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Titolo	Carbon Nanotubes for Interconnects : Process, Design and Applications / / edited by Aida Todri-Sanial, Jean Dijon, Antonio Maffucci
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ISBN	3-319-29746-5
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XII, 333 p. 167 illus., 133 illus. in color.)
Disciplina	621.3815
Soggetti	Electronic circuits Microprocessors Circuits and Systems Processor Architectures Electronic Circuits and Devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Interconnect challenges for 2D and 3D Integration -- Overview of Carbon Nanotube Physical Properties -- Overview of Carbon Nanotube Processing Methods -- Electrical Conductivity of Carbon Nanotubes – Modeling and Characterization -- Computational Studies of Thermal Transport Properties of Carbon Nanotube Material -- Overview of Carbon Nanotubes for Horizontal On-Chip Interconnects -- Carbon Nanotubes as Vertical Interconnects for 3D ICs -- Carbon Nanotubes as Micro-Bumps for 3D Integration -- Electrothermal Modeling of Carbon Nanotubes TSVs -- Exploring Carbon Nanotubes for 3D Power Delivery Networks -- Carbon Nanotubes for Monolithic 3D ICs.
Sommario/riassunto	This book provides a single-source reference on the use of carbon nanotubes (CNTs) as interconnect material for horizontal, on-chip and 3D interconnects. The authors demonstrate the uses of bundles of CNTs, as innovative conducting material to fabricate interconnect through-silicon vias (TSVs), in order to improve the performance, reliability and integration of 3D integrated circuits (ICs). This book will be first to provide a coherent overview of exploiting carbon nanotubes for 3D interconnects covering aspects from processing, modeling,

simulation, characterization and applications. Coverage also includes a thorough presentation of the application of CNTs as horizontal on-chip interconnects which can potentially revolutionize the nanoelectronics industry. This book is a must-read for anyone interested in the state-of-the-art on exploiting carbon nanotubes for interconnects for both 2D and 3D integrated circuits. Provides a single-source reference on carbon nanotubes for interconnect applications; Includes complete coverage of current Cu-based interconnect problems for both 2D and 3D interconnects; Covers topics from modeling, simulation, analysis, design and characterization, in order to provide a broad view of the application of carbon nanotubes for interconnects.