

Contents

Preface	VII
List of Participants	IX

Device Simulation and Applications

A.M. Anile and G. Mascali and V. Romano Hydrodynamical Model for GaAs Semiconductors Based on the Maximum Entropy Principle with Application to Electronic Devices	3
Ursula van Rienen, Jürgen Flehr, Ute Schreiber, Victor Motrescu Modeling and Simulation of Electro-Quasistatic Fields	17
Robert Weigel, Andreas Springer, Linus Maurer Radio Frequency Integrated Circuit System Design for UMTS Terminal Receivers	33
Stefan Holst, Ansgar Jüngel and Paola Pietra Finite-element Discretizations of Semiconductor Energy-transport Equations	49

Circuit Simulation and DAE's

Hans Georg Brachtendorf, Angelika Bunse-Gerstner, Barbara Lang, Rainer Laur An Embedding Approach for the Simulation of Electronic Circuits with Widely Separated Time Scales	67
Diana Estévez Schwarz and Uwe Feldmann Actual Problems of Circuit Simulation in Industry	83
S.H.M.J. Houben Periodic Steady State Computation with the Poincaré-map Method	101
E.J.W. ter Maten and J.G. Fijnvandraat and C. Lin and J.M.F. Peters Periodic AC and Periodic Noise in RF Simulation for Electronic Circuit Design	121
R. März Differential Algebraic Systems with Properly Stated Leading Term and MNA Equations	135
Roland Pulch A Parallel Finite Difference Method for Multirate Partial Differential Algebraic Equations	153

Guido Stehr and Helmut Graeb and Kurt Antreich Feasibility Regions and their Significance to the Hierarchical Optimization of Analog and Mixed-Signal Systems	167
Coupling of Devices and Circuits	
Andreas Bartel and Michael Günther and Martin Schulz Modeling and Discretization of a Thermal-Electric Test Circuit	187
Michael Günther A Refined PDAE Network Model for a CMOS Ring Oscillator	203
Martin Kahlert Parasitics Reduction for Analog Circuit Simulation	219
Caren Tischendorf Modeling Circuit Systems Coupled with Distributed Semiconductor Equations	229
Circuits with Stochastic Sources	
Georg Denk and David Meintrup and Stefan Schäffler Transient Noise Simulation: Modeling and Simulation of $1/f$ -Noise	251
Wolfgang Mathis and Laurens Weiss Noise Analysis of Nonlinear Electrical Circuits and Devices	269
Michael Pronath and Helmut Graeb and Kurt Antreich On Parametric Test Design for Analog Integrated Circuits considering Error in Measurement and Stimulus	283
Werner Römisch and Renate Winkler Stochastic DAEs in Circuit Simulation	303
Advanced Mathematical Tools	
M. P. Calvo and J. de Frutos and J. Novo An Efficient Way to Avoid the Order Reduction of Linearly Implicit Runge-Kutta Methods for Nonlinear IBVP's	321
Friedrich Grund Solution of Linear Systems with Sparse Matrices	333
Lidia Aceto and Francesca Mazzia and Donato Trigiante The Performances of the Code TOM on the Holt Problem	349