

Thermodynamics 1 By Hipolito Sta Maria

Proceedings of the NATO Advanced Research Workshop on Petrology and Geochemistry of Granulites, Clermont-Ferrand, France, September 5-9, 1988

Owing to new physical, technological, and device concepts of low-dimensional electronic systems, the physics and fabrication of quasi-zero, one- and two-dimensional systems are rapidly growing fields. The contributions presented in this volume cover results of nanostructure fabrication including recently developed techniques, for example, tunneling probe techniques and molecular beam epitaxy, quantum transport including the integer and fractional quantum Hall effect, optical and transport studies of the two-dimensional Wigner solid, phonon studies of low-dimensional systems, and Si/SiGe heterostructures and superlattices. To the readers new in the field this volume gives a comprehensive introduction and for the experts it is an update of their knowledge and a great help for decisions about future research activities.

Steam Tables Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases —English Units By Joseph H. Keenan, M.I.T.; Frederick G. Keyes, M.I.T.; Philip G. Hill, Queen's University; and Joan G. Moore, M.I.T. During the past decade a substantial body of experimental data on thermodynamic and transport properties of water has been produced and published by research groups in the USSR, Great Britain, Czechoslovakia, Canada and the United States. This book presents the results of a new and independent correlation of all this new thermodynamic data and all previously existing data. It is a new work to replace the well-known and widely used Keenan and Keyes tables. The tables in this new book are based upon a unique accomplishment. For the first time the whole body of high-quality experimental data on liquid and vapor water has been faithfully represented by a single fundamental equation. From this equation all thermodynamic properties can be calculated for any state. This equation is believed to extrapolate dependably in temperature from the upper limit of precise measurement (about 1500°F) to about 2400°F. Because of the increasing importance to both the practicing engineer and the student of a wide variety of problems that cannot be approximated by steady-flow idealization, internal energies are tabulated for all states: saturated liquid and vapor, compressed liquid, and superheated vapor. A reasonable range of metastable states is covered as extensions of the superheated-vapor and compressed-liquid tables. The Mollier and temperature-entropy charts are extended to substantially higher pressures and temperatures. This book also includes a table for ice-vapor equilibrium, an improved chart of isentropic exponents, charts of Prandtl number, a set of charts of heat capacity of liquid and vapor, and extensive tables of viscosity and thermal conductivity reproduced from the documents of the Sixth International Conference on the Properties of Steam. The book features legible type set by a computer-controlled typesetting machine. This results in accuracy, compactness, and convenience.

This Book Presents A Systematic Account Of The Concepts And Principles Of Engineering Thermodynamics And The Concepts And Practices Of Thermal Engineering. The Book Covers Basic Course Of Engineering Thermodynamics And Also Deals With The Advanced Course Of Thermal Engineering. This Book Will Meet The Requirements Of The Undergraduate Students Of Engineering And Technology Undertaking The Compulsory Course Of Engineering Thermodynamics. The Subject Matter Of Book Is Sufficient For The Students Of Mechanical Engineering/Industrial-Production Engineering, Aeronautical Engineering, Undertaking Advanced Courses In The Name Of Thermal Engineering/Heat Engineering/ Applied Thermodynamics Etc. Presentation Of The Subject Matter Has Been Made In Very Simple And Understandable Language. The Book Is Written In SI System Of Units And Each Chapter Has Been Provided With Sufficient Number Of Typical Numerical Problems Of Solved And Unsolved Questions With Answers.

Noted for its practical, student-friendly approach to graduate-level mechanics, this volume is considered one of the top references—for students or professionals—on the subject of elasticity and stress in construction. The author presents many examples and applications to review and support several foundational concepts. The more advanced concepts in elasticity and stress are analyzed and introduced gradually, accompanied by even more examples and engineering applications in addition to numerous illustrations. Chapter problems are carefully arranged from the basic to the more challenging. The author covers computer methods, including FEA and computational/equation-solving software, and, in many cases, classical and numerical/computer approaches.

This book focuses on the widely used experimental techniques available for the structural, morphological, and spectroscopic characterization of materials. Recent developments in a wide range of experimental techniques and their application to the quantification of materials properties are an essential side of this book. Moreover, it provides concise but thorough coverage of the practical and theoretical aspects of the analytical techniques used to characterize a wide variety of functional nanomaterials. The book provides an overview of widely used characterization techniques for a broad audience: from beginners and graduate students, to advanced specialists in both academia and industry.

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.

For high school biology students and college zoology students, as well as for all students of nature, this coloring book teaches the structure and function of the major animal groups, from simple to complex. Brief, informative texts accompany each drawing.

This book highlights recent advances in and diverse techniques for exploring the plasma membrane's structure and function. It starts with two chapters reviewing the history of membrane research and listing recent advances regarding membrane structure, such as the semi-mosaic model for red blood cell membranes and the protein layer-lipid-protein island model for nucleated tissue cell membranes. It subsequently focuses on the localization and interactions of membrane components, dynamic processes of membrane transport and transmembrane signal transduction. Classic and cutting-edge techniques (e.g. high-resolution atomic force microscopy and super-resolution fluorescence microscopy) used in biophysics and chemistry are presented in a very comprehensive manner, making them useful and accessible to both researchers in the field and novices studying cell membranes. This book provides readers a deeper understanding of the plasma membrane's organization at the single molecule level and opens a new way to reveal the relationship between the membrane's structure and functions, making it essential reading for researchers in various fields.

Concerns over dwindling fossil fuel reserves and impending climate changes have focused attention worldwide on the need to discover alternative, sustainable energy sources and fuels. Biofuels, already produced on a massive industrial scale, are seen as one answer to these problems. However, very real concerns over the effects of biofuel production on food supplies, with some of the recent increases in worldwide food costs attributable to biofuel production, have led to the realization that new, non-food substrates for biofuel production must be sought. This book is an authoritative, comprehensive, up-

to-date review of the various options under development for the production of advanced biofuels as alternative energy sources. A general overview and introductory chapters for each section place the field in the context as well as provide essential basic notions for the more general reader. Accomplished, internationally recognized experts carrying out research on individual focus areas contribute specific technical chapters detailing present progress and future prospects.

The book addresses the problem of passivation at the surface of crystalline silicon solar cells. More specifically, it reports on a high-throughput, industrially compatible deposition method for Al₂O₃, enabling its application to commercial solar cells. One of the main focus is on the analysis of the physics of Al₂O₃ as a passivating dielectric for silicon surfaces. This is accomplished through a comprehensive study, which moves from the particular, the case of aluminium oxide on silicon, to the general, the physics of surface recombination, and is able to connect theory with practice, highlighting relevant commercial applications.

Offering a deep insight into the venture capital deal-making process, Raising Venture Capital also provides valuable introduction to the subject. The book is practical in focus but based on sound academic theory, research and teaching materials gathered over the last 4 years at Tanaka Business School. Part one covers the history of the venture capital industry, shows why entrepreneurs need venture capital finance, and looks at how venture capitals raise and structure their funds. It also covers valuation methods for venture capital investments, and portfolio management. Part two illustrates how successful entrepreneurs raise finance from venture capitals, and gives details on how to approach venture capitals, how to choose the right venture capital firm, and how venture capitals and entrepreneurs work together after the deal is done. Part three gives a blow-by-blow account of the structure of a venture capital deal.

Reproduction of the original: The Sceptical Chymist by Robert Boyle

"In response to the growing economic and technological importance of polymers, ceramics, and semi-conductors, many materials science and engineering as they apply to all the classes of materials."--Back cover.

The Role of Plant Roots in Crop Production presents the state of knowledge on environmental factors in root growth and development and their effect on the improvement of the yield of annual crops. This book addresses the role of roots in crop production and includes references to numerous annual crops. In addition, it brings together the issues and the state-of-the-art technologies that affect root growth, with comprehensive reviews to facilitate efficient, sustainable, economical, and environmentally responsible crop production. Written for plant scientists, crop scientists, horticulturalists, and soil scientists, plant physiologists, breeders, environmental scientists, agronomists, and undergraduate and graduate students in different disciplines of agricultural science, The Role of Plant Roots in Crop Production: Addresses root architecture and development dynamics to help users improve crop productivity Emphasizes crop production, plant nutrition, and soil chemistry relative to root growth and functions Covers root morphology, root functions, nutrient and water uptake by roots, root-soil interactions, root-environment interactions, root-microbe interactions, physiology of root crops, and management practices to improve root growth Supports content with experimental results, and additional data is presented with pictures Increasing food production worldwide has become a major issue in the 21st century. Stagnation in grain yield of important food crops in recent years in developed, as well as developing, countries has contributed to a sharp increase in food prices. Furthermore, higher grain yield will be needed in the future to feed a burgeoning world population with a rising standard of living that requires more grain per capita. Technologies that enhance productivity, ensure environmental safety, and conserve natural resources are required to meet this challenge.

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.

The text begins by reviewing, in a simple and precise manner, the physical principles of three pillars of Refrigeration and Air Conditioning, namely thermodynamics, heat transfer, and fluid mechanics. Following an overview of the history of refrigeration, subsequent chapters provide exhaustive coverage of the principles, applications and design of several types of refrigeration systems and their associated components such as compressors, condensers, evaporators, and expansion devices. Refrigerants too, are studied elaboratively in an exclusive chapter. The second part of the book, beginning with the historical background of air conditioning in Chapter 15, discusses the subject of psychrometrics being at the heart of understanding the design and implementation of air conditioning processes and systems, which are subsequently dealt with in Chapters 16 to 23. It also explains the design practices followed for cooling and heating load calculations. Each chapter contains several worked-out examples that clarify the material discussed and illustrate the use of basic principles in engineering applications. Each chapter also ends with a set of few review questions to serve as revision of the material learned.

Artificial Intelligence Illuminated presents an overview of the background and history of artificial intelligence, emphasizing its importance in today's society and potential for the future. The book covers a range of AI techniques, algorithms, and methodologies, including game playing, intelligent agents, machine learning, genetic algorithms, and Artificial Life. Material is presented in a lively and accessible manner and the author focuses on explaining how AI techniques relate to and are derived from natural systems, such as the human brain and evolution, and explaining how the artificial equivalents are used in the real world. Each chapter includes student exercises and review questions, and a detailed glossary at the end of the book defines important terms and concepts highlighted throughout the text.

This is the first comprehensive book focusing on the form and function of insect mouthparts. Written by leading experts, it reviews the current knowledge on feeding types and the evolution of mouthparts and presents new research approaches. The richly illustrated articles cover topics ranging from functional morphology, biomechanics of biting and chewing, and the biophysics of fluid-feeding to the morphogenesis and genetics of mouthpart development, ecomorphology in flower-visiting insects as well as the evolution of mouthparts, including fossil records. Intended

