Contents

Part I Bond Graph Theory and Methodology

1 Concept-Oriented Modeling of Dynamic Behavior 3
P.C. Breedveld

2 Energy-Based Bond Graph Model Reduction 53
L.S. Louca, D.G. Rideout, T. Ersal, and J.L. Stein

3 LFT Bond Graph Model-Based Robust Fault Detection and Isolation 105
M.A. Djeziri, B. Ould Bouamama, G. Dauphin-Tanguy, and R. Merzouki

4 Incremental Bond Graphs 135
Wolfgang Borutzky

Part II Bond Graph Modelling for Design, Control, and Diagnosis

5 Coaxially Coupled Inverted Pendula: Bond Graph-Based Modelling, Design and Control 179
P.J. Gawthrop and F. Rizwi

6 Bond Graphs and Inverse Modeling for Mechatronic System Design 195
Wilfrid Marquis-Favre and Audrey Jardin

7 Bond Graph Model-Based Fault Diagnosis 227
S.K. Ghoshal and A.K. Samantaray

Part III Applications

8 Bond Graph Modeling and Simulation of Electrical Machines 269
Sergio Junco and Alejandro Donaire

9 Simulation of Multi-body Systems Using Multi-bond Graphs 323
Jesus Felez, Gregorio Romero, Joaquín Maroto, and María L. Martinez

10 Bond Graph Modelling of a Solid Oxide Fuel Cell 355
P. Vijay, A.K. Samantaray, and A. Mukherjee

Part IV Software for Bond Graph Modelling and Simulation

11 Automating the Process for Modeling and Simulation of Mechatronics Systems 385
Jose J. Granda

Index 431

http://www.springer.com/978-1-4419-9367-0

Bond Graph Modelling of Engineering Systems
Theory, Applications and Software Support
(Ed.)W. Borutzky
2011, XVI, 435 p. 333 illus., Hardcover
ISBN: 978-1-4419-9367-0