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Nota di contenuto	Nitrides with Nonpolar Surfaces; Contents; Preface; List of Contributors; Color Plates; Introduction; 1 Nitride Materials and Devices with Nonpolar Surfaces: Development and Prospects; 1.1 Introduction; 1.2 Historical Survey of Nonpolar Nitride Growth Achievements; 1.3 Nonpolar Nitrides Today - Key Properties and Challenges; 1.3.1 Morphology; 1.3.2 Microstructure; 1.3.3 Strain; 1.3.4 Optical Properties; 1.3.5 Optical Phonons; 1.3.6 Electrical Properties; 1.4 Nonpolar and Semipolar Nitride-based Devices Today; 1.5 Prospects in the Development of Nonpolar Nitrides and Devices; 1.6 Summary AcknowledgmentsReferences; Part I Growth; 2 Growth of Planar and Reduced-defect Density Nonpolar GaN Films by Hydride Vapor Phase Epitaxy; 2.1 Introduction; 2.2 Planar a-plane GaN Growth; 2.3 Lateral Epitaxial Overgrowth of a-plane GaN Films; 2.4 Planar m-plane GaN Heteroepitaxy; 2.5 Lateral Epitaxial Overgrowth of m-plane GaN; 2.6 Conclusion; References; 3 Nonpolar GaN Quasi-Wafers Sliced from Bulk

	GaN Crystals Grown by High-Pressure Solution and HVPE Methods; 3.1 Introduction; 3.2 Bulk Crystallization of GaN; 3.2.1 Seed Crystals; 3.2.2 Bulk Crystallization of GaN by HVPE on Small Seeds 3.2.3 HVPE of GaN on Platelet-shaped Seeds3.2.4 HVPE of GaN on Needle-shaped Seeds; 3.3 Nonpolar Quantum Structures; 3.3.1 GaN/AlGaN Quantum Structures Grown by PA Molecular Beam Epitaxy; 3.3.2 Optical Properties of Nonpolar Structures Grown on GaN Quasi-Wafers Sliced from Bulk GaN Crystals; 3.4 Summary; Acknowledgment; References; 4 Heteroepitaxial Growth of Nonpolar-face AlN on SiC Substrates by Plasma-assisted Molecular-beam Epitaxy; 4.1 Introduction; 4.2 The Crystalline Structure of AlN and SiC; 4.3 AlN/6H-SiC (1100); 4.4 AlN/6H-SiC (1120); 4.5 AlN/4H-SiC (1120) 4.6 Reducing Structural Defect Densities in 4H-AlN4.7 AlN/4H-SiC (1100); 4.8 Properties of 4H-AlN; 4.9 Nonpolar AlGaN and AlGaN/AlN Heterostructures; 4.10 Conclusion; Acknowledgments; References; 5 Metalorganic Vapor Phase Epitaxial Growth of Nonpolar Al(Ga,In)N Films on Lattice-Mismatched Substrates; 5.1 Introduction; 5.2 Growth and Properties of a-plane GaN on r-plane Sapphire; 5.3 Growth and Properties of m-plane GaN on m-plane SiC; 5.4 Growth of GaN on Semipolar (3038) 4H-SiC Substrate 5.5 Reduction of Dislocation Density and Stacking-fault Density by Sidewall Seeded Epitaxial Lateral Overgrowth5.6 Conductivity Control of Nonpolar GaN; 5.6.1 n-type GaN; 5.6.2 p-type GaN; 5.7 Heterostructures; 5.7.1 GaInN/GaNMQWs; 5.7.2 AlGaN/GaN Single Heterostructure; 5.8 Characterization of Visible LEDs on Nonpolar GaN; 5.9 Summary; Acknowledgments; References; Further Reading; 6 GaN Films and Quantum Wells with Nonpolar Surfaces: Growth and Structural Properties; 6.1 Introduction; 6.2 Substrates; 6.2.1 -LiAlO(2); 6.2.1.1 Properties and Merits; 6.2.1.2 Drawbacks 6.2.1.3 Orientation Relationship andMicrostructure
Sommario/riassunto	This is the first monograph to discuss in detail the current stage of development of nonpolar nitrides, with specific emphasis on the three main topics of crystal growth, properties and device studies. World-class researchers summarize their own recent achievements in their respective fields of expertise, covering both nonpolar and semipolar nitride materials. The bulk of the discussion in each chapter is related to the physical properties of the material obtained by the respective technique, in particular, defect density and properties of the defects in nonpolar nitrides. In addiiton, the