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“Future silicon technology is reaching practical and fundamental limits. To go beyond these limits, novel devices and materials are being aggressively studied to continue progress in integrated electronics. Recently carbon-based materials, including carbon nanotubes and graphene, have emerged as potential candidates for nanoscale devices and interconnects. This book gives a comprehensive treatment of materials, devices, and interconnects using these nanocarbons for a variety of applications. It should prove to be very valuable to academic as well as industrial researchers.”

Prof. Krishna Saraswat
Stanford University, USA

“Nanocarbon is one of the promising materials for future electronics, including both active and passive devices. This book provides a big picture and technical details, state-of-the-art developments, and future prospects in various aspects of carbon-based nanoelectronics.”

Prof. Yang Chai
Hong Kong Polytechnic University, Hong Kong

“The editors have succeeded in putting together a much needed comprehensive and timely review of the basic science of two amazing nanomaterials, carbon nanotubes and graphene, as well as a realistic assessment of their potential in electronic applications.”

Prof. Ilesanmi Adesida
University of Illinois at Urbana-Champaign, USA

“This book focuses on the ‘gap’ between expectations based on the superior performance of nanocarbons and the reality compared with matured high-volume manufacturing in Si-based nanoelectronics. It not only provides a comprehensive source of research activity over the last 30 years but also valuable insight into the direction academia and industry should take.”

Dr. Makoto Suzuki
Hitachi High-Tech Corporation, Japan

This book presents an extensive review of the research on applications of carbon nanotubes (CNTs) and graphene in electronic devices. As CNTs and graphene are becoming increasingly recognized as the most promising materials for future generations of electronic devices, including transistors, sensors, and interconnects, a knowledge gap still exists between the basic science of these nanocarbons and their feasibility for cost-effective product manufacturing. The book highlights some of the issues surrounding this missing link by providing a detailed analysis of their nanostructure, electronic properties, materials preparation, and device fabrication and characterization, leading to studies of structure–property–application relationships. It provides a realistic assessment of the challenges faced by these nanocarbons in applications to electronics.



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