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Guest Editorial

Physical System Modeling

Jeffrey L. Stein, Loucas S. Louca and Huei Peng

J. Dyn. Sys., Meas., Control. 2010;132(6):060301-060301-2. doi:10.1115/1.4002876

MODELING METHODOLOGIES

Active Modeling: A Method for Creating and Simulating Variable-Complexity Models

D. Geoff Rideout and Kazi T. Haq

J. Dyn. Sys., Meas., Control. 2010;132(6):061201-061201-12. doi:10.1115/1.4002472.

Energy-Based Model Reduction Methodology for Automated Modeling

Loucas S. Louca, Jeffrey L. Stein and Gregory M. Hulbert

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Networked Assembly of Affine Physical System Models

E. Motato and C. Radcliffe

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MODELING FOR CONTROL

Transfer Matrix Modeling of Systems With Noncollocated Feedback

Ryan W. Krauss and Wayne J. Book

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Lithium-Ion Battery State of Charge and Critical Surface Charge Estimation Using an Electrochemical Model-Based Extended Kalman Filter

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Controllability and Observability Analysis of the Liquid Water Distribution Inside the Gas Diffusion Layer of a Unit Fuel Cell Model

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On Controlling an Uncertain System With Polynomial Chaos and H2 Control

Design

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MODEL VALIDATION & IDENTIFICATION

Comparing Time Histories for Validation of Simulation Models: Error Measures and Metrics

H. Sarin, M. Kokkolaras, G. Hulbert, P. Papalambros, S. Barbat and R.-J. Yang

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Validation of Dynamic Models in the Time-Scale Domain

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Comparison of Linear, Nonlinear, Hysteretic, and Probabilistic Models for Magnetorheological Fluid Dampers

Corina Sandu, Steve Southward and Russell Richards

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A Polynomial Chaos-Based Kalman Filter Approach for Parameter Estimation of Mechanical Systems

Emmanuel D. Blanchard, Adrian Sandu and Corina Sandu

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MODELING APPLICATIONS

Modeling and Analysis of Active Differential Dynamics

Joško Deur, Vladimir Ivanović, Matthew Hancock and Francis Assadian

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Bond Graph Modeling of an Internally Damped Nonideal Flexible Spinning Shaft

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Kalman Smoother Based Force Localization and Mapping Using Intravital Video Microscopy

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Technical Briefs

Bond-Graph Based Simulation of Thermodynamic Models

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