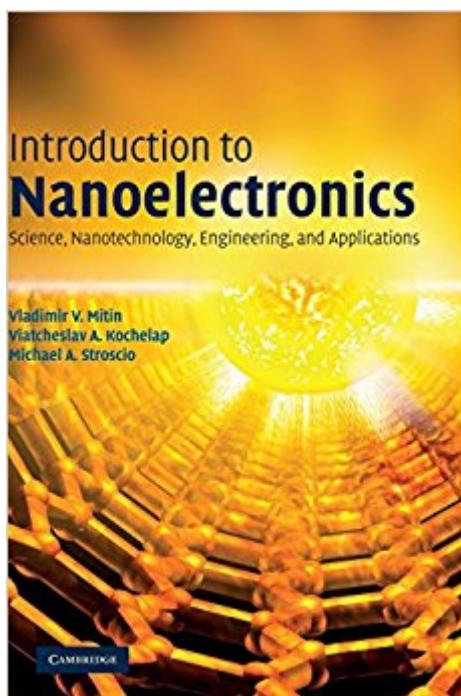


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Introduction To Nanoelectronics: Science, Nanotechnology, Engineering, And Applications



Synopsis

This textbook is a comprehensive, interdisciplinary account of the technology and science underpinning nanoelectronics, covering the underlying physics, nanostructures, nanomaterials, and nanodevices. It provides a unifying framework for the basic ideas needed to understand the developments in the field. After introducing the recent trends in semiconductor and device nanotechnologies, as well as novel device concepts, the methods of growth, fabrication and characterization of materials for nanoelectronics are discussed. Coverage then moves to an analysis of nanostructures including recently-discovered nanoobjects, and concludes with a discussion of devices that use a 'simple' scaling-down approach to copy well-known microelectronic devices, and nanodevices based on new principles that cannot be realized at the macroscale. With numerous illustrations and homework problems, this textbook is suitable for advanced undergraduate and graduate students in electrical and electronic engineering, nanoscience, materials, bioengineering and chemical engineering. Additional resources, including instructor-only solutions and Java applets, are available from www.cambridge.org/9780521881722.

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