Record Nr. UNINA9910786507203321 Nanostructured silicon for photonics : from materials to devices / / Z. **Titolo** Gaburro [and nine others] Pubbl/distr/stampa Uetikon-Zuerich;; Enfield, New Hampshire:,: Trans Tech Publications, , [2005] ©2005 **ISBN** 3-03813-104-0 Descrizione fisica 1 online resource (242 p.) Collana Materials science foundations, , 1422-3597;; volumes 27-28 Disciplina 621.381045 Soggetti Nanostructured materials Silicon Optoelectronics - Materials Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali "July 2005"--Preface. Includes bibliographical references. Nota di bibliografia Nota di contenuto Nanostructured Silicon for Photonics; Preface; Table of Contents; Table of Contents; Chapter 1: Introduction; Chapter 2: Silicon Nanocrystals Fundamentals; Chapter 3: Nanoprobe Technique to Characterize Silicon Nanocrystals; Chapter 4: Silicon Based Light Emitting Diode; Chapter 5: Optical Gain in Silicon and the Quest for a Silicon Laser; Chapter 6: Er Coupled Si Nanocrystal Optical Amplifiers; Chapter 7: Design of Silicon Based Optical Components; Chapter 8: Si--Based Waveguides and Optical Switching: Chapter 9: Silicon Based Photonic Crystals Chapter 10: Silicon Based Complex Dielectric SystemsAuthors Index The use of light to channel signals around electronic chips could solve Sommario/riassunto several current problems in microelectronic evolution including: power dissipation, interconnect bottlenecks, input/output from/to optical communication channels, poor signal bandwidth, etc. It is unfortunate that silicon is not a good photonic material: it has a poor lightemission efficiency and exhibits a negligible electro-optical effect. Silicon photonics is a field having the objective of improving the physical properties of silicon; thus turning it into a photonic material

and permitting the full convergence of elec