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Tools and Applications of Biochemical Engineering Science - K. Schügerl 2003-07-01
This special volume "Tools and Applications of Biochemical Engineering Science" is dedicated to Professor Wolf-Dieter Deckwer on the occasion of his 60th bir- day. It was a great pleasure for me to act together with Professor Karl Schtigerl as volume editor and to present here a collection of 11 outstanding review articles written mainly by former students, associates, colleagues and friends of Wolf- Dieter Deckwer. The title of this special volume well reflects the research interests and sci- tific pursuit of Wolf-Dieter Deckwer during his more than 20 years' work in the area of biochemical engineering, particularly during the last 15 years when he was the head of the Biochemical Engineering Division of GBF (German Nat- nal Research Center for Biotechnology). He has decisively pushed the devel- ment not only of "software tools" ranging from analytical means and mathe- tical models for monitoring and understanding cellular processes to gene expression systems for designing microorganisms, but also of "hardware tools" such as computer control systems, bioreaction and separation devices for eff- tively producing a variety of bioproducts on semi-production scale. New developments in some of these important tools in biochemical engineering are reviewed in articles included in this volume. Wolf-Dieter Deckwer was among the leading biochemical engineers who timely pointed out the necessity of applying these tools in an integrated manner for bioprocess development. By establishing "Integrated Bioprocess Development" as one of the GBF main - search topics as early as 1990 he also actively promoted this idea.
Immobilization Strategies - Anuj Tripathi 2020-10-28
This book delves into the field of immobilizing biologically active and non-active molecules. It discusses the designing strategy of immobilization and the current state-of-the-art applications for advancing biomedical, agricultural, environmental and industrial practices. It focuses on aspects ranging from fundamental principles to current technological advances at multi-scale levels (macro, micro, and nano) which are suitable for cell, enzyme, and nano-catalyst based applications. Written by experts from across the globe, the contents deal with illustrated examples of molecular and cellular interactions with materials/scaffolds and discussions on factors that can affect the functionality and yield of the process. With its discussions on material science, design of delivery vehicles, separation science, additive manufacturing, agriculture and environmental science, this book will be a useful reference for researchers across multiple disciplines.
Introduction to Protein Structure - Carl Ivar Branden 2012-03-26
The VitalBook e-book of Introduction to Protein Structure, Second Edition is inly available in the US and Canada at the present time. To purchase or rent please visit http://store.vitalsource.com/show/9780815323051Introduction to Protein Structure provides an account of the principles of protein structure, with examples of key proteins in their bio
Enzymes in Lipid Modification - Deutsche

Gesellschaft für Fettwissenschaft 2000-09-13
Enzymatic methods of lipid modification, particularly of fats and oils, have developed rapidly since the 1980s. In parallel to the rapid progress in research a wide range of applications have emerged, e.g. in the food industry. The book is written by leading experts in the field and reflects the state-of-the-art of enzymatic lipid modification. It provides the reader with guidelines how to select suitable enzymes and how to apply them efficiently. Applications of lipases and phospholipases, lipoxygenases and P450-monooxygenases and the use of whole-cell systems in lipid modification are described. Cloning, expression and mutagenesis as well as attempts to understand the molecular basis of specificity and stereoselectivity are outlined. In addition engineering aspects and the choice of solvent systems are addressed.

Biothermodynamics - Urs von Stockar 2013-05-30
This book covers the fundamentals of the rapidly growing field of biothermodynamics, showing how thermodynamics can best be applied to applications and processes in biochemical engineering. It describes the rigorous application of thermodynamics in biochemical engineering to rationalize bioprocess development and obviate a substantial fraction of this need for tedious experimental work. As such, this book will appeal to a diverse group of readers, ranging from students and professors in biochemical engineering, to scientists and engineers, for whom it will be a valuable reference.

Darwin's Black Box - Michael J. Behe 1996
Questioning how evolution can explain the complex chemical processes scientists are finding in humans using new technology, a unique argument for creation by either God or another higher intelligence emerges to contradict currently accepted theories. 20,000 first printing.

Extractive Bioconversions - B. Mattiasson 2021-07-29
Contributors from European and US universities and corporations review recent developments in the integration of downstream processing and bioconversion, describing their experience with many separation technologies, including some still in the experimental stage. The topics include the construction

Transport Phenomena in Biological Systems - George A. Truskey 2009
For one-semester, advanced undergraduate/graduate courses in Biotransport Engineering. Presenting engineering fundamentals and biological applications in a unified way, this text provides students with the skills necessary to develop and critically analyze models of biological transport and reaction processes. It covers topics in fluid mechanics, mass transport, and biochemical interactions, with engineering concepts motivated by specific biological problems.

Recent Awards in Engineering - 1983

National Library of Medicine Current Catalog - National Library of Medicine (U.S.)

Basic Bioreactor Design - Klaas van't Riet 1991-01-07
Based on a graduate course in biochemical engineering, provides the basic knowledge needed for the efficient design of bioreactors and the relevant principles and data for practical process engineering, with an emphasis on enzyme reactors and aerated reactors for microorganisms. Includes exercises,

Foundations of Biochemical Engineering - American Chemical Society. Division of Industrial and Engineering Chemistry. Winter Symposium 1983

Sm Biochem Eng - Blanch Clark 1997-02

Bioorganic Chemistry - H. Dugas 2013-03-13
Springer Advanced Texts in Chemistry New textbooks at all levels of chemistry appear with great regularity. Some fields like basic biochemistry, organic reaction mechanisms, and chemical ther modynamics are well represented by many excellent texts, and new or revised editions are published sufficiently often to keep up with progress in research. However, some areas of chemistry, especially many of those taught at the graduate level, suffer from a real lack of up-to-date textbooks. The most serious needs occur in fields that are rapidly changing. Textbooks in these subjects usually have to be written by scientists actually involved in the

research which is advancing the field. It is not often easy to persuade such individuals to set time aside to help spread the knowledge they have accumulated. Our goal, in this series, is to pinpoint areas of chemistry where recent progress has outpaced what is covered in any available textbooks, and then seek out and persuade experts in these fields to produce relatively concise but instructive introductions to their fields. These should serve the needs of one semester or one quarter graduate courses in chemistry and biochemistry. In some cases the availability of texts in active research areas should help stimulate the creation of new courses. New York, New York CHARLES R.

Environmental Health Perspectives - 1998

Biochemical Engineering, Second Edition - Douglas S. Clark 1997-02-14

This work provides comprehensive coverage of modern biochemical engineering, detailing the basic concepts underlying the behaviour of bioprocesses as well as advances in bioprocess and biochemical engineering science. It includes discussions of topics such as enzyme kinetics and biocatalysis, microbial growth and product formation, bioreactor design, transport in bioreactors, bioproduct recovery and bioprocess economics and design. A solutions manual is available to instructors only.

Vascular Development - Derek J. Chadwick 2007-08-20

The formation of blood vessels is an essential aspect of embryogenesis in vertebrates. It is a central feature of numerous post-embryonic processes, including tissue and organ growth and regeneration. It is also part of the pathology of tumour formation and certain inflammatory conditions. In recent years, comprehension of the molecular genetics of blood vessel formation has progressed enormously and studies in vertebrate model systems, especially the mouse and the zebrafish, have identified a common set of molecules and processes that are conserved throughout vertebrate embryogenesis while, in addition, highlighting aspects that may differ between different animal groups. The discovery in the past decade of the crucial role of new blood vessel formation for the development of cancers has generated great interest in angiogenesis (the formation of new blood vessels from pre-existing ones), with its major implications for potential cancer-control strategies. In addition, there are numerous situations where therapeutic treatments either require or would be assisted by vasculogenesis (the de novo formation of blood vessels). In particular, post-stroke therapies could include treatments that stimulate neovascularization of the affected tissues. The development of such treatments, however, requires thoroughly understanding the developmental properties of endothelial cells and the basic biology of blood vessel formation. While there are many books on angiogenesis, this unique book focuses on exactly this basic biology and explores blood vessel formation in connection with tissue development in a range of animal models. It includes detailed discussions of relevant cell biology, genetics and embryogenesis of blood vessel formation and presents insights into the cross-talk between developing blood vessels and other tissues. With contributions from vascular biologists, cell biologists and developmental biologists, a comprehensive and highly interdisciplinary volume is the outcome.

Principles of Fermentation Technology - Peter F. Stanbury 2013-10-22

This second edition has been thoroughly updated to include recent advances and developments in the field of fermentation technology, focusing on industrial applications. The book now covers new aspects such as recombinant DNA techniques in the improvement of industrial micro-organisms, as well as including comprehensive information on fermentation media, sterilization procedures, inocula, and fermenter design. Chapters on effluent treatment and fermentation economics are also incorporated. The text is supported by plenty of clear, informative diagrams. This book is of great interest to final year and post-graduate students of applied biology, biotechnology, microbiology, biochemical and chemical engineering.

Biotechnology and Food Process Engineering - Henry G. Schwartzberg 1990-05-23

Biotechnology and its implication for the future, introduction to bio reactor engineering, bioreactor considerations for producing flavors and pigments from plant tissue culture,

membrane bioreactors: enzime processes, food freeze concentration, supercritical fluid extraction, drying of foods, aseptic processing of foods, encapsulation and con trolled release do food components, extrusion of foods, developments in microwave food processing, robotics in food processing, integrationof computers in food processing.

Improving Service Quality in the Global Economy - Michael Milakovich 2005-08-03

Within American service sector organizations there exists a gap between understanding customer service quality improvement (QI) theories and applying them. Improving Service Quality in the Global Economy: Achieving High Performance in Public and Private Sectors, Second Edition fills that gap by presenting theory, application models, and cases of successful customer service QI efforts in both the public and private sectors. The book emphasizes the selection and development of strategies for quality improvement in regulated public non-market-driven services such as education, government, and healthcare. This revised edition promotes managerial thinking that integrates QI and Knowledge Management (KM) concepts with leadership principles that enable effective responses to the changing demands of the global economy. The text provides step-by-step guidelines, recommendations, and action plans for implementing quality improvements in service sector industries, which now generate two-thirds of America's GDP. Throughout this volume, cases of successful QI efforts in service industries complement major points in each chapter, offering profiles of global service quality leaders that serve as examples to organizations in the public sector. Current and future managers will gain insight into how the global service quality revolution effects their daily work environments, inspiring improvement in products, services, and support that American companies provide to markets worldwide.

Current Catalog National Library of Medicine (U.S.)

First multi-year cumulation covers six years: 1965-70.

A Century of Excellence in Measurements, Standards, and Technology - David R. Lide 2018-02-06

Established by Congress in 1901, the National Bureau of Standards (NBS), now the National Institute of Standards and Technology (NIST), has a long and distinguished history as the custodian and disseminator of the United States' standards of physical measurement. Having reached its centennial anniversary, the NBS/NIST reflects on and celebrates its first century with this book describing some of its seminal contributions to science and technology. Within these pages are 102 vignettes that describe some of the Institute's classic publications. Each vignette relates the context in which the publication appeared, its impact on science, technology, and the general public, and brief details about the lives and work of the authors. The groundbreaking works depicted include: A breakthrough paper on laser-cooling of atoms below the Doppler limit, which led to the award of the 1997 Nobel Prize for Physics to William D. Phillips The official report on the development of the radio proximity fuse, one of the most important new weapons of World War II The 1932 paper reporting the discovery of deuterium in experiments that led to Harold Urey's1934 Nobel Prize for Chemistry A review of the development of the SEAC, the first digital computer to employ stored programs and the first to process images in digital form The first paper demonstrating that parity is not conserved in nuclear physics, a result that shattered a fundamental concept of theoretical physics and led to a Nobel Prize for T. D. Lee and C. Y. Yang "Observation of Bose-Einstein Condensation in a Dilute Atomic Vapor," a 1995 paper that has already opened vast new areas of research A landmark contribution to the field of protein crystallography by Wlodawer and coworkers on the use of joint x-ray and neutron diffraction to determine the structure of proteins

Routledge Library Editions: Philosophy of Time - Various Authors 2021-03-05

Reissuing five works originally published between 1937 and 1991, this collection contains books addressing the subject of time, from a mostly philosophic point of view but also of interest to those in the science and mathematics worlds. These texts are brought back into print in this small set of works addressing how we think about time, the history of the philosophy of time, the measurement of time, theories of

relativity and discussions of the wider thinking about time and space, among other aspects. One volume is a thorough bibliography collating references on the subject of time across many disciplines.

Time: A Bibliographic Guide - Samuel L. Macey 2018-10-10

Originally published in 1991. A multidisciplinary guide in the form of a bibliography of selected time-related books and articles divided into 25 existing academic disciplines and about 100 subdisciplines which have a wide application to time studies.

Transport Phenomena Fundamentals, Third Edition - Joel L. Plawsky 2014-01-23

The third edition of Transport Phenomena Fundamentals continues with its streamlined approach to the subject of transport phenomena, based on a unified treatment of heat, mass, and momentum transport using a balance equation approach. The new edition makes more use of modern tools for working problems, such as COMSOL®, Maple®, and MATLAB®. It introduces new problems at the end of each chapter and sorts them by topic for ease of use. It also presents new concepts to expand the utility of the text beyond chemical engineering. The text is divided into two parts, which can be used for teaching a two-term course. Part I covers the balance equation in the context of diffusive transport—momentum, energy, mass, and charge. Each chapter adds a term to the balance equation, highlighting that term's effects on the physical behavior of the system and the underlying mathematical description. Chapters familiarize students with modeling and developing mathematical expressions based on the analysis of a control volume, the derivation of the governing differential equations, and the solution to those equations with appropriate boundary conditions. Part II builds on the diffusive transport balance equation by introducing convective transport terms, focusing on partial, rather than ordinary, differential equations. The text describes paring down the microscopic equations to simplify the models and solve problems, and it introduces macroscopic versions of the balance equations for when the microscopic approach fails or is too cumbersome. The text discusses the momentum, Bournoulli, energy, and species continuity equations, including a brief description of how these equations are applied to heat exchangers, continuous contactors, and chemical reactors. The book also introduces the three fundamental transport coefficients: the friction factor, the heat transfer coefficient, and the mass transfer coefficient in the context of boundary layer theory. The final chapter covers the basics of radiative heat transfer, including concepts such as blackbodies, graybodies, radiation shields, and enclosures. The third edition incorporates many changes to the material and includes updated discussions and examples and more than 70 new homework problems.

Biomass Recalcitrance - Michael Himmel 2008-06-23

This book examines the connection between biomass structure, ultrastructure, and composition, to resistance to enzymatic deconstruction, with the aim of discovering new cost-effective technologies for biorefineries. It contains chapters on topics extending from the highest levels of biorefinery design and biomass life-cycle analysis, to detailed aspects of plant cell wall structure, chemical treatments, enzymatic hydrolysis, and product fermentation options."--Pub. desc.

Practical Fermentation Technology - Brian McNeil 2008-04-15

A hands-on book which begins by setting the context;- defining 'fermentation' and the possible uses of fermenters, and setting the scope for the book. It then proceeds in a methodical manner to cover the equipment for research scale fermentation labs, the different types of fermenters available, their uses and modes of operation. Once the lab is equipped, the issues of fermentation media, preservation strains and strain improvement strategies are documented, along with the use of mathematical modelling as a method for prediction and control. Broader questions such as scale-up and scale down, process monitoring and data logging and acquisition are discussed before separate chapters on animal cell culture systems and plant cell culture systems. The final chapter documents the way forward for fermenters and how they can be used for non-manufacturing purposes. A glossary of terms at the back of the book (along with a subject index) will prove invaluable for quick reference.Edited by

academic consultants who have years of experience in fermentation technology, each chapter is authored by experts from both industry and academia. Industry authors come from GSK (UK), DSM (Netherlands), Eli Lilly (USA) and Broadley James (UK-USA).

Biochemical Engineering Fundamentals - James Edwin Bailey 1986

Biochemical Engineering Fundamentals, 2/e, combines contemporary engineering science with relevant biological concepts in a comprehensive introduction to biochemical engineering. The biological background provided enables students to comprehend the major problems in biochemical engineering and formulate effective solutions.

The Alcohol Textbook - Kathryn Ann Jacques 2003

The Prospect of Industry 5.0 in Biomanufacturing - Pau Loke Show 2021-07-02

This is the first book to present the idea of Industry 5.0 in biomanufacturing and bioprocess engineering, both upstream and downstream. The Prospect of Industry 5.0 in Biomanufacturing details the latest technologies and how they can be used efficiently and explains process analysis from an engineering point of view. In addition, it covers applications and challenges. FEATURES Describes the previous Industrial Revolution, current Industry 4.0, and how new technologies will transition toward Industry 5.0 Explains how Industry 5.0 can be applied in biomanufacturing Demonstrates new technologies catered to Industry 5.0 Uses worked examples related to biological systems This book enables readers in industry and academia working in the biomanufacturing engineering sector to understand current trends and future directions in this field.

Introduction to Chemical Engineering Analysis - T. W. F. Russell 1972

Reactors and Reactions - Harvey W. Blanch 1981

Biocatalysts for Industry - Jonathan S. Dordick 2013-03-09

The application of enzymes or whole cells (fermentatively active or resting; microbial, plant, or animal) to carry out selective transformations of commercial importance is the central theme of industrial biocatalysis. Traditionally, biocatalysis has been in the domain of the life scientist or biochemical engineer. However, recent advances in this field have enabled biocatalytic processes to compete head on with, and in some cases out perform, conventional chemical processing. Chemo-biocatalytic systems are being developed thereby combining the most attractive features of bio catalysts, namely high specificity, with those of chemical catalysts, such as high reactivities and wide substrate specificities. Hence, synthetic chemists and chemical engineers are now beginning to use biocatalysts as highly selective reagents in chemical synthesis and processing. This book is about biocatalysts and their past, present, and potential applications in the food, pharmaceutical, and chemical industries. The con cept of the book did not emanate from a meeting. Rather, it is a compila tion of selected examples where biocatalysis either has already made a significant impact in the aforementioned industries, or has the potential to make a substantial contribution. I have been fortunate to have assembled contributions from world-class researchers in the field of biocatalysis. Their timely contributions are sincerely appreciated.

Bioprocess Engineering - Michael L. Shuler 2014

For Senior-level and graduate courses in Biochemical Engineering, and for programs in Agricultural and Biological Engineering or Bioengineering. This concise yet comprehensive text introduces the essential concepts of bioprocessing-internal structure and functions of different types of microorganisms, major metabolic pathways, enzymes, microbial genetics, kinetics and stoichiometry of growth and product information-to traditional chemical engineers and those in related disciplines. It explores the engineering principles necessary for bioprocess synthesis and design, and illustrates the application of these principles to modern biotechnology for production of pharmaceuticals and biologics, solution of environmental problems, production of commodities, and medical applications.

Applied Biocatalysis - Harvey W. Blanch 1991-06-24

Sustainable Agriculture Reviews 44 - Ankit Saneja 2020-04-30
This book covers nanotechnology based approaches for improving the therapeutic efficacy of natural products. It critically explores lipid nanoarchitectonics, inorganic particles and nanoemulsion based tools for delivering them. With its chapters from eminent experts working in this discipline, it is ideal for researchers and professionals working in the area.
Memorial Tributes - National Academy of Engineering 2016-09-16
This is the 20th Volume in the series Memorial Tributes compiled by the National Academy of Engineering as a personal remembrance of the lives and outstanding achievements of its members and foreign associates. These volumes are intended to stand as an enduring record of the many contributions of engineers and engineering to the benefit of humankind. In most cases, the authors of the tributes are contemporaries or colleagues who had personal knowledge of the interests and the engineering accomplishments of the deceased. Through its members and foreign associates, the Academy carries out the responsibilities for which it was established in 1964. Under the charter of the National Academy of Sciences, the National Academy of Engineering was formed as a parallel organization of outstanding engineers. Members are elected on the basis of significant contributions to engineering theory and practice and to the literature of engineering or on the basis of demonstrated unusual accomplishments in the pioneering of new and developing fields of technology. The National Academies share a responsibility to advise the federal government on matters of science and technology. The expertise and credibility that the National Academy of Engineering brings to that task stem directly from the abilities, interests, and achievements of our members and foreign associates, our colleagues and friends, whose special gifts we remember in this book.
Biochemical Engineering - Douglas S. Clark 1997-02-14
This work provides comprehensive coverage of modern biochemical engineering, detailing the basic concepts underlying the behaviour of bioprocesses as well as advances in bioprocess and biochemical engineering science. It includes discussions of topics such as enzyme kinetics and biocatalysis, microbial growth and product formation, bioreactor desig
Sustainable Agriculture Reviews 43 - Ankit Saneja 2020-05-05
This edited book comprises of eight chapters dealing on various aspects of pharmaceutical technology for delivery of natural products. Book chapters deal with the solubility and bioavailability enhancement technologies for natural products. Emphasis has also been given on the significance of delivery strategies for improving the therapeutic efficacy of paclitaxel, galantamine and tea constituents.
Handbook of Surface and Colloid Chemistry - K. S. Birdi 2015-06-25
This new edition of the Handbook of Surface and Colloid Chemistry informs you of significant recent developments in the field. It highlights new applications and provides revised insight on surface and colloid chemistry's growing role in industrial innovations. The contributors to each chapter are internationally recognized experts. Several chapter