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Titolo	Fed-batch cultures : principles and applications of semi-batch bioreactors / / Henry C. Lim, University of California, Irvine, Hwa Sung Shin, Inha University [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
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Descrizione fisica	1 online resource (xvii, 457 pages) : digital, PDF file(s)
Collana	Cambridge series in chemical engineering
Disciplina	660/.6
Soggetti	Bioreactors
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction to fed-batch bioreactors -- Idealised reactors and fed-batch reactors -- Maximisation of reaction rates and fed-batch operation -- Phenomena that favour fed-batch operations -- Classification and characteristics of fed-batch cultures -- Models based on mass balance equations -- Non-equation-based models -- Experimental determination of specific rates -- Optimization via Pontryagin's maximum principle -- Computational techniques -- Optimization of single and multiple isothermal reactions -- Optimization of fed-batch cultures for cell mass production -- Optimization of fed-batch cultures for metabolites -- Simple, intuitive adaptive optimization -- Measurements, estimation and control -- Feasibility assessment and implementable feed rates.
Sommario/riassunto	Many, if not most, industrially important fermentation and bioreactor operations are carried out in fed-batch mode, producing a wide variety of products. In spite of this, there is no single book that deals with fed-

batch operations. This is the first book that presents all the necessary background material regarding the 'what, why and how' of optimal and sub-optimal fed-batch operations. Numerous examples are provided to illustrate the application of optimal fed-batch cultures. This unique book, by world experts with decades of research and industrial experience, is a must for researchers and industrial practitioners of fed-batch processes (modeling, control and optimization) in biotechnology, fermentation, food, pharmaceuticals and waste treatment industries.

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