

## Table of Contents

	Page
Preface .....	iii
<b>Wide Bandgap Semiconductors for Photonic and Electronic Devices and Sensors</b>	
Physics of Electron Transport in Nitrides* .....	1
<i>M. Shur, R. Gaska, and A. Khan</i>	
Excitation Mechanisms of Rare Earth Ions Embedded in GaN Thin Films*.....	14
<i>J. Zavada, U. Hommerich, D.S. Lee, J. Heikenfeld, and A. Steckl</i>	
III-N Based Dilute Magnetic Semiconductors for Spintronics Applications* .....	22
<i>Y.D. Park, J.S. Lee, S.-Y. Lee, Z.G. Khim, E. Oh, G.T. Thaler, M.E. Overberg, C.R. Abernathy, S.J. Pearton, J.-H. Kim and F. Ren</i>	
Sources of the Parasitic Chemical Reactions during AlGaIn OMPVE* .....	28
<i>J.R. Creighton, W.G. Breiland, and M.E. Coltrin</i>	
GaN/Gd <sub>2</sub> O <sub>3</sub> /GaN Single Crystal Heterostructure* .....	36
<i>M. Hong, J. Kwo, S.N.G. Chu, J.P. Mannaerts, G. Dabbahg, A.R. Kortan, H.M. Ng, A.Y. Cho, K.A. Anselm, C.M. Lee, and J.I. Chyi</i>	
Growth of III-Nitrides by MBE* .....	46
<i>A. Sampath, E. Iliopoulos, A. Bhattacharyya, I. Friel, I. Sandeep, J. Cabalu, and T. Moustakas</i>	
Optimization of Magnetic GaMnN for Use in Photonic Devices* .....	58
<i>G.T. Thaler, M.E. Overberg, B. Gila, R. Frazier, C.R. Abernathy, S.J. Pearton, J. Kim, F. Ren, J.S. Lee, S.Y. Lee, Y.D. Park and Z.G. Khim</i>	
Er-doped GaN Grown By Molecular Beam Epitaxy .....	64
<i>H.M. Ng</i>	
Improved Surface Morphology And Optical Properties of InGaIn/GaN Multiple Quantum Well Structures Grown by MOCVD Using Different Growth Parameters .....	70
<i>D. Florescu, E. Passman, D. Lu, D.S. Lee, A. Parekh, J.C. Ramer, and R. Stall</i>	

<b>Table of Contents</b>	page
AlN Films Epitaxially Formed by Direct Nitridation of Sapphire Using Aluminum Oxynitride As A Buffer Layer .....	76
<i>W. Nakao, H. Fukuyama, and K. Nagata</i>	
The Commercialization of The SiC Flame Sensor* .....	83
<i>D. Brown, J. Kretchmer, J. Fedison, T. Dean, L. Lombardo, and D. Schneider</i>	
Development of SiC Gas Sensor Systems* .....	93
<i>G.W. Hunter, P.G. Neudeck, R.S. Okojie, G. M. Beheim, V. Thomas, L. Chen, D. Lukco, C.C. Liu, B. Ward, and D. Makel</i>	
ZnO-Based Photoconductive UV Detector .....	112
<i>M.S. Oh, J. Cho, and W.-K. Choi</i>	
Activating Ion Implants in 4H-SiC by Annealing with An AlN or BN Cap* .....	117
<i>K. Jones, P.B. Shah, M.H. Ervin, M.A. Deenge, R.D. Vispute, J.A. Freitas and G.J. Gerardi</i>	
Nonlinear Effects in AlGaIn/GaN HFET's Under Large-Signal RF Conditions* ....	123
<i>R.J. Trew and B. Davis</i>	
Photo-Enhanced Wet Oxidation And Etching of GaN* .....	127
<i>L.-H. Peng, H.-M. Wu, C.-C. Chuo, and J.-I. Chyi</i>	
Optical Properties of Thick In <sub>x</sub> Ga <sub>1-x</sub> N Epilayers* .....	134
<i>S. Srinivasan, F. Bertram, A. Bell, and F.A. Ponce</i>	
MOCVD Growth of n-Al <sub>x</sub> Ga <sub>1-x</sub> N .....	141
<i>S. Guo, M. Pophristic, B. Peres, and I. Ferguson</i>	
Enhancement of Photoluminescence And Microstructure of Undoped ZnO Thin Film Growth on Al <sub>2</sub> O <sub>3</sub> (0001) Substrate by rf Magnetron Sputtering .....	150
<i>J. Cho, K.H. Yoon, M.S Oh, and W.K. Choi</i>	
Thermodynamics for Fabricating AlN/AlON/Sapphire Double Epitaxial Layers As An Advanced Substrate for Blue/Ultraviolet Optical Devices .....	155
<i>H. Fukuyama, W. Nakao, and K. Nagata</i>	
Optical Acceptor Ionization in III-Nitrides .....	164
<i>S.F. LeBoeuf, E.B. Stokes, A. Cao, A. Ebong, P. Sandvik and C.R. Prasad</i>	

<b>Table of Contents</b>	page
Thermal Stability of Ni-Based Ohmic Contacts to n-SiC for High Temperature And Pulsed Power Device Applications* .....	172
<i>M.W. Cole, P.C. Joshi, C. Hubbard, J.D. Demaree, and M. Ervin</i>	
Electron Injection-Induced Effects in III-Nitrides* .....	178
<i>L. Chernyak</i>	
Electrical Characterization of GaN Metal Oxide Semiconductor Diodes Using MgO As The Gate Oxide .....	184
<i>J. Kim, B.P. Gila, R. Mehandru, J.W. Johnson, J. H. Shin, K.P. Lee, B. Luo, A. Onstine, C.R. Abernathy, S.J. Pearton, and F. Ren</i>	
Effect of Proton Radiation on dc And rf Performance of AlGaIn/GaN HEMTs .....	191
<i>B. Luo, J. W. Johnson, F. Ren, K.K. Allums, C.R. Abernathy, S.J. Pearton, R. Dwivedi, T.N. Fogarty, R. Wilkins, A.M. Dabiran, A.M. Wowchack, C.J. Polley, P.P. Chow and A.G. Baca</i>	
Annealing Behavior of Ar Implanted GaN .....	198
<i>I.O. Usov, N.R. Parikh, D. Thomson, Z. Reitmeier, and R.F. Davis</i>	
Electrical Characteristics of A New Ni-MPS Rectifier .....	207
<i>K.-Y. Park, H.-H. Choi, H.-K Kim, J.-S. Kim, S.-Y. Kwon, and S.-Y. Choi</i>	
 <b>State-Of-The-Art Program on Compound Semiconductors XXXVI</b>	
Fabrication and Characteristics of High Speed Implant-Confined, Index-Guided, Lateral-current, 850 nm Vertical Cavity Surface Emitting Lasers* .....	213
<i>G. Dang, B. Luo, R. Mehandru, F. Ren, W.S. Hobson, J. Lopata, M. Tayahi, S.N.G. Chu, S.J. Pearton, W. Chang and H. Shen</i>	
Kinetics of Al <sub>x</sub> Ga <sub>1-x</sub> As Oxidation Layer by Capacitance-Voltage Technique* .....	225
<i>N. Das, P. Newman and W. Chang</i>	
In-Situ Photoluminescence from III-V Semiconductor Electrode .....	232
<i>E. Harvey, C. Heffernan, E. Morley, C.O'Raiheartaigh, and D.N. Buckley</i>	
OMVPE Growth of Carbon Doped Bases for Advanced HBT Applications *.....	242
<i>E. Armour, M.J. Begarney, S. Ting, M. Begarney, and S. Sun</i>	
In-situ Etching of InP-Based Materials in MOVPE Reactor Using PCl <sub>3</sub> * .....	253
<i>A. Ougazzaden, L. Peticolas, and S.N.G. Chu</i>	

<b>Table of Contents</b>	<b>page</b>
The Intercation Among Defects During High Temperature Annealing of High Purity SiC .....	258
<i>D. Alvarez, V. Konovalov, and M.E. Zvanut</i>	
Paper Withdrawn at Press Time.....	266
FIB Systems As A TEM Specimen Preparation Tools for III-V Compound Semiconductor Materials* .....	276
<i>K.N. Hooghan, S. Nakahara, R. Privette, and S.-N.G. Chu</i>	
Anodic Oscillatory Behavior And Film Formation on Indium Phosphide* .....	286
<i>D.N. Buckley, E. Harvey, and S.N.G. Chu</i>	
Nitrogen-Induced Decrease of the Electron Effective Mass in GaAs <sub>1-x</sub> N <sub>x</sub> Thin Films Measured by Thermomagnetic Transport Phenomena .....	306
<i>D.L. Young, J.F. Geisz, and T.J. Coutts</i>	
Use of Ti/W/Cu, Ti/Co/Cu and Ti/Mo/Cu Multi-Layer Metals As Schottky Metals for GaAs Schottky Diodes .....	317
<i>C.S. Lee, E.Y. Chang, and J.J. He</i>	
Electronic and Optoelectronic Devices Using Quaternary AlInGaN Layers .....	322
<i>M. Asif Khan, M. Shatalov and G. Simin</i>	
Electronic And Sensors Based on Pyroelectric AlGa <sub>N</sub> /Ga <sub>N</sub> Heterostructures ...	335
<i>O. Ambacher, M. Eickhoff, G. Steinhoff, M. Hermann, L. Görgens, V. Weiss, B. Baur, M. Stutzmann, R. Neuberger, J. Schalwig, G. Müller, V. Tilak, B. Green, B. Schaff L.F. Eastman, F. Bernardini and V. Fiorentini</i>	
Author Index .....	356
Subject Index .....	359