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Microcalorimetry of Macromolecules Penguin (Non-Classics)
Examining the physical basis of the structure ofmacromolecules—proteins, nucleic acids, and theircomplexes—using calorimetric techniques Many scientists working in biology are unfamiliar with thebasics of thermodynamics and its role in determining molecularstructures. Yet measuring the heat of structural change a moleculeundergoes under various conditions yields information on theenergies involved and, thus, on the physical bases of theconsidered structures. Microcalorimetry of Macromoleculesoffers protein scientists unique access to this importantinformation. Divided into thirteen chapters, the book introduces readers tothe basics of thermodynamics as it applies to calorimetry, theevolution of the calorimetric technique, as well as howcalorimetric techniques are used in the thermodynamic studies ofmacromolecules, detailing instruments for measuring the heateffects of various processes. Also provided is general informationon the structure of biological macromolecules, proteins, andnucleic acids, focusing on the key thermodynamic problems relatingto their structure. The book covers: The use of supersensitive calorimetric instruments, includingmicro and nano-calorimeters for measuring the heat of isothermalreactions (Isothermal Titration Nano-Calorimeter), the heatcapacities over a broad temperature range (ScanningNano-Calorimeter), and pressure effects (Pressure PerturbationNano-Calorimeter) Two of the simplest but key structural elements: the ? andpolyproline helices and their complexes, the ?-helicalcoiled-coil, and the pyroline coiled-coils Complicated macromolecular formations, including small globularproteins, multidomain proteins and their complexes, and nucleicacids Numerous examples of measuring the ground state of proteinenergetics, as well as changes seen when proteins interact The book also reveals how intertwined structure andthermodynamics are in terms of a macromolecule's organization,mechanism of formation, the stabilization of its three-dimensionalstructure, and ultimately, its function. The first book to describemicrocalorimetric technique in detail, enough for graduate studentsand research scientists to successfully plumb the structuralmysteries of proteins and the double helix, Microcalorimetry ofMacromolecules is an essential introduction to using amicrocalorimeter in biological studies.
¡Avancemos!. Chemistry 2eBiocalorimetry 2Applications of Calorimetry in the Biological Sciences
Particle physics is the science that pursues the age-old quest for the innermost structure of matter and the fundamental interactions between its constituents. Modern experiments in this field rely increasingly on calorimetry, a detection technique in which the particles of interest are absorbed in the detector. Calorimeters are very intricate instruments. Their performance characteristics depend on subtle, sometimes counter-intuitive design details. Written by one of the world's foremost experts, Calorimetry is the first comprehensive text on this topic. It provides a fundamental and systematic introduction to calorimetry. It describes the state of the art in terms of both the fundamental understanding of calorimetric particle detection, and the actual detectors that have been or are being built and operated in experiments. The last chapter discusses landmark scientific discoveries in which calorimetry has played an important role. This book summarizes and puts into perspective the work described in some 900 scientific papers, listed in the bibliography. This second edition emphasizes new developments that have taken place since the first edition appeared in 2000.
Psychiatric Nursing Academic Press
Transports students beyond the classroom on an exciting journey through the diverse Spanish-speaking world. The perfect blend of culture, instruction and interaction enables and motivates students to succeed. Units are built around countries and cities. Relevant instruction is based on multi-tiered differentiation in presentation, practice, and assessments.
Quantitative Understanding of Biosystems World Scientific
As a result of the Process Analytical Technologies (PAT) initiative launched by the U.S. Food and Drug Administration (FDA), analytical development is receiving more attention within the pharmaceutical industry. Illustrating the importance of analytical methodologies, Thermal Analysis of Pharmaceuticals presents reliable and versatile charac
A Concept Book for Process Safety Oxford University Press, USA
"Climate change. Water contamination. Air pollution. Food shortages. These and other global issues are regularly featured in the media. However, did you know that chemistry plays a crucial role in addressing these challenges? A knowledge of chemistry is also essential to improve the quality of our lives. For instance, faster electronic devices, stronger plastics, and more effective medicines and vaccines all rely on the innovations of chemists throughout the world. With our world so dependent on chemistry, it is unfortunate that most chemistry textbooks do not provide significant details regarding real-world applications. Enter Chemistry in Context-"the book that broke the mold." Since its inception in 1993, Chemistry in Context has focused on the presentation of chemistry fundamentals within a contextual framework"--
Applications of Calorimetry in the Biological Sciences John Wiley & Sons Incorporated
In the past decades, the scan rate range of calorimeters has been extended tremendously at the high end, from approximately 10 up to 10 000 000 ° C/s and more. The combination of various calorimeters and the newly-developed Fast Scanning Calorimeters (FSC) now span 11 orders of magnitude, by which many processes can be mimicked according to the time scale(s) of chemical and

physical transitions occurring during cooling, heating and isothermal stays in case heat is exchanged. This not only opens new areas of research on polymers, metals, pharmaceuticals and all kinds of substances with respect to glass transition, crystallization and melting phenomena, it also enables in-depth study of metastability and reorganization of samples on an 1 to 1000 ng scale. In addition, FSC will become a crucial tool for understanding and optimization of processing methods at high speeds like injection molding. The book resembles the state-of-the art in Thermal Analysis & Calorimetry and is an excellent starting point for both experts and newcomers in the field.

The Physical Basis of Biological Structures National Academies Press

This classic sets forth the fundamentals of thermodynamics and kinetic theory simply enough to be understood by beginners, yet with enough subtlety to appeal to more advanced readers, too.

Chemistry 2e Royal Society of Chemistry

This is the only authoritative textbook on metabolic measurement of animals, ranging in mass from fruit flies to whales. It integrates a rigorous theoretical background with detailed practical guidelines for making actual measurements in the field and laboratory.

Beyond the Molecular Frontier CRC Press

Introducing the Pearson Physics Queensland 11 Skills and Assessment Book. Fully aligned to the new QCE 2019 Syllabus. Write in Skills and Assessment Book written to support teaching and learning across all requirements of the new Syllabus, providing practice, application and consolidation of learning. Opportunities to apply and practice performing calculations and using algorithms are integrated throughout worksheets, practical activities and question sets. All activities are mapped from the Student Book at the recommend point of engagement in the teaching program, making integration of practice and rich learning activities a seamless inclusion. Developed by highly experienced and expert author teams, with lead Queensland specialists who have a working understand what teachers are looking for to support working with a new syllabus.

Drinking Water and Health, Volume 7 Royal Society of Chemistry

Emphasises on contemporary applications and an intuitive problem-solving approach that helps students discover the exciting potential of chemical science. This book incorporates fresh applications from the three major areas of modern research: materials, environmental chemistry, and biological science.

Chemistry 2e John Wiley & Sons

Diet and Health examines the many complex issues concerning diet and its role in increasing or decreasing the risk of chronic disease. It proposes dietary recommendations for reducing the risk of the major diseases and causes of death today: atherosclerotic cardiovascular diseases (including heart attack and stroke), cancer, high blood pressure, obesity, osteoporosis, diabetes mellitus, liver disease, and dental caries.

Challenges for Chemistry and Chemical Engineering National Academies Press

Chemistry 2eBiocalorimetry 2Applications of Calorimetry in the Biological SciencesJohn Wiley & Sons

University Physics Springer

This book contains microscale experiments designed for use in schools and colleges.

Disinfectants and Disinfectant By-Products John Wiley & Sons

Advances in Protein Molecular and Structural Biology Methods offers a complete overview of the latest tools and methods applicable to the study of proteins at the molecular and structural level. The book begins with sections exploring tools to optimize recombinant protein expression and biophysical techniques such as fluorescence spectroscopy, NMR, mass spectrometry, cryo-electron microscopy, and X-ray crystallography. It then moves towards computational approaches, considering structural bioinformatics, molecular dynamics simulations, and deep machine learning technologies. The book also covers methods applied to intrinsically disordered proteins (IDPs)followed by chapters on protein interaction networks, protein function, and protein design and engineering. It provides researchers with an extensive toolkit of methods and techniques to draw from when conducting their own experimental work, taking them from foundational concepts to practical application. Presents a thorough overview of the latest and emerging methods and technologies for protein study Explores biophysical techniques, including nuclear magnetic resonance, X-ray crystallography, and cryo-electron microscopy Includes computational and machine learning methods Features a section dedicated to tools and techniques specific to studying intrinsically disordered proteins

Calorimetry Macmillan Higher Education

Following significant advances in deep learning and related areas interest in artificial intelligence (AI) has rapidly grown. In particular, the application of AI in drug discovery provides an opportunity to tackle challenges that previously have been difficult to solve, such as predicting properties, designing molecules and optimising synthetic routes. Artificial Intelligence in Drug Discovery aims to introduce the reader to AI and machine learning tools and techniques, and to outline specific challenges including designing new molecular structures, synthesis planning and simulation. Providing a wealth of information from leading experts in the field this book is ideal for students, postgraduates and established researchers in both industry and academia.

Chemistry in Context John Wiley & Sons

Chlorination in various forms has been the predominant method of drinking water disinfection in the United States for more than 70 years. The seventh volume of the Drinking Water and Health series addresses current methods of drinking water disinfection and compares standard chlorination techniques with alternative methods. Currently used techniques are discussed in terms of their chemical activity, and their efficacy against waterborne pathogens, including bacteria, cysts, and viruses, is compared. Charts, tables, graphs, and case studies are used to analyze the effectiveness of chlorination, chloramination, and ozonation as disinfectant processes and to compare these methods for their production of toxic by-products. Epidemiological case studies on the toxicological effects of chemical by-products in drinking water are also presented.

Spherical Proportional Counter Springer Science & Business Media

Inquiries in Science Chemistry Series- Examining Thermochemistry Teacher's Guide

Analysis and Design of Food Systems Springer Science & Business Media

University Physics is designed for the two- or three-semester calculus-based physics course. The text has been developed to meet the scope and sequence of most university physics courses and provides a foundation for a career in mathematics, science, or engineering. The book provides an important opportunity for students to learn the core concepts of physics and understand how those concepts apply to their lives and to the world around them. Due to the comprehensive nature of the material, we are offering the book in three volumes for flexibility and efficiency. Coverage and Scope Our University Physics textbook adheres to the scope and sequence of most two- and three-semester physics courses nationwide. We have worked to make physics interesting and accessible to students while maintaining the mathematical rigor inherent in the subject. With this objective in mind, the content of this textbook has been developed and arranged to provide a logical progression from fundamental to more advanced concepts, building upon what students have already learned and emphasizing connections between topics and between theory and applications. The goal of each section is to enable students not just to recognize concepts, but to work with them in ways that will be useful in later courses and future careers. The organization and pedagogical features were developed and vetted with feedback from science educators dedicated to the project. VOLUME I Unit 1: Mechanics Chapter 1: Units and Measurement Chapter 2: Vectors Chapter 3: Motion Along a Straight Line Chapter 4: Motion in Two and Three Dimensions Chapter 5: Newton's Laws of Motion Chapter 6: Applications of Newton's Laws Chapter 7: Work and Kinetic Energy Chapter 8: Potential Energy and

Conservation of Energy Chapter 9: Linear Momentum and Collisions Chapter 10: Fixed-Axis Rotation Chapter 11: Angular Momentum Chapter 12: Static Equilibrium and Elasticity Chapter 13: Gravitation Chapter 14: Fluid Mechanics Unit 2: Waves and Acoustics Chapter 15: Oscillations Chapter 16: Waves Chapter 17: Sound

Microscale Chemistry Royal Society of Chemistry

Chocolate is available to today's consumers in a variety of colours, shapes and textures. But how many of us, as we savour our favourite brand, consider the science that has gone into its manufacture? This book describes the complete chocolate making process, from the growing of the beans to the sale in the shops. The Science of Chocolate first describes the history of this intriguing substance. Subsequent chapters cover the ingredients and processing techniques, enabling the reader to discover not only how confectionery is made but also how basic science plays a vital role with coverage of scientific principles such as latent and specific heat, Maillard reactions and enzyme processes. There is also discussion of the monitoring and controlling of the production process, and the importance, and variety, of the packaging used today. A series of experiments, which can be adapted to suit students of almost any age, is included to demonstrate the physical, chemical or mathematical principles involved. Ideal for those studying food science or about to join the confectionery industry, this mouth-watering title will also be of interest to anyone with a desire to know more about the production of the world's favourite confectionery.

An Introduction for Practitioners John Wiley & Sons

Intelligence quotient, as a useful means of measuring brain capacity, has come increasingly into the public eye in recent years. This famous book (and its sequel Check Your Own IQ) enables the reader to estimate and confirm his/her own IQ rating.