

1. Record Nr.	UNINA9910299971103321
Titolo	Progress in Differential-Algebraic Equations : Deskriptor 2013 // edited by Sebastian Schöps, Andreas Bartel, Michael Günther, E. Jan W. ter Maten, Peter C Müller
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2014
ISBN	3-662-44926-9
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (211 p.)
Collana	Differential-Algebraic Equations Forum, , 2199-7497
Disciplina	003.3 510 515.352 518
Soggetti	Differential equations Numerical analysis Computer simulation Mathematical models Computer-aided engineering Ordinary Differential Equations Numerical Analysis Simulation and Modeling Mathematical Modeling and Industrial Mathematics Computer-Aided Engineering (CAD, CAE) and Design
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	Part I Control: 1 Lyapunov Matrix Equations for the Stability Analysis of Linear Time-Invariant Descriptor Systems: Peter C. Müller -- 2 Zero Dynamics and Stabilization for Linear DAEs: Thomas Berger -- 3 Design of Causal Observers for Nonlinear Descriptor Systems: Daniel Labisch and Ulrich Konigorski -- Part II Simulation: 4 Monitoring Singularities While Integrating DAEs: Diana Estévez Schwarz and Rene Lamour -- 5 Modular Time Integration of Block-Structured Coupled Systems Without Algebraic Loops: Martin Arnold -- 6 Error Analysis and Error Estimates

for Co-Simulation in FMI for Model Exchange and Co-Simulation v2.0: Martin Arnold and Christoph Clauß and Tom Schierz -- 7 A Unified (P) DAE Modeling Approach for Flow Networks: Lennart Jansen and Caren Tischendorf -- Part III Model Order Reduction: 8 Index-Aware Model Order Reduction for Higher Index DAEs: Nico Banagaaya and Wil H. A. Schilders -- 9 Model Order Reduction of Differential Algebraic Equations Arising from the Simulation of Gas Transport Networks: Sara Grundel, Lennart Jansen, Nils Hornung, Tanja Clees, Caren Tischendorf, and Peter Benner.

Sommario/riassunto

This book contains the proceedings of the 8th Workshop on Coupled Descriptor Systems held March 2013 in the Castle of Eringerfeld, Geseke in the neighborhood of Paderborn, Germany. It examines the wide range of current research topics in descriptor systems, including mathematical modeling, index analysis, wellposedness of problems, stiffness and different time-scales, cosimulation and splitting methods and convergence analysis. In addition, the book also presents applications from the automotive and circuit industries that show that descriptor systems provide challenging problems from the point of view of both theory and practice. The book contains nine papers and is organized into three parts: control, simulation, and model order reduction. It will serve as an ideal resource for applied mathematicians and engineers, in particular those from mechanics and electromagnetics, who work with coupled differential equations.
