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Nota di contenuto	Preface; CONTENTS; Levy Flight of Holes in InP Semiconductor Scintillator S. Luryi and A. Subashiev; 1. Introduction; 2. Photon Assisted Random Walk of Minority Carriers in InP; 2.1. Diffusion equation with a recycling term; 2.2. Jump distribution; 2.3. Stable distribution of minority carriers; 2.4. Stationary hole distribution for constant excitation; 3. Transmission and Reflection Luminescence Spectra; 4. Luminescence Filtering and Urbach Tails; 5. Photon Collection Efficiency in InP Scintillator; 6. Layered Scintillator Based on Photon-Assisted Transport of Holes to Radiation Sites 3. Lasing Characteristics4. Conclusions; Reference; GaN Based 3D Core-Shell LEDs X. Wang, S. Li, S. Fundling, J. Wei, M. Erenburg, J. Ledig, H. H. Wehmann, A. Waag, W. Bergbauer, M. Mandl, M. Strassburg and U. Steegmuller; 1. Introduction; 2. GaN Based 3D LEDs on Si Substrate; 2.1. GaN based 3D core-shell LEDs on deep etched Si substrate; 2.2. Growth of GaN 3D structure on Si substrate; 3. Growth of GaN 3D Structure on Sapphire Substrate; 3.1. Carrier gas, polarity and its influence on growth of GaN 3D structure

3.2. Mixed polar GaN columns and Polarity analysis by photo-assisted Kelvin probe force microscopy3.3. Growth of single nitride polar GaN columns; 4. Growth and Characterization of GaN Based 3D Core-Shell LED on Sapphire Substrate; 5. Summary and Outlook; Acknowledgements; References; Progress in SiC Materials/Devices and Their Competition D. K. Schroder; 1. Introduction; 2. Materials; 2.1. Bulk Defects; 2.2. Carrier Lifetimes; 2.3. Oxide and Interface Traps; 3. SiC Devices; 3.1. Schottky Diodes; 3.2. MOSFETs; 3.3. Junction FETs; 4. The Competition; 4.1. Silicon; 4.2. Gallium Nitride
5. Cosmic Ray Induced Failures6. Summary; Acknowledgments; References; Performance and Applications of Deep UV LED M. Shatalov, A. Lunev, X. Hu, O. Bilenko, I. Gaska, W. Sun, J. Yang, A. Dobrinsky, Y. Bilenko, R. Gaska and M. Shur; 1. Introduction; 2. DUV LED Efficiency; 3. DUV LED Fabrication; 4. Thermal Analysis of DUV LED; 5. DUV LED Sterilization; 6. Conclusion; Acknowledgments; Appendix A. Calculation of Thermal Resistances; Appendix B. Thermal Conductivity of AlxGa1-xN Semiconductor; References
Ordered GaN/InGaN Nanorods Arrays Grown by Molecular Beam Epitaxy for Phosphor-Free White Light Emission S. Albert, A. Bengoechea-Encabo, M. A. Sanchez-Garcia, F. Barbagini, E. Calleja, E. Luna, A. Trampert, U. Jahn,P. Lefebvre, L. L. Lopez, S. Estrade, J. M. Rebled, F. Peiro,G. Nataf, P. de Mierry and J. Zuniga-Perez

Sommario/riassunto

Frontiers in Electronics includes the best papers of WOFE-11 invited by the Editors and down selected after the peer review process. This book is conceived to make available in the international arena extended versions of selected, high impact talks. The papers are divided into four sections: advanced terahertz and photonics devices; silicon and germanium on insulator and advanced CMOS and MOSHFETs; nanomaterials and nanodevices; wide band gap technology for high power and UV photonics.