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| Soggetti | Optical materials<br>Electronics - Materials<br>Semiconductors<br>Microwaves<br>Optical engineering<br>Optical and Electronic Materials<br>Microwaves, RF and Optical Engineering |
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| Nota di contenuto | Introduction -- PART I. EuO - ferromagnetic and semiconductor -- Features of formation of electron band structure and physical properties of ferromagnetic semiconductor EuO -- Methods of synthesis of europium monoxide -- Raising the Curie temperature of the ferromagnetic semiconductor EuO -- PART II. EuO as a spintronics -- Theoretical background of the Josephson effect in superconducting tunnel junctions with ferromagnetic barrier -- Creating and study of the properties of multilayers and superconducting tunnel junctions with EuO -- Creating, research and application of heterostructures metal / ferromagnetic semiconductor (EuO) and ferromagnetic semiconductor (EuO)/semiconductor -- Creating a high-spin injector based EuO -- Conclusion. |
| Sommario/riassunto | This book presents the physical characteristics and possible device applications of europium monoxide as well as materials based on it. It reveals the suitability of this material for device applications in super- and semiconductor spin electronics. Ferromagnetic semiconductors like |

europium monoxide have contributed to a fascinating research field in condensed matter physics. In the book are presented the electronic and magnetic properties and thermal and resonance parameters of this material, its peculiarities in external fields as a function of non-stoichiometry, doping level, both in single-crystal and thin-film states. Particular attention is paid to the possibility to use this monoxide or its solid solutions (composites) unconventionally for creating spin electronics structures which work at room temperature conditions.  This book appeals to researchers, graduate students and professionals engaged in the development of semiconductor spin electronics and computer dev ices, technologists and theoretical physicists. It is important for the calculation, development and creation of spin memory devices for a quantum computer.  .