

- Preface p. ix
- Acknowledgments p. xi
- Part I Introduction to Analog CAD
 - Computer-Aided Design of Analog and Mixed-Signal Integrated Circuits Georges G. E. Gielen and Rob A. Rutenbar p. 3
- Design of Mixed-Signal Systems-on-a-Chip Ken Kundert and Henry Chang and Dan Jefferies and Gilles Lamant and Enrico Malavasi and Fred Sendig p. 31
- Part II Analog Synthesis
 - IDAC: An Interactive Design Tool for Analog CMOS Circuits Marc G. R. Degrauwe and Olivier Nys and Evert Dijkstra and Jef Rijmenants and Serge Bitz and Bernard L. A. G. Goffart and Eric A. Vittoz and Stefan Cserenyi and Christian Meixenberger and G. Van Der Stappen and Henri J. Oguey p. 45
 - OPASYN: A Compiler for CMOS Operational Amplifiers Han Young Koh and Carlo H. Sequin and Paul R. Gray p. 56
 - OASYS: A Framework for Analog Circuit Synthesis Ramesh Harjani and Rob A. Rutenbar and L. Richard Carley p. 69
 - Analog Circuit Design Optimization Based on Symbolic Simulation and Simulated Annealing Georges G. E. Gielen and Herman C. C. Walscharts and Willy M. C. Sansen p. 89
 - STAIC: An Interactive Framework for Synthesizing CMOS and BiCMOS Analog Circuits J. Paul Harvey and Mohamed I. Elmasry and Bosco Leung p. 97
 - Integer Programming Based Topology Selection of Cell-Level Analog Circuits Prabir C. Maulik and L. Richard Carley and Rob A. Rutenbar p. 113
 - ARCHGEN: Automated Synthesis of Analog Systems Brian A. A. Antao and Arthur J. Brodersen p. 125
 - DARWIN: CMOS Opamp Synthesis by Means of a Genetic Algorithm Wim Kruiskamp and Domine Leenaerts p. 139
 - AMGIE: A Synthesis Environment for CMOS Analog Integrated Circuits Geert Van der Plas and Geert Debryser and Francky Leyn and Koen Lampaert and Jan Vandenbussche and Georges Gielen and Willy Sansen p. 145
 - A High-Level Design and Optimization Tool for Analog RF Receiver Front-Ends Jan Crols and Stephane Donnay and Michiel Steyaert and Georges Gielen p. 160
 - A Statistical Optimization-Based Approach for Automated Sizing of Analog Cells F. Medeiro and F. V. Fernandez and R. Dominguez-Castro and A. Rodriguez-Vazquez p. 164
 - Synthesis of High-Performance Analog Circuits in ASTRX/OBLX Emil S. Ochotta and Rob A. Rutenbar and L. Richard Carley p. 168
 - MAELSTROM: Efficient Simulation-Based Synthesis for Custom Analog Cells Michael Krasnicki and Rodney Phelps and Rob A. Rutenbar and L. Richard Carley p. 190
 - Anaconda: Simulation-Based Synthesis of Analog Circuits Via Stochastic Pattern Search Rodney Phelps and Michael Krasnicki and Rob A. Rutenbar and L. Richard Carley and James R. Hellums p. 196
 - A Case Study of Synthesis for Industrial-Scale Analog IP: Redesign of the Equalizer/Filter Frontend for an ADSL CODEC Rodney Phelps and Michael J. Krasnicki and Rob A. Rutenbar and L. Richard Carley and James R. Hellums p. 211

- WiCkeD: Analog Circuit Synthesis Incorporating Mismatch K. Antreich and J. Eckmueller and H. Graeb and M. Pronath and F. Schenkel and R. Schwencker and S. Zizala p. 217
- Optimal Design of a CMOS Op-Amp via Geometric Programming Maria del Mar Hershenson and Stephen P. Boyd and Thomas H. Lee p. 221
- Part III Symbolic Analysis
- Techniques and Applications of Symbolic Analysis for Analog Integrated Circuits: A Tutorial Overview Georges G. E. Gielen p. 245
- Flowgraph Analysis of Large Electronic Networks Janusz A. Starzyk and A. Konczykowska p. 262
- ISAAC: A Symbolic Simulator for Analog Integrated Circuits Georges G. Gielen and Herman C. C. Walscharts and Willy M. C. Sansen p. 276
- Interactive AC Modeling and Characterization of Analog Circuits via Symbolic Analysis F. V. Fernandez and A. Rodriguez-Vazquez and J. L. Huertas p. 287
- SSCNAP: A Program for Symbolic Analysis of Switched Capacitor Circuits Bixia Li and Deren Gu p. 313
- Efficient Symbolic Computation of Approximated Small-Signal Characteristics of Analog Integrated Circuits Piet Wambacq and V. Fernandez and Georges Gielen and Willy Sansen and Angel Rodriguez-Vazquez p. 320
- Efficient Approximation of Symbolic Network Functions Using Matroid Intersection Algorithms Qicheng Yu and Carl Sechen p. 324
- High-Frequency Distortion Analysis of Analog Integrated Circuits Piet Wambacq and Georges G. E. Gielen and Peter R. Kinget and Willy Sansen p. 333
- Canonical Symbolic Analysis of Large Analog Circuits with Determinant Decision Diagrams C.-J. Richard Shi and Xiang-Dong Tan p. 344
- Part IV Analog Layout
- Layout Tools for Analog ICs and Mixed-Signal SoCs: A Survey Rob A. Rutenbar and John M. Cohn p. 365
- ILAC: An Automated Layout Tool for Analog CMOS Circuits Jef Rijmenants and James B. Litsios and Thomas R. Schwartz and Marc G. R. Degrauwé p. 373
- KOAN/ANAGRAM II: New Tools for Device-Level Analog Placement and Routing John M. Cohn and David J. Garrod and Rob A. Rutenbar and L. Richard Carley p. 382
- Automatic Generation of Parasitic Constraints for Performance-Constrained Physical Design of Analog Circuits Umakanta Choudhury and Alberto Sangiovanni-Vincentelli p. 395
- Performance-Driven Compaction for Analog Integrated Circuits Eric Felt and Enrico Malavasi and Edoardo Charbon and Roberto Totaro and Alberto Sangiovanni-Vincentelli p. 412
- Automation of IC Layout with Analog Constraints Enrico Malavasi and Edoardo Charbon and Eric Felt and Alberto Sangiovanni-Vincentelli p. 417
- A Performance-Driven Placement Tool for Analog Integrated Circuits Koen Lampaert and Georges Gielen and Willy M. Sansen p. 437
- Optimum CMOS Stack Generation with Analog Constraints Enrico Malavasi and Davide Pandini p. 445
- Substrate-Aware Mixed-Signal Macrocell Placement in Wright Sujoy Mitra and Rob A. Rutenbar and L. Richard Carley and David J. Allsot p. 461

- System-Level Routing of Mixed-Signal ASICs in Wren Sujoy Mitra and Sudip K. Nag and Rob A. Rutenbar and L. Richard Carley p. 471
- Addressing Substrate Coupling in Mixed-Mode IC's: Simulation and Power Distribution Synthesis Balsha R. Stanisic and Nishath K. Verghese and Rob A. Rutenbar and L. Richard Carley and David J. Allstot p. 473
- Mondriaan: A Tool for Automated Layout Synthesis of Array-Type Analog Blocks G. Van der Plas and J. Vandenbussche and G. Gielen and W. Sansen p. 490
- Device-Level Early Floorplanning Algorithms for RF Circuits Mehmet Aktuna and Rob A. Rutenbar and L. Carley p. 494
- Part V Analog Modeling Analysis
- Macromodeling of Integrated Circuit Operational Amplifiers Greame R. Boyle and Barry M. Cohn and Donald O. Pederson and James E. Solomon p. 511
- A Macromodeling Algorithm for Analog Circuits Giorgio Casinovi and Alberto Sangiovanni-Vincentelli p. 523
- Consistency Checking and Optimization of Macromodels Yun-Chen Ju and Vasant B. Rao and Resve A. Saleh p. 534
- Computer-Aided Design Considerations for Mixed-Signal Coupling in RF Integrated Circuits Nishath K. Verghese and David J. Allstot p. 545
- Integration and Electrical Isolation in CMOS Mixed-Signal Wireless Chips Robert C. Frye p. 555
- Part VI Specialized Analog Simulation
- Simulating and Testing Oversampled Analog-to-Digital Converters Bernhard E. Boser and Klaus-Peter Karmann and Horst Martin and Bruce A. Wooley p. 569
- Simulation of Mixed Switched-Capacitor/Digital Networks with Signal-Driven Switches Ken Suyama and San-Chin Fang and Yannis P. Tsividis p. 576
- Behavioral Simulation for Analog System Design Verification Brian A. A. Antao and Arthur J. Brodersen p. 587
- Multilevel and Mixed-Domain Simulation of Analog Circuits and Systems Resve A. Saleh and Brian A. A. Antao and Jaidip Singh p. 600
- Simulation Methods for RF Integrated Circuits Ken Kundert p. 615
- VHDL-AMS--A Hardware Description Language for Analog and Mixed-Signal Applications Ernst Christen and Kenneth Bakalar p. 629
- Part VII Analog Centering and Yield Optimization
- Delight. Spice: An Optimization-Based System for the Design of Integrated Circuits William Nye and David C. Riley and Alberto Sangiovanni-Vincentelli and Andre L. Tits p. 641
- Design Centering by Yield Prediction Kurt J. Antreich and Rudolf K. Koblitz p. 660
- Statistical Integrated Circuit Design Stephan W. Director and Peter Feldmann and Kannan Krishna p. 668
- Yield Optimization of Analog IC's Using Two-Step Analytic Modeling Methods Carlo Guardiani and Primo Scandolara and Jacques Benkoski and Germano Nicollini p. 678
- Circuit Analysis and Optimization Driven by Worst-Case Distances Kurt J. Antreich and Helmut E. Graeb and Claudia U. Wieser p. 684
- Efficient Analog Circuit Synthesis with Simultaneous Yield and Robustness Optimization Geert Debyser and Georges Gielen p. 699

- Efficient Handling of Operating Range and Manufacturing Line Variations in Analog Cell Synthesis Tamal Mukherjee and L. Richard Carley and Rob A. Rutenbar p. 703
- The Generalized Boundary Curve--A Common Method for Automatic Nominal Design and Design Centering of Analog Circuits R. Schwencker and F. Schenkel and H. Graeb and K. Antreich p. 718
- Part VIII Analog Test
- Metrics, Techniques and Recent Developments in Mixed-Signal Testing Gordon W. Roberts p. 727
- A Tutorial Introduction to Research on Analog and Mixed-Signal Circuit Testing Linda S. Milor p. 735
- About the Editors p. 754