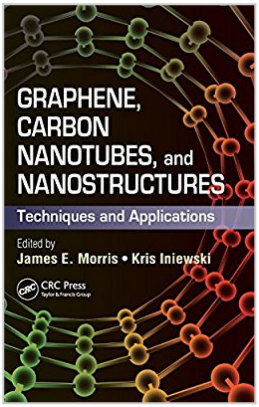

Graphene, Carbon Nanotubes, and Nanostructures: Techniques and Applications (Devices, Circuits, and Systems)

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Graphene, Carbon Nanotubes, and Nanostructures: Techniques and Applications offers a comprehensive review of groundbreaking research in nanofabrication technology and explores myriad applications that this technology has enabled. The book examines the historical evolution and emerging trends of nanofabrication and supplies an analytical understanding of some of the most important underlying nanofabrication technologies, with an emphasis on graphene, carbon nanotubes (CNTs), and nanowires.

Featuring contributions by experts from academia and industry around the world, this book presents cutting-edge nanofabrication research in a wide range of areas. Topics include:

- CNT electrodynamics and signal propagation models
- Electronic structure calculations of a graphene–hexagonal boron nitride interface to aid the understanding of experimental devices based on these heterostructures
- How a laser field would modify the electronic structure and transport response of graphene, to generate bandgaps
- The fabrication of transparent CNT electrodes for organic light-emitting diodes
- Direct graphene growth on dielectric substrates, and potential applications in electronic and spintronic devices
- CNTs as a promising candidate for next-generation interconnect conductors
- CMOS–CNT integration approaches, including the promising localized heating CNT synthesis method
- CNTs in electrochemical and optical biosensors
- The synthesis of diamondoids by pulsed laser ablation plasmas generated in supercritical fluids, and possible applications
- The use of DNA nanostructures in lithography
- CMOS-compatible silicon nanowire biosensors
- The use of titanium oxide-B nanowires to detect explosive vapors
- The properties of protective layers on silver nanoparticles for ink-jet printing

- Nanostructured thin-film production using microreactors

A one-stop reference for professionals, researchers, and graduate students working in nanofabrication, this book will also be useful for investors who want an overview of the current nanofabrication landscape.

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Editorial Review

Review

"This book provides a comprehensive review of the cutting-edge research in the area of graphitic materials and nanostructure fabrication. A wide range of topics were covered, from electronic structure of graphene to the application of nanostructures in sensing. This book is a must read for anyone working in these areas. It is also the ideal reference for students enrolled in a nanoscience course."
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About the Author

Jim Morris is an electrical and computer engineering professor at Portland State University, Oregon and is an IEEE fellow. Dr. Morris has served as treasurer of the IEEE Components Packaging and Manufacturing Technology (CPMT) Society (1991-1997), BoG member (1996-1998, 2011-2013), VP for conferences (1998-2003), distinguished lecturer (2000-present), *CPMT Transactions* associate editor (1998-present), and IEEE Nanotechnology Council (NTC) representative (2007-2012), and won the 2005 CPMT David Feldman Outstanding Contribution Award. He also serves as the NTC VP for conferences (2013-2014) and awards chair (2011-2013). He has edited or co-authored five books on electronics packaging, including one on nanopackaging.

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