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Nota di contenuto	LEDs for Lighting Applications; Table of Contents; Foreword; Introduction; Chapter 1. Light-Emitting Diodes: Principles and Challenges; 1.1. History of a revolution in the world of the light sources; 1.2. LEDs and lighting; 1.3. Principle of operation, color, efficiency, lifetime and quality of LEDs; 1.3.1. White light production from LEDS: principles and challenges; 1.3.2. Lifetime; 1.3.3. Quality of LEDs; 1.4. Challenges facing LEDs; 1.5. Bibliography; Chapter 2. Substrates for III-Nitride-based Electroluminescent Diodes; 2.1. Introduction 2.2. Crystal structure and epitaxial relation with 6H-SiC and Al2O32.3. Defects and constraints due to heteroepitaxy; 2.3.1. Dislocations; 2.3.2. Disorientation of the substrate; 2.3.3. Epitaxial stress; 2.3.4. Thermal stress; 2.4. MOVPE growth of GaN on sapphire; 2.4.1. GaN growth; 2.4.2. Standard 2D epitaxy; 2.4.3. 3D epitaxial growth; 2.4.4. Epitaxial lateral overgrow (ELO 1S); 2.4.5. Anisotropic growth; 2.4.6.

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Sommario/riassunto

Light Emitting Diodes (LEDs) are no longer confined to use in commercial signage and have now moved firmly, and with unquestioned advantages, into the field of commercial and domestic lighting. This development was prompted in the late 1980s by the invention of the blue LED, a wavelength that had previously been missing from the available LED spectrum and which opened the way to providing white light. Since that point, LED performance (including energy efficiency) has improved dramatically, and now compares with the performance of fluorescent lights - and there remain further performance impro