1. Record Nr. UNINA9910877252403321 Autore Luryi Serge Titolo Future trends in microelectronics: from nanophonics to sensors and energy / / Serge Luryi, Jimmy Xu, Alexander Zaslavsky Oxford, : Wiley-Blackwell, c2010 Pubbl/distr/stampa **ISBN** 1-283-91618-5 0-470-64934-8 0-470-64933-X Edizione [1st edition] Descrizione fisica 1 online resource (448 p.) Altri autori (Persone) XuJimmy ZaslavskyAlexander Disciplina 621.381 Soggetti Microelectronics **Electronics** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Future Trends in Microelectronics: From Nanophotonics to Sensors and Energy; CONTENTS; Preface; 1 OPTOELECTRONICS AND NANOPHOTONICS; Nanophotonics for Information Systems; What Will Modern Photonics Contribute to the Development of Future Optical Communication Technology?; Ultrafast Nanophotonic Devices For Optical Interconnects; Intersubband Quantum-Box Lasers: Progress and Potential as Uncooled Mid-Infrared Sources: GaSb-based Type-I Laser Diodes Operating at 3 m and Beyond; Bridging Optics and Electronics with Quantum Cascade Lasers, Antennas, and Circuits Towards Intersubband Polaritonics: How Fast Can Light and Electrons Mate?Si3N4/SiO2 Planar Photonic Structures Fabricated by Focused Ion Beam: 2 ELECTRONIC DEVICES AND SYSTEMS; Silicon-Based Devices and Materials for Nanoscale CMOS and Beyond-CMOS: Device Proposals Beyond Silicon CMOS; GeOI as a Platform for Ultimate Devices; Simulation of Self-Heating Effects in Different SOI MOS Architectures; Nanowires: Technology, Physics and Perspectives; Emerging

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Sommario/riassunto

In the summer of 2009, leading professionals from industry, government, and academia gathered for a free-spirited debate on the future trends of microelectronics. This volume represents the summary of their valuable contributions. Providing a cohesive exploration and holistic vision of semiconductor microelectronics, this text answers such questions as: What is the future beyond shrinking silicon devices and the field-effect transistor principle? Are there green pastures beyond the traditional semiconductor technologies? This resource also identifies the direction the field is taking, enabling