1. Record Nr. UNINA9910140571303321

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Titolo	Circuit simulation / / Farid N. Najm
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley, , c2010 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2010]
ISBN	1-282-68362-4 9786612683626 0-470-56121-1 0-470-56120-3
Edizione	[1st edition]
Descrizione fisica	1 online resource (344 p.)
Altri autori (Persone)	DumasRobin C
Disciplina	621.3815 621.381501/13
Soggetti	Electronic circuits - Computer simulation Electronic circuits - Mathematical models Integrated circuits - Computer simulation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	List of Figures. -- List of Tables. -- Preface. -- 1 Introduction. -- 1.1 Device Equations. -- 1.2 Equation Formulation. -- 1.3 Solution Techniques. -- 1.4 Circuit Simulation Flow. -- Notes. -- Problems. -- 2 Network Equations. -- 2.1 Elements and Networks. -- 2.2 Topological Constraints. -- 2.3 Cycle Space and Bond Space. -- 2.4 Formulation of Linear Algebraic Equations. -- 2.5 Formulation of Linear Dynamic Equations. -- Notes. -- Problems. -- 3 Solution of Linear Algebraic Circuit Equations. -- 3.1 Direct Methods. -- 3.2 Accuracy and Stability of GE. -- 3.3 Indirect/Iterative Methods. -- 3.4 Partitioning Techniques. -- 3.5 Sparse Matrix Techniques. -- Notes. -- Problems. -- 4 Solution of Nonlinear Algebraic Circuit Equations. -- 4.1 Nonlinear Network Equations. -- 4.2 Solution Techniques. -- 4.3 Application to Circuit Simulation. -- 4.4 Quasi-Newton Methods in Simulation. -- Notes. -- Problems. -- 5 Solution of Differential Circuit Equations. -- 5.1 Differential Network Equations. -- 5.2 ODE Solution Techniques. -- 5.3 Accuracy of LMS Methods. -- 5.4 Stability of LMS Methods. -- 5.5 Trapezoidal Ringing. -- 5.6 Variable Time-Step Methods. -- 5.7

	Application to Circuit Simulation. -- Notes. -- Problems. -- Glossary. -- Bibliography. -- Index.
Sommario/riassunto	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 bas