methods are explored.

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