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Bilinear Data Reconciliation Solution TechniquesSummary; References; Chapter 5. Nonlinear Steady-State Data Reconciliation,; Formulation of Nonlinear Data Reconciliation Problems; Solution Techniques for Equality Constrained Problems; Nonlinear Programming (NLP) Methods for Inequality Constrained; Variable Classification for Nonlinear Data Reconciliation; Comparison of Nonlinear Optimization Strategies for Data Reconciliation; Summary; References; Chapter 6. Data Reconciliation in Dynamic Systems; The Need for Dynamic Data Reconciliation; Linear Discrete Dynamic System Model
Optimal State Estimation Using Kalman FilterDynamic Data Reconciliation of Nonlinear Systems; Summary; References; Chapter 7. Introduction to Gross Error Detection; Problem Statements; Basic Statistical Tests for Gross Error Detection; Gross Error Detection Using Principal Component (PC) Tests; Statistical Tests for General Steady-State Models; Techniques for Single Gross Error Identification; Detectability and Identifiability of Gross Errors; Proposed Problems; Summary; References; Chapter 8. Multiple Gross Error Identification Strategies for Steady-State Processes
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The State of the Art

Sommario/riassunto

This book provides a systematic and comprehensive treatment of the variety of methods available for applying data reconciliation techniques. Data filtering, data compression and the impact of measurement selection on data reconciliation are also exhaustively explained.Data errors can cause big problems in any process plant or refinery. Process measurements can be correupted by power supply flucutations, network transmission and signla conversion noise, analog input filtering, changes in ambient conditions, instrument malfunctioning, miscalibration, and the wear and corrosion of sen