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Titolo	Optimal Control of Switched Systems Arising in Fermentation Processes / / by Chongyang Liu, Zhaohua Gong
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Descrizione fisica	1 online resource (191 p.)
Collana	Springer Optimization and Its Applications, , 1931-6828 ; ; 97
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Soggetti	Calculus of variations Mathematical optimization Differential equations Numerical analysis Calculus of Variations and Optimal Control; Optimization Optimization Ordinary Differential Equations Numerical Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Mathematical Preliminaries -- Constrained Mathematical Programming -- Elements of Optimal Control Theory -- Optimal Control of Nonlinear Multistage Systems -- Optimal Control of Switched Autonomous Systems -- Optimal Control of Time-dependent Switched Systems -- Optimal Control of State-dependent Switched Systems -- Optimal Parameter Selection of Multistage Time-delay Systems -- Optimal Control of Multistage Time-delay Systems -- Optimal Control of Switched Time-delay Systems.
Sommario/riassunto	The book presents, in a systematic manner, the optimal controls under different mathematical models in fermentation processes. Variant mathematical models – i.e., those for multistage systems; switched

autonomous systems; time-dependent and state-dependent switched systems; multistage time-delay systems and switched time-delay systems – for fed-batch fermentation processes are proposed and the theories and algorithms of their optimal control problems are studied and discussed. By putting forward novel methods and innovative tools, the book provides a state-of-the-art and comprehensive systematic treatment of optimal control problems arising in fermentation processes. It not only develops nonlinear dynamical system, optimal control theory and optimization algorithms, but can also help to increase productivity and provide valuable reference material on commercial fermentation processes.