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Altri autori (Persone)	O'DonnellKevin <1950-> (Kevin Peter) DierolfVolkmar <1960->
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Theoretical Modelling of Rare Earth Dopants in GaN -- RE Implantation and Annealing of III-Nitrides -- Lattice Location of RE Impurities in IIINitrides -- Electroluminescent Devices Using RE-Doped III-Nitrides -- Er-Doped GaN and InxGa1-xN for Optical Communications -- Rare-Earth-Doped GaN Quantum Dot -- Visible Luminescent RE-doped GaN, AlGaN and AlInN -- Combined Excitation Emission Spectroscopy (CEES) of RE Ions in Gallium Nitride -- Excitation Mechanisms of RE Ions in Semiconductors -- High-Temperature Ferromagnetism in the Super-Dilute Magnetic Semiconductor GaN:Gd -- Summary and Prospects for Future Work.
Sommario/riassunto	This book provides a snapshot of recent progress in the field of rare-earth-doped group III-nitride semiconductors, especially GaN, but extending to AlN and the alloys AlGaN, AlInN and InGaN. This material class is currently enjoying an upsurge in interest due to its ideal suitability for both optoelectronic and spintronic applications. The text first introduces the reader to the historical background and the major theoretical challenges presented when 4f electron systems are embedded in a semiconductor matrix. It details the preparation of samples for experimental study, either by in-situ growth or ion

implantation/annealing, and describes their microscopic structural characterisation. Optical spectroscopy is a dominant theme, complicated by site multiplicity, whether in homogeneous hosts or in heterostructures such as quantum dots, and enlivened by the abiding fascination of the energy transfer mechanism between the host material and the lumophore. Finally, the rapid progress towards prospective optoelectronic and spintronic devices is presented along with several examples.
