Fundamental Bioengineering (Advanced Biotechnology)

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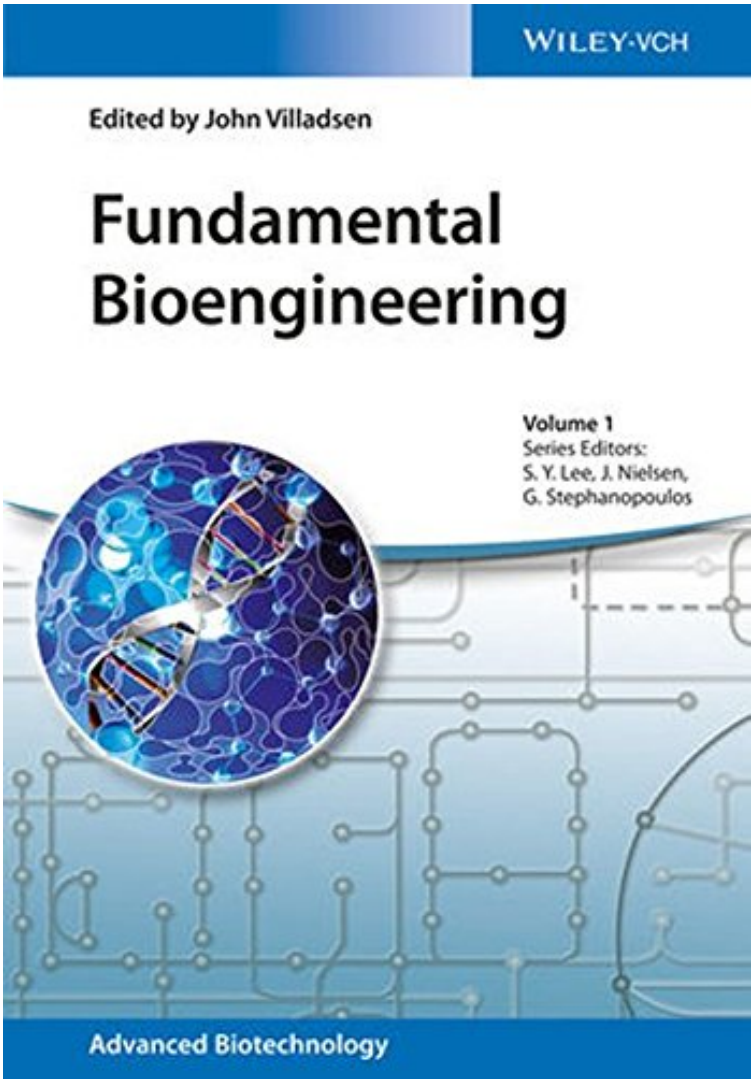

#1265201 in Books 2016-02-23Original language:EnglishPDF # 1 9.90 x 1.30 x 7.00l, .0 #File Name: 3527336745574 pages | File size: 78.Mb

From Wiley-Blackwell : Fundamental Bioengineering (Advanced Biotechnology) before purchasing it in order to gage whether or not it would be worth my time, and all praised Fundamental Bioengineering (Advanced Biotechnology):

A thorough introduction to the basics of bioengineering, with a focus on applications in the emerging "white" biotechnology industry. As such, this latest volume in the "Advanced Biotechnology" series covers the principles for the design and analysis of industrial bioprocesses as well as the design of bioremediation systems, and several

biomedical applications. No fewer than seven chapters introduce stoichiometry, kinetics, thermodynamics and the design of ideal and real bioreactors, illustrated by more than 50 practical examples. Further chapters deal with the tools that enable an understanding of the behavior of cell cultures and enzymatically catalyzed reactions, while others discuss the analysis of cultures at the level of the cell, as well as structural frameworks for the successful scale-up of bioreactions. In addition, a short survey of downstream processing options and the control of bioreactions is given.With contributions from leading experts in industry and academia, this is a comprehensive source of information peer-reviewed by experts in the field.

From the Back CoverA thorough introduction to the basics of bioengineering, with a focus on applications in the emerging "white" biotechnology industry. As such, this latest volume in the "Advanced Biotechnology" series covers the principles for the design and analysis of industrial bioprocesses as well as the design of bioremediation systems, and several biomedical applications. No fewer than seven chapters introduce stoichiometry, kinetics, thermodynamics and the design of ideal and real bioreactors, illustrated by more than 50 practical examples. Further chapters deal with the tools that enable an understanding of the behavior of cell cultures and enzymatically catalyzed reactions, while others discuss the analysis of cultures at the level of the cell, as well as structural frameworks for the successful scale-up of bioreactions. In addition, a short survey of downstream processing options and the control of bioreactions is given. Advanced Biotechnology Biotechnology is a broad, interdisciplinary field of science, combining biological sciences and relevant engineering disciplines, that is becoming increasingly important as it benefits the environment and society as a whole. Recent years have seen substantial advances in all areas of biotechnology, resulting in the emergence of brand new fields. To reflect this progress, Sang-Yup Lee (KAIST, South Korea), Jens Nielsen (Chalmers University, Sweden), and Gregory Stephanopoulos (MIT, USA) have joined forces as the editors of a new Wiley-VCH book series. Advanced Biotechnology will cover all pertinent aspects of the field and each volume will be prepared by eminent scientists who are experts on the topic in question. .About the AuthorJohn Villadsen is Professor in the Department of Chemical and Biochemical Engineering at the Technical University of Denmark (DTU) in Lyngby. He was an employee of the Danish spray drier company NIRO Atomizer in Sao Paulo (Brasil) in the late 1960's. Furthermore, John Villadsen was Professor of Chemical Engineering at the University of Houston, Texas (USA), from 1976 to 1983. In 1984 John Villadsen became head of the Department of Biotechnology at DTU, a position he occupied until 2004. In this position he focused research activities on the study and commercial use of industrially relevant microorganisms and pursued his scientific interests in the field of microbial physiology applied to lactic bacteria, yeast and filamentous fungi and the development of novel process routes for the production of bulk chemicals by fermentation. Since 2004, John Villadsen is directing a new effort at DTU to establish a working colaboration between the Department of Chemical Engineering and the BioCentrum-DTU, with the aim to develop and implement bioprocesses with industrial relevance. Sang Yup Lee is Distinguished Professor at the Department of Chemical and Biomolecular Engineering at the Korea Advanced Institute of Science and Technology (KAIST). He is currently the Dean of the College of Life Science and Bioengineering, Director of the Center for Systems and Synthetic Biotechnology, Director of the BioProcess Engineering Research Center, and Director of the Bioinformatics Research Center. He has published more than 320 journal papers, 50 books and book chapters, and more than 440 patents (either registered or applied). He received numerous awards, including the National Order of Merit, the Merck Metabolic Engineering Award and the Elmer Gaden Award. He currently is Fellow of AAAS, the American Academy of Microbiology, the Korean Academy of Science and Technology. Lee is the Editor-in-Chief of the Biotechnology Journal and Associate Editor and board member of numerous other journals. Jens Nielsen is Professor and Director to Chalmers University of Technology (Sweden) since 2008. He obtained an MSc degree in Chemical Engineering and a PhD degree (1989) in Biochemical Engineering from the Technical University of Denmark (DTU), and after that established his independent research group and was appointed full Professor there in 1998. He was Fulbright visiting professor at MIT in 1995-1996. At DTU, he founded and directed the Center for Microbial Biotechnology. Jens Nielsen has published more than 300 research papers, co-authored more than 40 books and he is inventor of more than 50 patents. He has founded several companies that have raised more than 20 million ? in venture capital. He has received numerous Danish and international awards and is member of the Academy of Technical Sciences in Denmark, National Academy of Engineering in USA, the Royal Danish Academy of Science and Letters, the American Institute for Medical and Biological Engineering, and the Royal Swedish Academy of Engineering Sciences. Professor Gregory Stephanopoulos is the W. H. Dow Professor of Chemical Engineering at the Massachusetts Institute of Technology (MIT, USA). He is also the Taplin Professor of Health Sciences and Technology (since 2011), Instructor of Bioengineering at Harvard Medical School (since 1997), Member of the International Faculty of the Technical University of Denmark (since 2001), and Director of the MEBCS program of the Singapore-MIT Alliance (since 2000). In 2014, he was nominated for the election of the 2015 President of AIChE and recently was awarded the Walker Award for Excellence in Contributions to Chemical Engineering Literature (2014) and the John Fritz Medal of the AAES (2013).