1. Record Nr. UNINA9910830586303321

Autore	Fickelscherer Richard J
Titolo	Optimal automated process fault analysis [[electronic resource] /] / Richard J. Fickelscherer ; Daniel L. Chester
Pubbl/distr/stampa	Hoboken, N.J., : John Wiley and Sons, Inc., 2013
ISBN	1-118-48195-X 1-283-91735-1 1-118-48193-3 1-118-48196-8
Descrizione fisica	1 online resource (226 p.)
Altri autori (Persone)	ChesterDaniel L
Disciplina	660.2815 660/.2815 670
Soggetti	Chemical process control - Data processing Fault location (Engineering) - Data processing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"AIChE."
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Optimal Automated Process Fault Analysis; Contents; Foreword; Preface; Acknowledgments; 1 Motivations for Automating Process Fault Analysis; 1.1 Introduction; 1.2 CPI Trends to Date; 1.3 The Changing Role of Process Operators in Plant Operations; 1.4 Methods Currently Used to Perform Process Fault Management; 1.5 Limitations of Human Operators in Performing Process Fault Management; 1.6 The Role of Automated Process Fault Analysis; 1.7 Anticipated Future CPI Trends; 1.8 Process Fault Analysis Concept Terminology; References; 2 Method of Minimal Evidence: Model-Based Reasoning; 2.1 Overview 2.2 Introduction2.3 Method of Minimal Evidence Overview; 2.3.1 Process Model and Modeling Assumption Variable Classifications; 2.3.2 Example of a MOME Primary Model; 2.3.3 Example of MOME Secondary Models; 2.3.4 Primary Model Residuals' Normal Distributions; 2.3.5 Minimum Assumption Variable Deviations; 2.3.6 Primary Model Derivation Issues; 2.3.7 Method for Improving the Diagnostic Sensitivity of the Resulting Fault Analyzer; 2.3.8 Intermediate Assumption Deviations, Process Noise, and Process Transients; 2.4 Verifying the

Validity and Accuracy of the Various Primary Models; 2.5 Summary References3 Method of Minimal Evidence: Diagnostic Strategy Details; 3.1 Overview; 3.2 Introduction; 3.3 MOME Diagnostic Strategy; 3.3.1 Example of MOME SV&PFA Diagnostic Rules' Logic; 3.3.2 Example of Key Performance Indicator Validation; 3.3.3 Example of MOME SV&PFA Diagnostic Rules with Measurement Redundancy; 3.3.4 Example of MOME SV&PFA Diagnostic Rules for Interactive Multiple-Faults; 3.4 General Procedure for Developing and Verifying Competent Model-Based Process Fault Analyzers; 3.5 MOME SV&PFA Diagnostic Rules' Logic Compiler Motivations; 3.6 MOME Diagnostic Strategy Summary References4 Method of Minimal Evidence: Fuzzy Logic Algorithm; 4.1 Overview; 4.2 Introduction; 4.3 Fuzzy Logic Overview; 4.4 MOME Fuzzy Logic Algorithm; 4.4.1 Single-Fault Fuzzy Logic Diagnostic Rule; 4.4.2 Multiple-Fault Fuzzy Logic Diagnostic Rule; 4.5 Certainty Factor Calculation Review; 4.6 MOME Fuzzy Logic Algorithm Summary; References; 5 Method of Minimal Evidence: Criteria for Shrewdly Distributing Fault Analyzers and Strategic Process Sensor Placement; 5.1 Overview; 5.2 Criteria for Shrewdly Distributing Process Fault Analyzers; 5.2.1 Introduction
5.2.2 Practical Limitations on Target Process System Size5.2.3 Distributed Fault Analyzers; 5.3 Criteria for Strategic Process Sensor Placement; References; 6 Virtual SPC Analysis and Its Routine Use in FALCONEERTM IV; 6.1 Overview; 6.2 Introduction; 6.3 EWMA Calculations and Specific Virtual SPC Analysis Configurations; 6.3.1 Controlled Variables; 6.3.2 Uncontrolled Variables and Performance Equation Variables; 6.4 Virtual SPC Alarm Trigger Summary; 6.5 Virtual SPC Analysis Conclusions; References; 7 Process State Transition Logic and Its Routine Use in FALCONEERTM IV
7.1 Temporal Reasoning Philosophy

Sommario/riassunto

Automated fault analysis is not widely used within chemical processing industries due to problems of cost and performance as well as the difficulty of modeling process behavior at needed levels of detail. In response, this book presents the method of minimal evidence (MOME), a model-based diagnostic strategy that facilitates the development and implementation of optimal automated process fault analyzers. With this book as their guide, readers have a powerful new tool for ensuring the safety and reliability of any chemical processing system.

2. Record Nr. UNINA9910814978503321

Autore	Pilkey Deborah F.
Titolo	Peterson's stress concentration factors / / Deborah F. Pilkey, Walter D. Pilkey, Zhuming Bi
Pubbl/distr/stampa	Hoboken, NJ : , : Wiley, , [2020] ©2020
ISBN	1-5231-3280-9 1-119-53253-1 1-119-53255-8 1-119-53252-3
Edizione	[Fourth edition.]
Descrizione fisica	1 online resource (601 pages)
Disciplina	624.176
Soggetti	Stress concentration
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Sommario/riassunto	"Peterson's Stress Concentration Factors establishes and maintains a system of data classification for all the applications of stress and strain analysis, and expedites their synthesis into CAD applications. Updated to reflect today's advances in stress and strain analysis, this book presents stress concentration factors both graphically and with formulas. The illustrated index allows readers to identify structures and shapes of interest based on the geometry and loading of the location of a stress concentration factor. This Fourth Edition includes a thorough introduction of the theory and methods for static and fatigue design, quantification of stress and strain, research on stress concentration factors for weld joints and composite materials, and a new introduction to the systematic stress analysis approach using Finite Element Analysis (FEA)"--