

Bioprocess Engineering

Kinetics, Biosystems, Sustainability, and Reactor Design

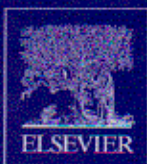
Shijie Liu

In *Bioprocess Engineering, Kinetics, Biosystems, Sustainability, and Reactor Design* Dr Shijie Liu presents an integrated approach to chemical kinetics and reactor engineering as applied to biotechnology, and sustainability. The book includes: Chemical kinetics and reactor analysis (kinetic theory, catalysis, ideal reactors, data analysis, homogeneous and heterogeneous reactions, reactor analysis and design), Essential biological basics (microorganism structure and functions, enzymes, microbial genetics, fermentation, continuous and mixed culture), and Sustainability (perspectives, process optimization, process stability).

Bioprocess Engineering, Kinetics, Biosystems, Sustainability, and Reactor Design reflects powerful advances that are transforming the field, ranging from simple chemical kinetics to metabolic pathways, from green chemistry to bioprocess stability and sustainability. It introduces techniques with broad applications to the conversion of renewable biomass; the production of chemicals, materials, pharmaceuticals, biologics, and commodities to medical applications such as tissue engineering and gene therapy; and for solving critical environmental problems. It is an invaluable resource for students, instructors, practitioners, engineers, chemists, biologists and researchers in these and other related disciplines.

Key features:

- Combines engineering and biology concepts, offering an integrated approach to chemical kinetics and reactor engineering as applied to biological systems
- Contains worked examples of the various process parameters, and outlines their significance and their specific practical use
- Uses theoretical derivations and simplifications to demonstrate how empirical kinetic models are applicable to complicated bioprocess systems
- Incorporates sustainability concepts into the various bioprocesses
- Contains extensive illustrative drawings which aid in the understanding of the subject



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