

1. Record Nr.	UNINA9910299900803321
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Titolo	Linear and Nonlinear Circuits: Basic & Advanced Concepts : Volume 1 / / by Mauro Parodi, Marco Storace
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-61234-4
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XXI, 273 p. 309 illus., 2 illus. in color.)
Collana	Lecture Notes in Electrical Engineering, , 1876-1100 ; ; 441
Disciplina	621.3815
Soggetti	Electronic circuits Vibration Dynamical systems Dynamics Signal processing Image processing Speech processing systems Circuits and Systems Vibration, Dynamical Systems, Control Electronic Circuits and Devices Signal, Image and Speech Processing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1.Circuit variables and topology -- 2.Memoryless multi-terminals: descriptive equations and properties 3.Memoryless multi-ports: descriptive equations and properties -- 4.Analysis of memoryless circuits.
Sommario/riassunto	This book provides readers with the necessary background information and advanced concepts in the field of circuits, at the crossroads between physics, mathematics and system theory. It covers various engineering subfields, such as electrical devices and circuits, and their electronic counterparts. Based on the idea that a modern university course should provide students with conceptual tools to understand the behavior of both linear and nonlinear circuits, to approach current

problems posed by new, cutting-edge devices and to address future developments and challenges, the book places equal emphasis on linear and nonlinear, twoterminal and multiterminal, as well as active and passive circuit components. The theory is developed systematically, starting with the simplest circuits (linear, time-invariant and resistive) and providing food for thought on nonlinear circuits, potential functions, linear algebra and geometrical interpretations of selected results. Contents are organized into a set of firstlevel and a set of advancedlevel topics. The book is rich in examples and includes numerous solved problems. Further topics, such as signal processing and modeling of non-electric physical phenomena (e.g., hysteresis or biological oscillators) will be discussed in volume 2.
