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Titolo	Computational Intelligence in Analog and Mixed-Signal (AMS) and Radio-Frequency (RF) Circuit Design // edited by Mourad Fakhfakh, Esteban Tlelo-Cuautle, Patrick Siarry
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Soggetti	Computer hardware Computational intelligence Electrical engineering Electronic circuits Computer Hardware Computational Intelligence Electrical Engineering Electronic Circuits and Devices
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Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	I-Flows: A Novel Approach to Computational Intelligence for Analog Circuit Design Automation Through Symbolic Data Mining and Knowledge-Intensive Reasoning -- Automatic Synthesis of Analog Integrated Circuits Including Efficient Yield Optimization -- Application of Computational Intelligence Techniques to Maximize Unpredictability in Multiscroll Chaotic Oscillators -- Optimization and Cosimulation of an Implantable Telemetric System by Linking System Models to Nonlinear Circuits -- Framework for Formally Verifying Analog and Mixed Signal Designs -- Automatic Layout Optimizations for Integrated MOSFET Power Stages -- Optimizing Model Precision in High Temperatures for Efficient Analog and Mixed-Signal Circuit Design Using Modern Behavioral Modeling Techniques: an Industrial Case Study -- Nonlinearities Behavioral Modeling and Analysis of Pipelined ADC Building Blocks -- SMAS: A Generalized and Efficient Framework

for Computationally Expensive Electronic Design Optimization Problems -- Computational Intelligence Techniques for Determining Optimal Performance Tradeoffs for RF Inductors -- RF IC Performance Optimization by Synthesizing Optimum Inductors -- Optimization of RF On-Chip Inductors Using Genetic Algorithms -- Automated System-Level Design for Reliability: RF Front-End Application -- The Backtracking Search for the Optimal Design of Low-Noise Amplifiers -- Design of Telecommunications Receivers Using Computational Intelligence Techniques -- Enhancing Automation in RF Design Using Hardware Abstraction -- Optimization Methodology Based on IC Parameter for the Design of Radio-Frequency Circuits in CMOS Technology.

Sommario/riassunto

Long considered a "black art", designers of digital, analog, radio-frequency and mixed-signal systems are now looking to means for automating the design flow of electronic circuits using new, computationally intelligent approaches, based on modeling, synthesis, design methodologies, optimization algorithms, and metaheuristics. This book explains the application of recent advances in computational intelligence – algorithms, design methodologies, and synthesis techniques – to the design of integrated circuits and systems. It highlights new biasing and sizing approaches and optimization techniques and their application to the design of high-performance digital, VLSI, radio-frequency, and mixed-signal circuits and systems. This first of two related volumes addresses the design of analog and mixed-signal (AMS) and radio-frequency (RF) circuits, with 17 chapters grouped into parts on analog and mixed-signal applications, and radio-frequency design. It will be of interest to practitioners and researchers in computer science and electronics engineering engaged with the design of electronic circuits.
