



Fundamental and Applied Nano-Electromagnetics II

THz Circuits, Materials, Devices

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Fundamental and Applied Nano-Electromagnetics II

THz Circuits, Materials, Devices

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- Provides an in-depth and comprehensive overview of cutting-edge results in Nanoelectromagnetics
- Presents a wide range of nanoelectronics and nanophotonics applications
- Demonstrates rigorous approaches in modelling the electromagnetic field theory coupled to quantum mechanics

The increasing prevalence of nanotechnologies has led to the birth of "nanoelectromagnetics," a novel applied science related to the interaction of electromagnetic radiation with quantum mechanical low-dimensional systems. This book provides an overview of the latest advances in nanoelectromagnetics, and presents contributions from an interdisciplinary community of scientists and technologists involved in this research topic. The aspects covered here range from the synthesis of nanostructures and nanocomposites to their characterization, and from the design of devices and systems to their fabrication. The book also focuses on the novel frontier of terahertz technology, which has been expanded by the impressive strides made in nanotechnology, and presents a comprehensive overview of the: -synthesis of various nanostructured materials; -study of their electrical and optical properties; -use of nano-sized elements and nanostructures as building blocks for devices; -design and fabrication of nanotechnology devices operating in the THz, IR and optical range. The book introduces the reader to materials like nanocomposites, graphene nanoplatelets, carbon nanotubes, metal nanotubes, and silicon nanostructures; to devices like photonic crystals, microcavities, antennas, and interconnects; and to applications like sensing and imaging, with a special emphasis on the THz frequency range.

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