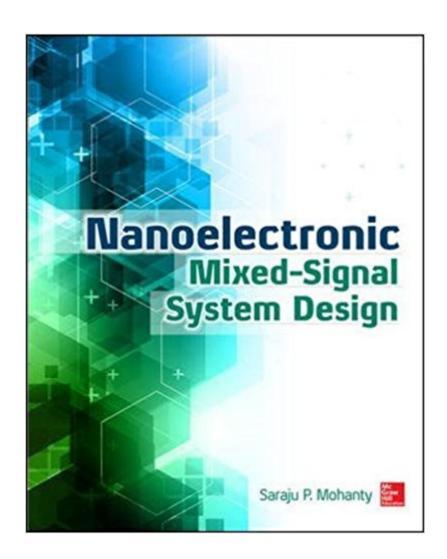The book was found

Nanoelectronic Mixed-Signal System Design

Synopsis

Cutting-edge nanoelectronic mixed-signal system design methodsWinner of the Association of American Publishers' 2016 PROSE Award in the Textbook/Physical Sciences & Mathematics category.Written by the director of the NanoSystem Design Laboratory at the University of North Texas, this authoritative resource discusses mixed-signal circuit and system design based on existing and emerging nanoelectronic technologies. The book features coverage of both digital and analog applications using nanoscale CMOS and post-CMOS. Key techniques required for design for excellence and manufacturability are discussed in this practice-driven text. Nanoelectronic Mixed-Signal System Design covers: Opportunities and challenges of nanoscale technology and systemsEmerging systems designed as analog/mixed-signal system-on-chips (AMS-SoCs)Nanoelectronics issues in design for excellencePhase-locked loop component circuitsElectronic signal converter circuitsSensor circuits and systemsMemory in the AMS-SoCsMixed-signal circuit and system design flowMixed-signal circuit and system simulationPower-, parasitic-, and thermal-aware AMS-SoC design methodologiesVariability-aware AMS-SoC design methodologiesMetamodel-based fast AMS-SoC design methodologies

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Customer Reviews

Saraju Mohanty, Ph.D., is a faculty member in the Department of Computer Science and Engineering at the University of North Texas, where he directs the NanoSystem Design Laboratory

(NSDL). He obtained a Ph.D. in computer science and engineering from the University of South Florida in 2003, a master's degree in systems science and automation from the Indian Institute of Science, Bangalore, India, in 1999, and a bachelor's degree (honors) in electrical engineering from Orissa University of Agriculture and Technology, Bhubaneswar, India, in 1995. Dr. Mohanty's research is in low-power, high-performance nanoelectronics. He is an author of hundreds of peer-reviewed journal and conference publications. Dr. Mohanty holds many U.S. patents. He has advised/co-advised many Ph.D. dissertations and numerous master's theses. Dr. Mohanty currently serves as the chair of the Technical Committee on Very Large Scale Integration (TCVLSI), IEEE Computer Society (IEEE-CS). He serves on the editorial board of many peer-reviewed international journals, including IET-CDS Journal, Elsevier Integration Journal, and Journal of Low Power Electronics. Dr. Mohanty has served as a guest editor for many journals, including ACM Journal on Emerging Technologies in Computing Systems (JETC) for an issue titled "New Circuit and Architecture-Level Solutions for Multidiscipline Systems," August 2012, and IET Circuits, Devices & Systems (CDS) for an issue titled "Design Methodologies for Nanoelectronic Digital and Analog Circuits," September 2013. He serves on the organizing and program committee of several international conferences. Dr. Mohanty is a senior member of the IEEE and ACM.

This is a must have book for all the students. It is very helpful especially for the Masters students. This book covers almost all the topics from basics to the recently invented FinFET, Graphene FET and memristor. This book alone gives a student what he wants in the area of VLSI and Mixed signal system design. It has covered all the technologies. Each chapter, with its references, guides the reader to numerous published papers on each topic for indepth knowledge. For research this is the best place to start from.

DISCLAIMER: I am a colleague and collaborator of the author. Still, I wouldn't give high praises if I didn't think the book was worth it.This is THE book for those (students as well as practicing engineers) that want to get up to speed with mixed-signal (analog and digital) IC design as practiced today, namely in the nanometer scale. It differs from other, older VLSI books in two aspects: 1) it covers both digital AND analog IC design (usually separate subjects) and 2) not only nanoCMOS but other state-of-the-art technologies (graphene, carbon nanotubes, memristors etc.) are illustrated.At nearly 800 letter-size pages, it is a reference and textbook into one. The text is lavishly illustrated with hundreds of figures (unfortunately in black and white – I'd be

happy to see a color edition), tables and plots. There are 12 chapters, each with one hundred or more references at the end.The topics cover the entire spectrum of mixed-signal IC design: starting from general system description all the way to advanced topics such as design for excellence and metamodeling. A small sample of topics includes: application of nanoelectronic systems, parasitics, thermals and yield, oscillators and PLLs, analog/digital conversion, sensors, most currently used memory technologies, system design flows, system and circuit level simulation, process variation awareness and finally, design space exploration and optimization using surrogate modeling (metamodeling) techniques.This is one textbook that will remain current for years to come.

This book is a MUST for VLSI students, especially for mixed signal processing, but not limited to it. It discusses the most recent topics in VLSI from application point of view. It gives an in-depth idea for modeling in different platforms from Simscape, Simulink to SPICE. Various case studies have been considered while explaining the topics, along with their design. It has covered various process technologies from 180 nm to 45 nm, along with recent state-in-art topics like Memristor, FinFET, CNT and others. The AMS processing has been covered in details from different hierarchical level and each level has been analyzed in depth. For a research students, this book is a perfect place to start from. It gives all required idea about what is in current research and shows challenges and possible research areas. I have gone through this book and I found it very good.

Its a 800 pages book has everything you need to know about the Mixed signal and Nano-electronics.

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