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| Soggetti | Lasers Photonics Quantum optics Nanotechnology Optical materials Electronics - Materials Optics, Lasers, Photonics, Optical Devices Quantum Optics Nanotechnology and Microengineering Optical and Electronic Materials |
| Lingua di pubblicazione | Inglese |
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| Livello bibliografico | Monografia |
| Nota di bibliografia | Includes bibliographical references at the end of each chapters and index. |
| Nota di contenuto | Problems of Semiconductor Light-Emitting Devices -- Solutions by Silicon and Dressed Photons -- Dressed Photons and Dressed-Photon Phonons -- Principles of Light Emission and Photon Breeding -- Light-Emitting Diodes -- Strength of Photon Coupling -- Contribution of the Multimode Phonons -- Lasers -- Light-Emitting Devices Fabricated from Other Crystals -- Other Devices. |
| Sommario/riassunto | This book focuses on a novel phenomenon named photon breeding. It is applied to realizing light-emitting diodes and lasers made of indirect-transition-type silicon bulk crystals in which the light-emission principle is based on dressed photons. After presenting physical pictures of dressed photons and dressed-photon phonons, the principle of light emission by using dressed-photon phonons is |

reviewed. A novel phenomenon named photon breeding is also reviewed. Next, the fabrication and operation of light emitting diodes and lasers are described The role of coherent phonons in these devices is discussed. Finally, light-emitting diodes using other relevant crystals are described and other relevant devices are also reviewed.
