1.
Record Nr.	UNINA9910876943803321
Autore	Agachi Paul Serban
Titolo	Model based control : case studies in process engineering / / Paul Serban Agachi ... [et al.]
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2006
ISBN	1-281-08795-5 9786611087951 3-527-60947-4 3-527-60922-9
Descrizione fisica	1 online resource (291 p.)
Disciplina	660.2815
Soggetti	Chemical engineering Chemical process control Predictive control
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 and index.
Nota di contenuto	Model Based Control; Table of Contents; Preface; 1 Introduction; 1.1 Introductory Concepts of Process Control; 1.2 Advanced Process Control Techniques; 1.2.1 Key Problems in Advanced Control of Chemical Processes; 1.2.1.1 Nonlinear Dynamic Behavior; 1.2.1.2 Multivariable Interactions between Manipulated and Controlled Variables; 1.2.1.3 Uncertain and Time-Varying Parameters; 1.2.1.4 Deadtime on Inputs and Measurements; 1.2.1.5 Constraints on Manipulated and State Variables; 1.2.1.6 High-Order and Distributed Processes 1.2.1.7 Unmeasured State Variables and Unmeasured and Frequent Disturbances1.2.2 Classification of the Advanced Process Control Techniques; 2 Model Predictive Control; 2.1 Internal Model Control; 2.2 Linear Model Predictive Control; 2.3 Nonlinear Model Predictive Control; 2.3.1 Introduction; 2.3.2 Industrial Model-Based Control: Current Status and Challenges; 2.3.2.1 Challenges in Industrial NMPC; 2.3.3 First Principle (Analytical) Model-Based NMPC; 2.3.4 NMPC with Guaranteed Stability; 2.3.5 Artificial Neural Network (ANN)-Based Nonlinear Model Predictive Control; 2.3.5.1 Introduction

| Sommario/riassunto | Filling a gap in the literature for a practical approach to the topic, this book is unique in including a whole section of case studies presenting a wide range of applications from polymerization reactors and bioreactors, to distillation column and complex fluid catalytic cracking units. A section of general tuning guidelines of MPC is also present. These thus aid readers in facilitating the implementation of MPC in process engineering and automation. At the same time many theoretical, computational and implementation aspects of model-based control are explained, with a look at both linear and |