

## Table of Contents

	page
Preface .....	iii
 <b>III-Nitride Based Semiconductor Electronic and Optical Devices</b>	
Kinetics and Transport in Gallium Nitride Epitaxial Lateral Overgrowth* .....	1
<i>M.E. Coltrin, C. Mitchell, and J. Han</i>	
Reduction of Threading Dislocations and Residual Strain in GaN Grown by Molecular Beam Epitaxy Using RF-Plasma Nitrogen on Sapphire * .....	13
<i>K. Kishino and A. Kikuchi</i>	
The Ammonia- MBE Approach for High Electron Mobility in GaN Epilayers And AlGaIn/GaN HFET * .....	19
<i>H. Tang, J.B. Webb, and J.A. Bardwell</i>	
Scanning Probe Studies of Defect Dominated Electronic Transport in GaN * .....	37
<i>J.W.P. Hsu, D.V. Lang, M.J. Manfra, S. Richter, S.N.G. Chu, A. M. Sergent, R. Kleiman, and L.N. Pfeiffer</i>	
Investigation of The Surface Polarity, Defects, Electrical And Optical Properties of GaN Grown by MBE, MOCVD, And HVPE * .....	51
<i>P. Visconti, K.M. Jones, M.A. Reshchikov, F. Yun, H. Morkoc, R.J. Molnar, A. Passaseo, R. Cingolani, S.S. Park, and K.Y. Lee</i>	
Surface Preparation and Oxide Growth for GaN MOSFETs* .....	71
<i>B.P. Gila, J.W. Johnson, K.N. Lee, V. Krishnamoorthy, C.R. Abernathy, F. Ren, and S.J. Pearton</i>	
Magnetic And Structural Properties of GaMnN Mixed Crystals * .....	84
<i>W. Gebicki, L. Adamowicz, M. Palczewska, M. Zajac, J. Szczytko, T. Szyszko, S. Podsiadlo, and A. Twardowski</i>	
Growth of GaN And Ga <sub>1-x</sub> Mn <sub>x</sub> N Single Crystals * .....	92
<i>S. Podsiadlo, T. Szyszko, B. Strojek, L. Adamowicz, W. Gebicki, J. Domagala, And W. Paszkowicz</i>	
GaN Production Transfer From Single Wafer Equipment to Planetary Reactors .....	104
<i>B. Schineller, O. Schoen, H. Protzmann, M. Luenenbuerger, A. Alam, M. Heuken, and H. Juergensen</i>	

<b>Table of Contents</b>	<b>page</b>
A Photoelectrochemical Study of $\text{In}_x\text{Ga}_{1-x}\text{N}$ Films * .....	110
<i>A. Theuwis, K. Strubbe, and W. Gomes</i>	
Market Outlook and Product Performance Requirements for Nitride-Based LEDs * .....	120
<i>W.B. Alexander</i>	
Optical, Electrical, and Physical Characteristics of Ni/Au Metal Contacts to p-GaN for High Brightness LEDs .....	128
<i>W.B. Alexander, T. Johnson, D. Gutierrez, K. Kidney, F. Ren, A. Zhang, J.R. Laroche, P. Holloway, B. Liu, and E. Lambers</i>	
New Metallization Scheme for Low Resistance Ohmic Contacts to P-Type GaN * .....	139
<i>S.C. Wang, C.F. Chu, C.C. Yu, Y.K. Wang, J.Y. Tsai, and F.I. Lai.</i>	
Ion Beam Damage Processes in GaN * .....	150
<i>S.O. Kucheyev, J.S. Williams, J. Zou, C. Jagadish, J.E. Bradby, and G. Li</i>	
High Performance Small Area Contact GaN/AlGaIn HBTs .....	161
<i>K.P. Lee, A .P. Zhang, F. Ren, J. Han, W. S. Hobson, and S.J. Pearton</i>	
Lateral $\text{Al}_x\text{Ga}_{1-x}\text{N}$ Power Rectifiers with 9.7 kV Reverse Breakdown Voltage .....	167
<i>A.P. Zhang, J.W. Johnson, F. Ren, J. Han, A. Y. Polyakov, N. B. Smirnov, A. V. Govorkov, J. M. Redwing, K. P. Lee, and S. J. Pearton</i>	
<b>STATE-OF-THE ART PROGRAM ON COMPOUND SEMICONDUCTORS XXVII</b>	
Growth and Characterization of InAs and InSb Quantum Dot Superlattices in Ternary Alloy Matrices: Toward an Optimized Strain-Balanced Quantum Dot Detector * .....	173
<i>R.P. Leavitt and J.W. Little</i>	
GaInNP: A Novel Material for Device Applications * .....	187
<i>C.W. Tu, Y.G. Hong, R. Andre, and H.P. Xin</i>	
The Mechanism of Photoenhanced Wet Etching of GaN .....	193
<i>J.A. Bardwell, J.B. Webb, H. Tang, J. Fraser, and S. Moisa</i>	
Growth and Characterization of Anodic Films on InP in KOH and $(\text{NH}_4)_2\text{S}$ * .....	204
<i>E. Harvey, C. O'Dwyer, T. Melly, D.N. Buckley, V. Cunnane, D. Sutton, and S.B. Newcomb</i>	

<b>Table of Contents</b>	page
Self-Assembly of Phosphonate Monolayers on GaAs and GaN * .....	213
<i>W.C. Hughes, S.E. Koh, B.H. Augustine, and J.M. Polefrone</i>	
Decomposition of InP and Growth of Indium Islands in Systems with H-atoms * .....	218
<i>V.I. Gorbenko, J.A. Shvets, and A.N. Gorban</i>	
Electroluminescence Characterization of Base Layers with In and N Incorporation in InGaP/InGaAsN HBTs * .....	224
<i>R. Fitch, F. Schuermeyer, R. Welser, T. Jenkins, R. Dettmer, J. Gillespie, J. Sewell, K. Nakano, C. Bozada, D. Via, and R. Welch</i>	
p-Ohmic Contact Study for Intra-Cavity Contacts in AlGaAs/GaAs VCSELs .....	232
<i>B. Luo, G. Dang, A.-P. Zhang, F. Ren, J. Lopata, S.N.G. Chu, W.S. Hobson, and S.J. Pearton</i>	
Effects of N <sub>2</sub> or Ar Plasma Exposure on GaAs/AlGaAs Heterojunction Bipolar Transistors * .....	241
<i>C.H. Hsu, C.C. Chen, B. Luo, F. Ren, S.J. Pearton, C.R. Abernathy, J.W. Lee, K.D. Mackenzie, and J. Sasserath</i>	
Study of Radiation Induced Resistance Mechanisms in GaAs MESFET and TLM Structures .....	250
<i>B. Luo, D. Schoenfeld, W. J. Johnson, S. J. Pearton, and F. Ren</i>	
Electrical Properties of InAlP Native Oxides for GaAs-Based MOS Applications .....	258
<i>P.J. Barrios, D.C. Hall, G.L. Snider, T.H. Kosel, U. Chowdhury, and R. Dupuis</i>	
Performance of Intra-Cavity Contacted, Shallow Implant Apertured Vertical-Cavity Surface Emitting Lasers * .....	265
<i>W.S. Hobson, J. Lopata, L.M.F. Chirovsky, S.N.G. Chu, G. Dang, F. Ren, M.B. Tayahi, and S.J. Pearton</i>	
Progress on Vertical-Cavity Surface-Emitting Lasers * .....	273
<i>D.K. Serkland, G.R. Hadley, A.J. Fischer, K.M. Geib, A.A. Allerman, and K.D. Choquette</i>	
Asymmetry in MSM Detector/Mixer and Its Implication in FM/CW Ladar Systems * .....	279
<i>P.H. Shen, M. Stead, W. Ruff, and B. Stann</i>	

<b>Table of Contents</b>	<b>page</b>
Design Investigation of InGaAsN-based Pnp Heterojunction Bipolar Transistors * .....	293
<i>C. Monier, P.C. Chang, A.G. Baca, N.Y. Li, J.R. Laroche, H.Q. Hou, F. Ren, and S.J. Pearton</i>	
Orientation and Dielectric Overlayer Effects in InGaP/GaAs HBTs * .....	300
<i>A.G. Baca, C. Monier, P.C. Chang, M.G. Armendariz, R. D. Briggs, and S.J. Pearton</i>	
2.4-V Operated Enhancement-Mode Pseudomorphic HEMT's for Wireless Communications .....	305
<i>E.Y. Chang, S.H. Chen, and S.P. Wang</i>	
Author Index .....	311
Subject Index .....	313