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Nota di contenuto	Functional Nanomaterials and Devices VII; Preface, Committees and Sponsors; Table of Contents; Chapter 1: Nanoscale SOI Structures, Devices and Sensors; An Experimental Study of Properties of Ultrathin Si Layer with Bonded Si/SiO ₂ Interface; Transport and Photoelectric Effects in Structures with Ge and SiGe Nanoclusters Grown on Oxidized Si (001); Effect of Ge-Nanoislands on the Low-Frequency Noise in Si/SiO _x /Ge Structures; Acoustic Phonon and Surface Roughness Spin Relaxation Mechanisms in Strained Ultra-Scaled Silicon Films On the Mobility Behavior in Highly Doped Junctionless Nanowire SOI MOSFETsHigh Sensitive Active MOS Photo Detector on the Local 3D SOI-Structure; Properties of Low-Dimensional Polysilicon in SOI Structures for Low Temperature Sensors; Chapter 2: New Functional Nanomaterials, Nanoscaled Devices for Electronics, Energy Harvesting, Light Emission, and Lighting; Carbon-Rich Nanostructured a-SiC on Si Heterostructures for Field-Effect Electron Emission Characteristics of Hydrogen Effusion from the Si-H Bonds in Si Rich Silicon Oxynitride Films for Nanocrystalline Silicon Based Photovoltaic

ApplicationsHybrid Solar Cells Based on CdS Nanowire Arrays; Formation of Ordered Si Nanowires Arrays on Si Substrate; Reliability-Based Optimization of Spin-Transfer Torque Magnetic Tunnel Junction Implication Logic Gates; Chapter 3: Diagnostics of the Functional Nanomaterials and Devices; Magnetic Resonance and Optical Study of Carbonized Silica Obtained by Pyrolysis of Surface Compounds Electrical Properties of Composite Films with Silicon Nanocrystals in the Insulating MatrixPositron Annihilation Lifetime Spectroscopy Measurement of Ge₅As₃₇S₅₈ Glass; Comparative Investigation of Structural and Optical Properties of Si-Rich Oxide Films Fabricated by Magnetron Sputtering; Charge Trapping in Hafnium Silicate Films with Modulated Composition and Enhanced Permittivity; Low Dislocation Density and High Mobility GaN Layers for DHFET Channels Grown on High-Temperature AlN/AlGaN Buffer Layer by Ammonia MBE Peculiarities of the Impurity Redistribution under Ultra-Shallow Junction Formation in SiliconChapter 4: Functional Nanomaterials for Medicine; Nanoparticles in Antivirus Therapy; Application of Oxidized Silicon Nanowires for Nerve Fibers Regeneration; Keywords Index; Authors Index

Sommario/riassunto

The volume contains some of the most recent knowledge on Functional Nanomaterials and Devices. The papers are grouped into: 1. semiconductor-on-insulator structures, devices and sensors; 2. physics of new functional nanodevices and sensors; 3. diagnostics methods of nanomaterials and devices; 4. functional nanomaterials in medicine. The first part considers transport phenomena in thin silicon layer near back SiO₂-Si interface of the SOI structures fabricated with DELICATE technology, mobility increase in high doped nanowire junctionless multigate MOSFETs; photoconductance and LF noises in the
