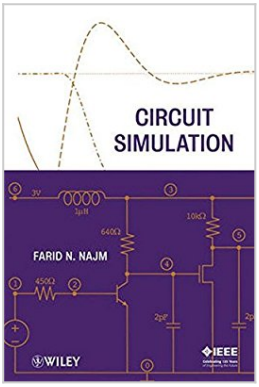

Circuit Simulation

By Farid N. Najm

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A Definitive text on developing circuit simulators

Circuit Simulation gives a clear description of the numerical techniques and algorithms that are part of modern circuit simulators, with a focus on the most commonly used simulation modes: DC analysis and transient analysis. Tested in a graduate course on circuit simulation at the University of Toronto, this unique text provides the reader with sufficient detail and mathematical rigor to write his/her own basic circuit simulator. There is detailed coverage throughout of the mathematical and numerical techniques that are the basis for the various simulation topics, which facilitates a complete understanding of practical simulation techniques. In addition, *Circuit Simulation*:

- Explores a number of modern techniques from numerical analysis that are not synthesized anywhere else
- Covers network equation formulation in detail, with an emphasis on modified nodal analysis
- Gives a comprehensive treatment of the most relevant aspects of linear and nonlinear system solution techniques
- States all theorems without proof in order to maintain the focus on the end-goal of providing coverage of practical simulation methods
- Provides ample references for further study
- Enables newcomers to circuit simulation to understand the material in a concrete and holistic manner

With problem sets and computer projects at the end of every chapter, *Circuit Simulation* is ideally suited for a graduate course on this topic. It is also a practical reference for design engineers and computer-aided design practitioners, as well as researchers and developers in both industry and academia.

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Editorial Review

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FARID N. NAJM is a Professor in the Department of Electrical and Computer Engineering (ECE) at the University of Toronto. He received a BE degree in electrical engineering from the American University of Beirut (AUB) in 1983 and a PhD degree in ECE from the University of Illinois at Urbana-Champaign (UIUC) in 1989. He then worked with Texas Instruments before joining the ECE Department at UIUC as assistant professor, later becoming associate professor. Dr. Najm joined the ECE Department at the University of Toronto in 1999, where he is currently Professor and Chair. His expertise is in the area of computer-aided design for integrated circuits, with an emphasis on circuit-level issues related to power, timing, variability, and reliability. Dr. Najm is a Fellow of the IEEE.

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