

Table of Contents

Sponsors and Committees	iv
Preface	vii
SiC Seeded Boule Growth	
V.F. Tsvetkov, R.C. Glass, D. Henshall, D. Asbury and C.H. Carter Jr.	3
High Purity and Semi-Insulating 4H-SiC Crystals Grown by Physical Vapor Transport	
G. Augustine, H. McD. Hobgood, V. Balakrishna, G. Dunne, R.H. Hopkins, R.N. Thomas, W.A. Doolittle and A. Rohatgi	9
Sublimation Growth of 50mm Diameter SiC Wafers	
A.R. Powell, S.P. Wang, G. Fechko and G.R. Brandes	13
Experimental Investigation of 4H-SiC Bulk Crystal Growth	
K. Chourou, M. Anikin, J.M. Bluet, V. Lauer, G. Guillot, J. Camassel, S. Juillaguet, O. Chaix-Pluchery, M. Pons and R. Pons	17
Step Structures and Structural Defects in Bulk SiC Crystals Grown by Sublimation Method	
A. Okamoto, N. Sugiyama, T. Tani and N. Kamiya	21
Influence of the Growth Direction and Polytype on the Stacking Fault Generation in α-SiC	
J. Takahashi, N. Ohtani, M. Katsuno and S. Shinoyama	25
X-Ray Section Topographic Investigation of the Growth Process of SiC Crystals	
S. Milita, R. Pons, J. Baruchel and A. Mazuelas	29
Physical Vapor Growth and Characterization of High Conductivity 1.4 Inch 4H-SiC Bulk Crystals	
S.G. Müller, R. Eckstein, W. Hartung, D. Hofmann, M. Kölbl, G. Pensl, E. Schmitt, A.D. Weber and A. Winnacker	33
The Structural Evolution of Seed Surfaces During the Initial Stages of Physical Vapor Transport SiC Growth	
V.D. Heydemann, G.S. Rohrer, E.M. Sanchez and M. Skowronski	37
Defect Formation Mechanism of Bulk SiC	
M. Sasaki, Y. Nishio, S. Nishino, S. Nakashima and H. Harima	41
Enlargement of SiC Crystals: Defect Formation at the Interfaces	
M. Anikin, M. Pons, K. Chourou, O. Chaix-Pluchery, J.M. Bluet, V. Lauer and R. Pons	45
Impurity Incorporation During Sublimation Bulk Crystal Growth of 6H- and 4H-SiC	
N. Ohtani, M. Katsuno, J. Takahashi, H. Yashiro, M. Kanaya and S. Shinoyama	49
Optically Transparent 6H-Silicon Carbide	
A. Bakin, S.I. Dorozhkin, A.S. Zubrilov, N.I. Kuznetsov and Y.M. Tairov	53
Modelling of the PVT-SiC Bulk Growth Process Taking into Account Global Heat Transfer, Mass Transport and Heat of Crystallization and Results on its Experimental Verification	
S.G. Müller, R. Eckstein, D. Hofmann, L. Kadinski, P. Kaufmann, M. Kölbl and E. Schmitt	57
Modeling Analysis of Temperature Field and Species Transport Inside the System for Sublimation Growth of SiC in Tantalum Container	
Y.E. Egorov, A.O. Galyukov, S.G. Gurevich, Y. Makarov, E.N. Mokhov, M.G. Ramm, M.S. Ramm, A.D. Roenkov, A.S. Segal, Y.A. Vodakov, A.N. Vorob'ev and A.I. Zhmakin	61
A Coupled Finite Element Model for the Sublimation Growth of SiC	
P. Råback, R.M. Nieminen, R. Yakimova, M. Tuominen and E. Janzén	65
Studies on SiC Liquid Phase Crystallization as Technique for SiC Bulk Growth	
M. Müller, M. Bickermann, D. Hofmann, A.D. Weber and A. Winnacker	69
Dissolution and Growth of Silicon Carbide Crystals in Melt-Solutions	
V. Ivantsov and V. Dmitriev	73
Sublimation Growth of Bulk β-SiC Crystals on (100) and (111) β-SiC Substrates	
H.N. Jayatirtha and M.G. Spencer	77
SiC Epitaxial Layer Growth in a Novel Multi-Wafer VPE Reactor	
A.A. Burk, M.J. O'Loughlin and S.S. Mani	83
Growth of SiC Epitaxial Layers in a Vertical Cold Wall Reactor Suited for High Voltage Applications	
R. Rupp, A. Wiedenhofer, P. Friedrichs, D. Peters, R. Schörner and D. Stephani	89

Growth and Characterisation of SiC Power Device Material O. Kordina, A. Henry and E. Janzén	97
Growth and Characterisation of Thick SiC Epilayers by High Temperature CVD A. Ellison, T. Kimoto, I.G. Ivanov, Q. Wahab, A. Henry, O. Kordina, J.H. Zhang, C.G. Hemmingsson, C. Gu, M.R. Leys and E. Janzén	103
Growth of Thick Epitaxial 4H-SiC Layers by Chemical Vapor Deposition O. Kordina, K.G. Irvine, J.J. Sumakeris, H.S. Kong, M.J. Paisley and C.H. Carter Jr.	107
Impurity Incorporation Mechanism in Step-Controlled Epitaxy Growth Temperature and Substrate Off-Angle Dependence T. Yamamoto, T. Kimoto and H. Matsunami	111
Nitrogen Doping Efficiency During Vapor Phase Epitaxy of 4H-SiC L.B. Rowland, A.A. Burk and C.D. Brandt	115
Boron Compensation of 6H Silicon Carbide M.S. Mazzola, S.E. Sadow and A. Schöner	119
CVD Growth and Characterisation of SiC Epitaxial Layers on Faces Perpendicular to the (0001) Basal Plane C. Hallin, A. Ellison, I.G. Ivanov, A. Henry, N.T. Son and E. Janzén	123
Homoepitaxial Growth of 4H- and 6H-SiC in a Commercial Horizontal LPCVD Reactor F. Wischmeyer, D. Leidich and E. Niemann	127
Growth of 4H and 6H SiC Trenches and Around Stripe Mesas N. Nordell, S. Karlsson and A.O. Konstantinov	131
Planar 6H-SiC p-n Junctions Prepared by Selective Epitaxial Growth K. Christiansen, T. Dalibor, R. Helbig, S. Christiansen and H.P. Strunk	135
Epitaxial Growth of SiC on α-SiC Using $\text{Si}_2\text{Cl}_6 + \text{C}_3\text{H}_8 + \text{H}_2$ System S. Nishino, T. Miyanagi and Y. Nishio	139
High Growth Rate of α-SiC by Sublimation Epitaxy M. Syväjärvi, R. Yakimova, M.F. MacMillan, M. Tuominen, A. Kakanakova-Georgieva, C.G. Hemmingsson, I.G. Ivanov and E. Janzén	143
The Effects of Growth Conditions in Dislocation Density in SiC Epi-Layers Produced by the Sublimation Epitaxy Technique A. Kakanakova-Georgieva, M.F. MacMillan, S. Nishino, R. Yakimova and E. Janzén	147
Domain Occurance in SiC Epitaxial Layers Grown by Sublimation M. Tuominen, R. Yakimova, A. Kakanakova-Georgieva, M.F. MacMillan, M. Syväjärvi and E. Janzén	151
Epitaxy of High Quality SiC Layers by CST T. Yoshida, Y. Nishio, S.K. Lilov and S. Nishino	155
Wetting Properties and Interfacial Energies in Liquid Phase Growth of α-SiC R. Yakimova, M. Syväjärvi and E. Janzén	159
High Quality 6H- and 4H-SiC pn Structures with Stable Electric Breakdown Grown by Liquid Phase Epitaxy S.V. Rendakova, V. Ivantsov and V. Dmitriev	163
Thick Film SiC Epitaxy for 'Filling Up' Micropipes I.I. Khlebnikov, V. Madangarli, M.A. Khan and T.S. Sudarshan	167
A New Radiation Heated 4 Inch LPCVD System for β-SiC Heteroepitaxy H. Möller, W. Legner and G. Krötz	171
Epitaxial Growth in 3C-SiC without Carbonization Process Using 1,3-Disilabutane K.W. Lee, K.-. Yu, J.W. Bae and Y. Kim	175
Growth and Characterization of SiC Films on Large-Area Si Wafers by APCVD - Temperature Dependence C. Wu, A.J. Fleischman, C.A. Zorman and M. Mehregany	179
CVD Growth Mechanism of 3C-SiC on Si Substrates Y. Ishida, T. Takahashi, H. Okumura, S. Yoshida and T. Sekigawa	183
Growth of Epitaxial Cubic SiC Thin Films Using Single Source Precursors J.H. Boo, S.B. Lee, S.A. Ustin, W. Ho, H.P. Maruska, P.E. Norris, I.H. Kim and C. Sung	187
Crystallinity of 3C-SiC Films Grown on Si Substrates K. Yagi and H. Nagasawa	191

Effects of Void Formation on Electrical and Optical Properties of 3C-SiC on Si(111) Substrates	
H.W. Shim, K.C. Kim, Y.H. Seo, K.S. Nahm, E.K. Suh, H.J. Lee and Y.G. Hwang	195
The Mechanism of Void Formation in the Growth of 3C-SiC Thin Film on Si Substrate	
Y.H. Seo, K.C. Kim, H.W. Shim, K.S. Nahm, E.K. Suh, H.J. Lee, Y.G. Hwang, D.-. Kim and B.T. Lee	199
Study of Initial Stage of SiC Growth on Si(100) Surface by XPS, RHEED and SEM	
T. Takaoka, H. Saito, Y. Igari and I. Kusunoki	203
Surface Morphology of 3C-SiC Heteroepitaxial Layers Grown by LPCVD on Si Substrates	
T. Takahashi, Y. Ishida, H. Okumura, S. Yoshida and T. Sekigawa	207
Effect of Substrate Bias on 3C-SiC Deposition on Si by AC Plasma-Assisted CVD	
H. Shimizu and M. Shiga	211
Mechanisms of SiC Formation in the Ion Beam Synthesis of 3C-SiC Layers in Silicon	
J.K.N. Lindner, W. Reiber and B. Stritzker	215
Formation and Prevention of Micropipes and Voids in CVD Carbonization Experiments on (100) Silicon	
R. Scholz, U.M. Gösele, F. Wischmeyer and E. Niemann	219
Fabrication of 3C-SiC on SiO₂ Structures Using Wafer Bonding Techniques	
C.A. Zorman, K.N. Vinod, A.A. Yasseen and M. Mehregany	223
Growth Mode and Kinetics of Atmospheric Pressure Chemical Vapour Deposition of β-SiC on Si(100) Substrate	
G. Ferro, H. Vincent, Y. Monteil, D. Chaussende and J. Bouix	227
Germanium as a Possible Surfactant for Growth of Beta Silicon Carbide on Silicon Substrates	
S. Mitchell, M.G. Spencer and K. Wongchotigul	231
Gas Source Molecular Beam Epitaxial Growth of 3C-SiC on Si with Heterointerface Modification by a Si-C-Ge Ternary System	
T. Hatayama, T. Fuyuki and H. Matsunami	235
Heteroepitaxial Growth of SiC on Si by Gas Source MBE with Silacyclobutane	
J.M. Chen, A.J. Steckl and M.J. Loboda	239
Heteroepitaxial Growth of 3C-SiC on Surface-Structure-Controlled MBE Layer by Low-Pressure CVD	
M. Uchida, M. Deguchi, K. Takahashi, M. Kitabatake and M. Kitagawa	243
Formation of Pyramidal Pits at the Interface of 3C-SiC and Si(001) Substrates Grown by Gas Source MBE	
J.P. Schmidt-Ewig, T. Troffer, K. Christiansen, S. Christiansen, R. Helbig, G. Pensl and H.P. Strunk	247
Growth of SiC Layers on (111) Si by Solid Source Molecular Beam Epitaxy	
J. Pezoldt, T. Stauden, V. Cimalla, G. Ecke, H. Romanus and G. Eichhorn	251
Improved Epitaxy of Cubic SiC Thin Films on Si(111) by Solid-Source MBE	
A. Fissel, K. Pfennighaus, U. Kaiser, J. Kräußlich, H. Hobert, B. Schröter and W. Richter	255
Observation of 3-Fold Periodicity in 3C-SiC Layers Grown by MBE	
U. Kaiser, P.D. Brown, A. Chuvilin, I.I. Khodos, A. Fissel, W. Richter, A. Preston and C.J. Humphreys	259
Electronic Properties of SiC Polytypes and Heterostructures	
F. Bechstedt	265
Band Structure Interpretation of the Optical Transitions between Low-Lying Conduction Bands in n-Type Doped SiC Polytypes	
W.R.L. Lambrecht, S. Limpijumnong, S.N. Rashkeev and B. Segall	271
Calculated Density of States and Carrier Concentration in 4H- and 6H-SiC	
C. Persson and U. Lindefelt	275
Theoretical Studies on Defects in SiC	
P. Deák, A. Gali, J. Miró, R. Gutierrez, A. Sieck and T. Frauenheim	279
An ab initio Study of Native Defects in Cubic SiC: Vacancies and Stacking Faults	
A. Zywietz, P. Käckell, J. Furthmüller and F. Bechstedt	283
Calculation of Nonlinear Optical Susceptibilities for Different Polytypes of Silicon Carbide	
B. Adolph and F. Bechstedt	287
Comparative Monte Carlo Study of Electron Transport in 3C, 4H and 6H Silicon Carbide	
R. Mickevičius and J.H. Zhao	291

Calculation of the Anisotropy of the Hall Mobility in n-Type 4H- and 6H-SiC T. Kinoshita, K.M. Itoh, J. Muto, M. Schadt, G. Pensl and K. Takeda	295
The Effects of Interfacial Dipoles on the Properties of SiC-Group III-Nitride Hetero-Structures G. Lucovsky, H. Yang and G. Lüpke	299
Pressure-Dependent Dynamical and Dielectric Properties of GaN and AlN K. Karch, J.-. Wagner, H. Siegle, C. Thomsen and F. Bechstedt	303
Theoretical and Experimental Study of the Lattice-Dynamical Properties of Cubic GaN H. Sterner, A. Schewiola, K. Karch, P. Pavone, D. Strauch, H. Siegle, G. Kaczmarczyk, L. Filippidis and C. Thomsen	307
Electronic States of BC₂N Heterodiamond (111) Superlattices Y. Tateyama, K. Kusakabe, T. Ogitsu and S. Tsuneyuki	311
From Precursor Atoms Towards Hetero-Phases: Strain-Dynamics Induced Carbon-Rich Si_{1-x}C_x Phases G. Vida, N. Moreaud, J. Calas and M. Averous	315
Large Unit Cell Superstructures on Hexagonal SiC-Sufaces Studied by LEED, AES and STM U. Starke, M. Franke, J. Bernhardt, J. Scharadt, K. Reuter and K. Heinz	321
Surface Reconstructions of 6H-SiC(0001) and Surface-Structure-Controlled Epitaxial Growth M. Kitabatake	327
Electronic and Atomic Structure of the C-Terminated 6H-SiC Surface M. Hollering, B. Mattern, F. Maier, L. Ley, A.P.J. Stampfl, J. Xue, J.D. Riley and R.C.G. Leckey	331
Deposition of Cs on Graphitized 4H-SiC Surfaces V. van Elsbergen, H. Nienhaus and W. Mönch	335
Theory of Si-Rich SiC Surfaces: Consequences for Epitaxial Growth J. Furthmüller, P. Käckell, F. Bechstedt, A. Fissel, K. Pfennighaus, B. Schröter and W. Richter	339
Polarity Dependent Step Bunching and Structure of Hexagonal SiC Surfaces J. Scharadt, J. Bernhardt, M. Franke, U. Starke and K. Heime	343
Collective Surface Excitations in 3C-SiC(100) T. Balster, V.M. Polyakov, F.S. Tautz, H. Ibach and J.A. Schaefer	347
FTIR-ATR Analysis of SiC(000-1) and SiC(0001) Surfaces H. Tsuchida, I. Kamata and K. Izumi	351
Polytype and Surface Characterization of Silicon Carbide Thin Films B. Schröter, M. Kreuzberg, A. Fissel, K. Pfennighaus and W. Richter	355
Characterization of Mechanically Polished Surfaces of Single Crystalline 6H-SiC M. Kanaya, H. Yashiro, N. Ohtani, M. Katsuno, J. Takahashi and S. Shinoyama	359
AFM Study of In Situ Etching of 4H and 6H SiC Substrates S. Karlsson and N. Nordell	363
Surface Morphology Improvement of SiC Epitaxy by Sacrificial Oxidation C.J. Anthony, A.J. Pidduck and M.J. Uren	367
The Formation of Super-Dislocation/Micropipe Complexes in 6H-SiC J. Giocondi, G.S. Rohrer, M. Skowronski, V. Balakrishna, G. Augustine, H. McD. Hobgood and R.H. Hopkins	371
High Resolution Photoemission Study of the 6H-SiC/SiO₂ Interface B. Mattern, M. Bassler, G. Pensl and L. Ley	375
Combined Ab Initio Total Energy Density Functional Calculations and Scanning Tunneling Microscopy Experiments of the β-SiC(001) c(4x2) Surface L. Douillard, F. Semond, V.Y. Aristov, P. Soukiassian, B. Delley, A. Mayne, G. Dujardin and E. Wimmer	379
Angle-Resolved Photoemission Study of the β-SiC(100)-(2x1)-Surface H. Hüsken, B. Schröter, W. Richter, P. Käckell and F. Bechstedt	383
Self-Organized One-Dimensional Si Atomic Chains on Cubic Silicon Carbide Surface F. Semond, V.Y. Aristov, L. Douillard, O. Fauchoux, P. Soukiassian, A. Mayne and G. Dujardin	387
High Resolution Photoemission Spectroscopy Using Synchrotron Radiation Study of the SiO₂/β-SiC(100)3x2 Interface Composition D. Dunham, P. Soukiassian, J.D. Denlinger, B.P. Tonner and E. Rothenberg	391

Raman Investigation of Stress Relaxation at the 3C-SiC/Si Interface J.M. Bluet, L.A. Falkovsky, N. Planes and J. Camassel	395
Extended Defects in SiC and GaN Semiconductors P. Pirouz	399
Defect Characterization of Homo-Epitaxially Grown 6H-SiC on (0001) Silicon and (000-1) Carbon Faces J. Stoemenos, L. Di Cioccio, V. Papaioannou, D. David and C. Pudda	409
Transmission Electron Microscopy Investigation of Defects in B-Implanted 6H-SiC P.O.Å. Persson, Q. Wahab, L. Hultman, N. Nordell, A. Schöner, K. Rottner, E. Olsson and M.K. Linnarsson	413
The Origin of Triangular Surface Defects in 4H-SiC CVD Epilayers W.L. Zhou, P. Pirouz and J.A. Powell	417
Gaseous Etching for Characterization of Structural Defects in Silicon Carbide Single Crystals J.A. Powell, D.J. Larkin and A.J. Trunek	421
Equilibrium Growth Morphologies of SiC Polytypes S.G. Müller, R. Eckstein, R.F.P. Grimbergen, D. Hofmann and B. Rexer	425
Experimental Studies of Hollow-Core Screw Dislocations in 6H-SiC and 4H-SiC Single Crystals W. Si, M. Dudley, R.C. Glass, C.H. Carter Jr. and V.F. Tsvetkov	429
Structural Characterization of SiC Crystals Grown by Physical Vapor Transport E.M. Sanchez, V.D. Heydemann, G.S. Rohrer, M. Skowronski, J. Solomon, M.A. Capano and W.C. Mitchel	433
Investigation of Polymorphism and Estimation of Lattice Constants of SiC Epilayers by Four Circle X-Ray Diffraction H. Romanus, G. Teichert and L. Spieß	437
Site Identification of 6H-SiC Using RBS/Channeling Technique M. Satoh, K. Okamoto, Y. Iwata, K. Kuriyama, M. Kanaya and N. Ohtani	441
Structural Characterization of 3C-SiC Epitaxially Grown on Si-On-Insulator V. Papaioannou, E. Pavlidou, J. Stoemenos, W. Reichelt and E. Obermeier	445
Electronic Properties of Doped SiC at Elevated Temperatures Studied by Raman Scattering H. Harima, T. Hosoda and S. Nakashima	449
Optical Properties of Silicon Carbide: Some Recent Developments R.P. Devaty, W.J. Choyke, S.G. Sridhara, L.L. Clemen, D.G. Nizhner, D.J. Larkin, T. Troffer, G. Pensl, T. Kimoto and H.S. Kong	455
Boron Four Particle Acceptor Bound Exciton Complex in 4H SiC S.G. Sridhara, D.G. Nizhner, R.P. Devaty, W.J. Choyke, T. Troffer, G. Pensl, D.J. Larkin and H.S. Kong	461
Phosphorus Four Particle Donor Bound Exciton Complex in 6H SiC S.G. Sridhara, L.L. Clemen, D.G. Nizhner, W.J. Choyke, R.P. Devaty and D.J. Larkin	465
Some Aspects of the Photoluminescence and Raman Spectroscopy of (10-10)- and (11-20)-Oriented 4H and 6H Silicon Carbide I.G. Ivanov, C. Hallin, T. Egilsson, A. Henry and E. Janzén	469
The Neutral Silicon Vacancy in 6H and 4H SiC E. Sörman, W.M. Chen, N.T. Son, C. Hallin, J.L. Lindström, B. Monemar and E. Janzén	473
Bound Exciton Recombination in Electron Irradiated 4H-SiC T. Egilsson, A. Henry, I.G. Ivanov, J.L. Lindström and E. Janzén	477
Characterization of Deep Levels in SiC by Photoluminescence Spectroscopy and Mapping M. Tajima, Y. Kumagaya, T. Nakata, M. Inoue and A. Nakamura	481
Time Resolved PL Study of Multi Bound Excitons in 3C SiC P. Bergman, E. Janzén, S.G. Sridhara and W.J. Choyke	485
Changes in the Exciton-Related Photoluminescence of 4H- and 6H-SiC Induced by Uniaxial Stress I.G. Ivanov, U. Lindefelt, A. Henry, T. Egilsson, O. Kordina and E. Janzén	489
D_{II} Revisited in an Modern Guise - 6H and 4H SiC S.G. Sridhara, D.G. Nizhner, R.P. Devaty, W.J. Choyke, T. Dalibor, G. Pensl and T. Kimoto	493
Near Band-Gap Emission in V-Implanted and Annealed 4H-SiC A. Henry, T. Egilsson, I.G. Ivanov, C.I. Harris, S. Savage and E. Janzén	497

Photoluminescence and Backscattering Characterization of 6H SiC Implanted with Erbium and Oxygen Ions	
A. Kozanecki, C. Jeynes, B.J. Sealy, W. Jantsch, S. Lanzerstorfer, W. Heiß and G. Prechtel	501
Luminescence Properties of Er Implanted Polycrystalline 3C SiC	
S. Uekusa, K. Awahara and M. Kumagai	505
Measurement of High Field Electron Transport in Silicon Carbide	
I.A. Khan and J.A. Cooper	509
Ionization Rates and Critical Fields in 4H SiC Junction Devices	
A.O. Konstantinov, Q. Wahab, N. Nordell and U. Lindefelt	513
Measurement of the Hall Scattering Factor in 4H SiC Epilayers from 40K to 290K and up to Magnetic Fields of Nine Tesla	
G. Rutsch, R.P. Devaty, D.W. Langer, L.B. Rowland and W.J. Choyke	517
Electrical Conductivity of Single-Crystalline Bulk 6H-SiC and Epitaxial Layers of AlN in the Temperature Range 300-2300 K	
	521
Monitory Carrier Lifetime Measurements in 6H-SiC Using the Photoconductive Decay Technique	
	525
Depth- and Time-Resolved Free Carrier Absorption in 4H SiC Epilayers: A Study of Carrier Recombination and Transport Parameters	
V. Grivickas, J. Linnros and A. Galeckas	529
Evaluation of Auger Recombination Rate in 4H-SiC	
A. Galeckas, J. Linnros, V. Grivickas, U. Lindefelt and C. Hallin	533
Ground States of the Ionized Isoelectronic Ti Acceptor in SiC	
T. Dalibor, G. Pensl, N. Nordell, A. Schöner and W.J. Choyke	537
Radiotracer Identification of Ti, V and Cr Band Gap States in 4H- and 6H-SiC	
N. Achtziger, J. Grillenberger and W. Witthuhn	541
Deep Levels in SiC:V by High Temperature Transport Measurements	
W.C. Mitchel, R. Perrin, J. Goldstein, M.D. Roth, M. Ahoujja, S.R. Smith, A.O. Evwaraye, J.S. Solomon, G. Landis, J.R. Jenny, H. McD. Hobgood, G. Augustine and V. Balakrishna	545
Deep Level Defect Study of Ion Implanted (Ar, Mg, Cr) n-Type 6H-SiC by Deep Level Transient Spectroscopy	
M.B. Scott, J.D. Scofield, Y.K. Yeo and R.L. Hengehold	549
Oxygen-Related Defect Centers in 4H Silicon Carbide	
T. Dalibor, G. Pensl, T. Yamamoto, T. Kimoto, H. Matsunami, S.G. Sridhara, D.G. Nizhner, R.P. Devaty and W.J. Choyke	553
Electrical Characterization of the Gallium Acceptor in 4H- and 6H-SiC	
T. Troffer, G. Pensl, A. Schöner, A. Henry, C. Hallin, O. Kordina and E. Janzén	557
Observation of Metastable Defect in Electron Irradiated 6H-SiC	
C.G. Hemmingsson, N.T. Son, O. Kordina, J.L. Lindström and E. Janzén	561
Electrically Active Defects in n-Type 4H- and 6H-SiC	
J.P. Doyle, L. Swadźba and B.G. Svensson	565
Phonon Spectrum of Band-to-Band Optical Transitions in 6H-SiC as Determined by Optical Admittance Spectroscopy	
S.R. Smith, A.O. Evwaraye and W.C. Mitchel	569
Electrical and Transmission Electron Microscopy Characterisation of 4H-SiC Homoepitaxial Mesa Diodes	
A. Czerwinski, J. Ratajczak, J. Katcki, A. Bakowski and M. Bakowski	573
High-Temperature Annealing of 6H-SiC Single Crystals and the Site-Competition Processes	
S.I. Vlaskina, Y.P. Lee, V.E. Rodionov and M. Kaminska	577
Electronic Structure of Acceptors in Silicon Carbide	
P.G. Baranov	581
High-Frequency EPR Studies of Shallow and Deep Boron Acceptors in 6H-SiC	
J. Schmidt, T. Matsumoto, O.G. Poluektov, A. van Duijn-Arnold, T. Ikoma, P.G. Baranov and E.N. Mokhov	587
On the Identification of an Al Related Deep Centre in 4H-SiC - Self-Compensation in SiC?	
B.K. Meyer, A. Hofstätter and P.G. Baranov	591
X-Band ENDOR of Boron and Beryllium Acceptors in Silicon Carbide	
A. Hofstätter, B.K. Meyer, A. Scharmann, P.G. Baranov, I.V. Ilyin and E.N. Mokhov	595

Optically Detected Magnetic Resonance Studies of Non-Radiative Recombination Centres in 6H SiC	
N.T. Son, M. Wagner, E. Sörman, W.M. Chen, B. Monemar and E. Janzén	599
Chromium in 4H and 6H SiC: Photoluminescence and Zeeman Studies	
N.T. Son, A. Ellison, M.F. MacMillan, O. Kordina, W.M. Chen, B. Monemar and E. Janzén	603
Electron Paramagnetic Resonance of Erbium in Bulk Silicon Carbide Crystals	
P.G. Baranov, I.V. Ilyin and E.N. Mokhov	607
Characterization of Defects in Electron Irradiated 6H-SiC by Positron Lifetime and Electron Spin Resonance	
A. Kawasuso, H. Itoh, D.B. Cha and S. Okada	611
ESR Studies of Defects in p-Type 6H-SiC Irradiated with 3MeV-Electrons	
D.B. Cha, H. Itoh, N. Morishita, A. Kawasuso, T. Ohshima, Y. Watanabe, J. Ko, K.K. Lee and I. Nashiyama	615
Distribution of Paramagnetic Defects in 3C-SiC Epitaxial Films Grown by LPCVD Method with Alternate Gas Supply	
T. Izumi, K. Kobayashi, E. Hirose, T. Kawahara and H. Nagasawa	619
Experimental and Theoretical Analysis of the High Temperature Thermal Conductivity of Monocrystalline SiC	
S.G. Müller, R. Eckstein, J. Fricke, D. Hofmann, R. Hofmann, R. Horn, H. Mehling and O. Nilsson	623
Deformation of Monocrystalline 6H-SiC	
A.V. Samant, W.L. Zhou and P. Pirouz	627
Measurement of the Thermal Conductivity of Thin β-SiC Films between 80 K and 600 K	
E. Jansen, R. Ziermann, E. Obermeier, G. Krötz and C. Wagner	631
Spatial Uniformity of the Mechanical Properties of 3C-SiC Films Grown on 4-Inch Si Wafers as a Function of Film Growth Conditions	
K. Chandra, C.A. Zorman and M. Mehregany	635
The Measurement of the Thickness of Thin SiC Layers on Silicon	
V. Cimalla, J. Scheiner, G. Ecke, M. Friedrich, R. Goldhahn, D.R.T. Zahn and J. Pezoldt	641
Thickness Contour Mapping of SiC Epi-Films on SiC Substrates	
M.F. MacMillan, P.O. Narfgen, A. Henry and E. Janzén	645
Infrared Reflectance of Extremely Thin AlN Epi-Films Deposited on SiC Substrates	
M.F. MacMillan, U. Forsberg, P.O. Å. Persson, L. Hultman and E. Janzén	649
Cathodoluminescence of Defect Regions in SiC Epi-Films	
M.F. MacMillan, L. Hultman, C. Hallin, I.G. Ivanov, A. Henry, E. Janzén and S.A. Galloway	653
Contactless Measurement of the Thermal Conductivity of Thin SiC Layers	
S. Rohmfeld, M. Hundhausen and L. Ley	657
Cross-Sectional Micro-Raman Spectroscopy: A Tool for Structural Investigations of Thin Polytypic SiC Layers	
T. Werninghaus, D.R.T. Zahn, R.A. Yankov, A. Mücklich and J. Pezoldt	661
A Non-Destructive Technique for High Field Characterization of Gate Insulators in SiC MOS Capacitors	
V. Madangarli and T.S. Sudarshan	665
Raman Determination of Stresses and Strains in 3C-SiC Films Grown on 6-Inch Si Substrates	
C. Hagiwara, K.M. Itoh, J. Muto, H. Nagasawa, K. Yagi, H. Harima, K. Mizoguchi and S. Nakashima	669
Conductivity Control of SiC by In-Situ Doping and Ion Implantation	
T. Kimoto, A. Itoh, N. Inoue, O. Takemura, T. Yamamoto, T. Nakajima and H. Matsunami	675
Incorporation of the D-Center in SiC Controlled either by Coimplantation of Si/B and C/B or by Site-Competition Epitaxy	
T. Frank, T. Troffer, G. Pensl, N. Nordell, S. Karlsson and A. Schöner	681
Coimplantation Effects on the Electrical Properties of Boron and Aluminium Acceptors in 4H-SiC	
H. Itoh, T. Troffer and G. Pensl	685
Electrical Characterization of p-Type 6H-SiC Layers Created by C and Al Co-implantation	
K. Tone, S.R. Weiner and J.H. Zhao	689

Effects of Al-C Ion-Implantation and Annealing in Epitaxial 6H-SiC Studied by Structural and Optical Techniques	
Z.C. Feng, I.T. Ferguson, R.A. Stall, K. Li, Y. Shi, H. Singh, K. Tone, J.H. Zhao, A.T.S. Wee, K.L. Tan, F. Adar and B. Lenain	693
Energy Order Effect of Aluminium Multiple Implantation in 6H-SiC	
L. Ottaviani, E. Morvan, M.L. Locatelli, P. Godignon and J. Chante	697
Implantation of Al and B Acceptors into Alpha-SiC and pn Junction Diodes	
O. Takemura, T. Kimoto, H. Matsunami, T. Nakata, M. Watanabe and M. Inoue	701
Electrical Activation of B Implant in 6H-SiC	
E. Valcheva, T. Paskova, I.S. Ivanov, R. Yakimova, Q. Wahab, S. Savage, N. Nordell and C.I. Harris	705
Post-Implantation Annealing of Aluminium in 6H-SiC	
L. Ottaviani, D. Planson, M.L. Locatelli, J. Chante, B. Canut and S. Ramos	709
The Characterization of SiC Hot-Implanted with Ga⁺	
Y. Tanaka, N. Kobayashi, M. Hasegawa, S. Yoshida, Y. Ishida, T. Nishijima and N. Hayashi	713
Ion Implantation Doping in SiC and its Device Applications	
M.V. Rao, J. Gardner, A.H. Edwards, N. Papanicolaou, G. Kelner, O.W. Holland, M. Ghezzi and J.W. Kretchmer	717
Hot-Implantation of Phosphorus Ions into 6H-SiC	
L. Bouwhuis, T. Ohshima, H. Itoh, Y. Aoki, M. Yoshikawa, I. Nashiyama and M. Iwami	721
Raman, Low Temperature Photoluminescence and Transport Investigation of N-Implanted 6H-SiC	
P. Thomas, S. Contreras, S. Juillaguet, J. Robert, J. Camassel, J. Gimbert, T. Billon and C. Jaussaud	725
Investigation of Ion-Implantation Induced Damage in 6H-SiC by RSB/C and PAS	
H. Wirth, W. Anwand, G. Brauer, M. Voelskow, D. Panknin, W. Skorupa and P.G. Coleman	729
Analysis of Aluminium Ion Implantation Damage into 6H-SiC Epilayers	
N. Mestres, M. Ben El Mekki, F.J. Campos, J. Pascual, E. Morvan, P. Godignon, J. Millan and G. Lulli	733
Stoichiometric Disturbances in Ion Implanted Silicon Carbide	
E. Morvan, J. Montserrat, J. Rebollo, D. Flores, X. Jordá, M.L. Locatelli and L. Ottaviani	737
6H-SiC Crystallinity Behaviour upon B Implantation Studied by Raman Scattering	
T. Paskova, E. Valcheva, I.G. Ivanov, R. Yakimova, S. Savage, N. Nordell and C.I. Harris	741
Study of Thermal Annealing of Vacancies in Ion Implanted 3C-SiC by Positron Annihilation	
T. Ohshima, A. Uedono, H. Itoh, L. Bouwhuis, R. Suzuki, T. Ohdaira, Y. Aoki, M. Yoshikawa, T. Mikado, H. Okumura, S. Yoshida, S. Tanigawa and I. Nashiyama	745
Effect of Hot Isostatic Press Annealing for Ion-Implanted Silicon Carbide	
Y. Hirabayashi, M. Furuya, K. Hirai, H. Takano, K. Yabuta and M. Kumagai	749
Ion Beam Synthesis: A Novel Method of Producing (SiC)_{1-x}(AlN)_x Layers	
R.A. Yankov, W. Fukarek, M. Voelskow, J. Pezoldt and W. Skorupa	753
A Computational Model for the Formation of (SiC)_{1-x}(AlN)_x Structures by Hot, High-Dose N⁺ and Al⁺ Co-Implants in 6H-SiC	
Y.V. Truschin, R.A. Yankov, V.S. Kharlamov, D.V. Kulikov, D.N. Tsigankov, U. Kreissig, M. Voelskow, J. Pezoldt and W. Skorupa	757
Deuterium Incorporation in Acceptor Doped Epitaxial Layers of 6H-SiC	
M.K. Linnarsson, M.S. Janson, A. Schöner, N. Nordell, S. Karlsson and B.G. Svensson	761
Silicon Carbide on Insulator Formation by the Smart CUT[®] Process	
L. Di Cioccio, Y. Le Tiec, C. Jaussaud, E. Hugonnard-Bruyère and M. Bruel	765
Delamination of Thin Layers in H⁺ Implanted Silicon Carbide	
T. Hara, Y. Kakizaki, H. Tanaka, M. Inoue, K. Kajiyama, T. Yoneda, K. Sekine and K. Masao	771
Metal Disilicide Contacts to 6H-SiC	
J. Kriz, T. Scholz, K. Gottfried, J. Leibelt, C. Kaufmann and T. Gessner	775
Formation of Tungsten Ohmic Contact on n-Type 6H-SiC by Pulsed Laser Processes	
K. Nakashima, O. Eryu, T. Kume, T. Nakata and M. Inoue	779
Laser Alloying for Ohmic Contacts on SiC at Room Temperature	
Y. Ota, Y. Ikeda and M. Kitabatake	783
Thermostable Ohmic Contacts on p-Type SiC	
L. Kassamakova, R. Kakanakov, N. Nordell and S. Savage	787

Ohmic Contacts to p-Type SiC with Improved Thermal Stability S.Z. Liu and J.D. Scofield	791
A High Temperature Stable Metallization Scheme for SiC-Technology Operating at 400°C in Air K. Gottfried, H. Fritsche, J. Kriz, J. Leibelt, C. Kaufmann, F. Rudolf and T. Gessner	795
Phase Formation Sequence of Nickel Silicides from Rapid Thermal Annealing of Ni on 4H-SiC L.D. Madsen, E.B. Svedberg, H.H. Radamson, C. Hallin, B. Hjörvarsson, C. Cabral, J.L. Jordan-Sweet and C. Lavoie	799
Thermal Stability of Sputtered TiN as Metal Gate on 4H-SiC E. Danielsson, C.I. Harris, C. Zetterling and M. Östling	805
Schottky Barrier Height in Metal-SiC Contact - New Approach to Modelling P.A. Ivanov and K.I. Ignat'ev	809
Nanometer-Scale Investigation of Schottky Contacts and Conduction Band Structure on 4H-, 6H- and 15R-SiC Using Ballistic Electron Emission Microscopy H.J. Im, B. Kaczer, J.P. Pelz, J.M. Chen and W.J. Choyke	813
Physical and Electrical Characterization of WN Schottky Contacts on 4H-SiC O. Noblanc, C. Arnodof, S. Cassette, C. Brylinski, A. Kakanakova-Georgieva, T. Marinova, L. Kassamakova, R. Kabanakov, B. Péc, A. Sulyok and G.Z. Radnóczy	817
Sputter-Etching as a Surface Preparation Technique for Schottky Contacts S.I. Kinouchi, H. Sugimoto, Y. Tarui, K. Ohtsuka, T. Takami and T. Ozeki	821
Mechanism of Reactive Ion Etching of 6H-SiC in CHF₃/O₂ Gas Mixtures N. Sieber, J. Ristein and L. Ley	825
Fast and Anisotropic Reactive Ion Etching of 4H and 6H SiC in NF₃ V. Saxena and A.J. Steckl	829
Inductively Coupled Plasma Etching of SiC for Power Switching Device Fabrication L.H. Cao, B. Li and J.H. Zhao	833
Etching Kinetics of α-SiC Single Crystals by Molten KOH M. Katsuno, N. Ohtani, J. Takahashi, H. Yashiro, M. Kanaya and S. Shinoyama	837
Deep States in SiO₂/p-Type 4H-SiC Interface H. Yano, N. Inoue, T. Kimoto and H. Matsunami	841
Effects of the Cooling-Off Condition on the Oxidation Process in 6H-SiC K. Ueno	845
Effect of Post-Metal Annealing on the Quality of Thermally Grown Silicon Dioxide on 6H- and 4H-SiC J. Campi, Y. Shi, Y.B. Luo, F. Yan, Y.K. Lee and J.H. Zhao	849
Low Interface State Density Oxides on P-Type SiC L.A. Lipkin, D.B. Slater, Jr. and J.W. Palmour	853
Observation of Carbon Clusters at the 4H-SiC/SiO₂ Interface V.V. Afanas'ev, A. Stesmans and C.I. Harris	857
Interface State Density at Implanted 6H SiC/SiO₂ MOS Structures M. Bassler, V.V. Afanas'ev and G. Pensl	861
Electrical Properties and Reliability of Vapor Jet Deposited Oxide on SiC X.W. Wang, Y. Takahashi, T.P. Ma, G.J. Cui, T. Tamagawa, B. Halpern and J.J. Schmitt	865
Improving SiO₂ Grown on P-Type 4H-SiC by NO Annealing H.-. Li, S. Dimitrije, H.B. Harrison, D. Sweatman and P.T. Tanner	869
Rapid Anodic Oxidation of 6H-SiC Y.I. Khlebnikov, V. Madangarli, M.A. Khan and T.S. Sudarshan	873
Comparison of SiO₂ and AlN as Gate Dielectric for SiC MOS Structures C. Zetterling, M. Östling, C.I. Harris, N. Nordell, K. Wongchotigul and M.G. Spencer	877
Metal-Nitride-Semiconductor Capacitors on 6H-SiC S. Berberich, P. Godignon, J. Millan, D. Planson, H.L. Hartnagel and A. Senes	881
Surface Micromachining of Polycrystalline SiC Deposited on SiO₂ by APCVD A.J. Fleischman, X. Wei, C.A. Zorman and M. Mehregany	885
Behaviour of Polycrystalline SiC and Si Surface-Micromachined Lateral Resonant Structures at Elevated Temperatures A.J. Fleischman, S. Roy, C.A. Zorman and M. Mehregany	889

Recent Advances in SiC Power Devices J.A. Cooper, M.R. Melloch, J.M. Woodall, J. Spitz, K.J. Schoen and J. Henning	895
Vital Issues for SiC Power Devices K. Hara	901
Silicon Carbide High Frequency Devices C.E. Weitzel	907
Wide Dynamic Range RF Mixers Using Wide-Bandgap Semiconductors C. Fazi and P.G. Neudeck	913
Electrothermal Simulation of 4H-SiC Power Devices N.G. Wright, D.J. Morrison, C.M. Johnson and A.G. O'Neill	917
High Voltage (>2.5kV) 4H-SiC Schottky Rectifiers Processed on Hot-Wall CVD and High-Temperature CVD Layers T. Kimoto, Q. Wahab, A. Ellison, U. Forsberg, M. Tuominen, R. Yakimova, A. Henry and E. Janzén	921
6H-SiC Schottky Diode Edge Terminated Using Amorphous SiC by Sputtering Method K. Matsumoto, Y. Chen, J. Kuzmik and S. Nishino	925
Effect of Surface Preparation and Thermal Anneal on Electrical Characteristics of 4H-SiC Schottky Barrier Diodes D. Alok, R. Egloff and E. Arnold	929
High Voltage Schottky Barrier Diodes on P-Type 4H and 6H-SiC R. Raghunathan and B.J. Baliga	933
High Voltage 4H SiC Rectifiers Using Pt and Ni Metallization V. Saxena and A.J. Steckl	937
Medici Simulation of 6H-SiC Oxide Ramp Profile Schottky Structure G. Brezeanu, J. Fernandez, J. Millan, M. Badila and G. Dilimot	941
A Dual-Metal-Trench Schottky Pinch-Rectifier in 4H SiC K.J. Schoen, J. Henning, J.M. Woodall, J.A. Cooper and M.R. Melloch	945
Characterization of Power MESFETs on 4h-SiC Conductive and Semi-Insulating Wafers O. Noblanc, C. Arnodof, E. Chartier and C. Brylinski	949
Silicon Carbide MESFET's for High-Power S-Band Applications S.T. Allen, R.A. Sadler, T.S. Alcorn, J.J. Sumakeris, R.C. Glass, C.H. Carter Jr. and J.W. Palmour	953
Temperature Dependent Small- and Large-Signal Performance of 4H-SiC MESFET's K. Moore, M. Bhatnagar, C. Weitzel, L. Pond, T. Gehoski and T. Chatham	957
Voltage Handling Capability and Microwave Performance of a 4H-SiC MESFET - A Simulation Study V. Khemka, T.P. Chow and R.J. Gutmann	961
Evaluating the Three Common SiC Polytypes for MESFET Applications M. Roschke, F. Schwierz, G. Paasch and D. Schipanski	965
Effect of Device Temperature on RF FET Power Density C. Weitzel, L. Pond, K. Moore and M. Bhatnagar	969
Theoretical Investigation of the Electrical Behavior of SiC MESFETs for Microwave Power Amplification F. Schwierz, M. Roschke, J.J. Liou and G. Paasch	973
MESFETs and MOSFETs on Hydrogen-Terminated Diamond Surfaces K. Tsugawa, A. Hokazono, H. Noda, K. Kitatani, K. Morita and H. Kawarada	977
On the Interpretation of High-Frequency Capacitance Data of SiC MOS Structures: The Effect of Thermal Non-Equilibrium M. Sadeghi, B. Liss, E.Ö. Sveinbjörnsson and O. Engström	981
Charge Pumping Measurements on SiC MOSFETs C. Scozzie and J.M. McGarrity	985
1400 V 4H-SiC Power MOSFETs A.K. Agarwal, J.B. Casady, L.B. Rowland, W.F. Valek and C.D. Brandt	989
High Voltage Planar 6H-SiC ACCUFET P.M. Shenoy and B.J. Baliga	993
Inversion Layer Mobility in SiC MOSFETs S. Sridevan and B.J. Baliga	997

Dependence of Channel Mobility on the Surface Step in Orientation in Planar 6H-SiC MOSFETs	
S. Scharnholz, E. Stein von Kamienski, A. Gözl, C. Leonhard and H. Kurz	1001
High-Voltage (2.6 kV) Lateral DMOSFETs in 4H-SiC	
J. Spitz, M.R. Melloch, J.A. Cooper and M.A. Capano	1005
Impact Ionization in 6H-SiC MOSFETs	
E. Bano, T. Ouisse, S. Scharnholz and A. Gözl	1009
Interface States and Field-Effect Mobility in 6H-SiC MOS Transistors	
E. Arnold, N. Ramungul, T.P. Chow and M. Ghezze	1013
Generation Mechanisms of Trapped Charges in Oxide Layers of 6H-SiC MOS Structures Irradiated with Gamma-Rays	
M. Yoshikawa, K. Saitoh, T. Ohshima, H. Itoh, I. Nashiyama, Y. Takahashi, K. Ohnishi, H. Okumura and S. Yoshida	1017
Differences between Interfacial Bonding Chemistry at SiC-SiO₂ Interfaces Prepared by Low-Temperature Remote Plasma-Assisted Oxidation and High Temperature Conventional Thermal Oxidation	
G. Lucovsky and H. Niimi	1021
Fast Generation-Recombination Channels due to Epitaxial Defects in SiC Metal-Oxide-Semiconductor Devices	
A.O. Konstantinov, Q. Wahab, C. Hallin, C.I. Harris and B. Pécz	1025
6H-SiC MOS Capacitors on Sloped Surfaces: Realisation, Characterisation and Electrical Results	
F. Lanois, D. Planson, P. Lassagne, C. Raynaud and E. Bano	1029
Computer Model Simulation of SiC Diode Reverse-Bias Instabilities due to Deep Energy Impurity Levels	
R.P. Joshi and C. Fazi	1033
Nanosecond Risetime Pulse Characterization of SiC p⁺n Junction Diode Breakdown and Switching Properties	
P.G. Neudeck and C. Fazi	1037
Reverse Recovery and Avalanche Injection in High Voltage SiC PIN Diodes	
M. Domeij, B. Breitholtz, J. Linnros and M. Östling	1041
Comparison between Aluminium and Boron-Doped Junction Termination Extensions for High Voltage 6H-SiC Planar Bipolar Diodes	
S. Ortolland, M.L. Locatelli, D. Planson, J. Chante and A. Senes	1045
Beryllium-Implanted 6H-SiC P⁺N Junctions	
N. Ramungul, Y.J. Zheng, R. Patel, V. Khemka and T.P. Chow	1049
Investigation of Excess Carrier Distributions in 4H-SiC Power Diodes under Static Conditions and Turn-On	
O. Tornblad, A. Galeckas, J. Linnros, B. Breitholtz and U. Lindefelt	1053
SiC Merged p-n/Schottky Rectifiers for High Voltage Applications	
R. Held, N. Kaminski and E. Niemann	1057
Junction Barrier Schottky Diodes in 4H-SiC and 6H-SiC	
F. Dahlquist, C. Zetterling, M. Östling and K. Rottner	1061
Carrier Lifetime Extraction from a 6H-SiC High Voltage p-i-n Rectifier Reverse Recovery Waveform	
N. Ramungul, V. Khemka, T.P. Chow, M. Ghezze and J.W. Kretchmer	1065
4H-SiC Gate Turn-Off (GTO) Thyristor Development	
J.B. Casady, A.K. Agarwal, L.B. Rowland, R.R. Siergiej, S. Seshadri, S. Mani, J. Barrows, D. Piccone, P.A. Sanger and C.D. Brandt	1069
Punch-Through Behaviour of Wide Bandgap Materials (with Example in 6H-SiC) and its Benefit to JFETs	
N. Kaminski, S.T. Sheppard and E. Niemann	1073
High Temperature Performance of Implanted-Gate n-Channel JFETs in 6H-SiC	
S.T. Sheppard, V. Lauer, W. Wondrak and E. Niemann	1077
SiC Surface Engineering for High Voltage JFET Applications	
P.A. Ivanov, O.I. Kon'kov, A.O. Konstantinov, V.N. Panteleev, T.P. Samsonova, N. Nordell, S. Karlsson and C.I. Harris	1081

Electrical Characteristics of a Novel Gate Structure 4H-SiC Power Static Induction Transistor	
T. Iwasaki, T. Oono, K. Asano, Y. Sugawara and T. Yatsuo	1085
Studies of the Ambient Dependent Inversion of Catalytic Metal - Oxide - Silicon Carbide Devices Based on 6H- and 4H-SiC Material	
P. Tobias, A. Baranzahi, I. Lundström, A. Schöner, K. Rottner, S. Karlsson, P. Mårtensson and A. Lloyd Spetz	1089
SiC-Based Schottky Diode Gas Sensors	
G.W. Hunter, P.G. Neudeck, L.Y. Chen, D. Knight, C.C. Liu and Q.H. Wu	1093
Electrical Characterization of Chemical Sensors Based on Catalytic Metal Gate - Silicon Carbide Schottky Diodes	
P. Tobias, S. Nakagomi, A. Baranzahi, R. Zhu, I. Lundström, P. Mårtensson and A. Lloyd Spetz	1097
High Temperature Piezoresistive β-SiC-on-SOI Pressure Sensor for Combustion Engines	
J. von Berg, R. Ziermann, W. Reichert, E. Obermeier, M. Eickhoff, G. Krötz, U. Thoma, T. Boltshauser, C. Cavalloni and J.P. Nendza	1101
Growth of Bulk GaN by Sublimation Method	
S. Sakai, H. Sato, T. Sugahara, Y. Naoi, S. Kurai, K. Yamashita, S. Tottori, M. Hao, K. Wada and S. Nishino	1107
Growth and Characterization of Thin Films and Patterned Substrates of III-V Nitrides on SiC (0001) Substrates	
R.F. Davis, M.D. Bremser, O.H. Nam, T.S. Zheleva, W.G. Perry, B.L. Ward and R.J. Nemanich	1111
Heteroepitaxy of Group III Nitrides for Device Applications	
H. Amano, T. Takeuchi, H. Sakai, S. Yamaguchi, C. Wetzel and I. Akasaki	1115
HVPE GaN and AlGaN 'Substrates' for Homoepitaxy	
Y.V. Melnik, A.E. Nikolaev, S. Stepanov, I. Kikitina, K. Vassilevski, A. Ankudinov, Y. Musikhin and V. Dmitriev	1121
Some Features of a Nucleation Layer Growth Process and its Influence on the GaN Epilayer Quality	
W.V. Lundin, A.S. Usikov, B.V. Pushnyi, U.I. Ushakov, M.V. Stepanov, N.M. Shmidt, A.V. Sakharov, Y.M. Zadiranov, S.M. Sutin and V. Busov	1125
Formation of GaN Nano-Column Structure by Nitridation	
A. Hashimoto, T. Motiduki, H. Wada and A. Yamamoto	1129
Growth of High Quality AlN Epitaxial Films by Hot-Wall Chemical Vapour Deposition	
U. Forsberg, J. Birch, M.F. MacMillan, P.O. Å. Persson, L. Hultman and E. Janzén	1133
Growth of Aluminium Nitride with Superior Optical and Morphological Properties	
K. Wongchotigul, S. Wilson, C. Dickens, X. Tang and M.G. Spencer	1137
Monomethylsilane as a New Dopant Precursor for n-Type GaN Grown by MOVPE	
K. Tomita, K. Itoh, T. Kachi and H. Tadano	1141
Epitaxial Growth of GaN on Silicon Substrates by Low-Pressure MOCVD using AlAs, AlAs/GaAs, and AlN Buffer Layers	
A. Strittmatter, A. Krost, K. Schatke, Y. Iseri, J. Bläsing and J. Christen	1145
Optical Properties of GaN Films Grown on SiC/Si	
J. Devrajan, A.J. Steckl, C.A. Tran and R.A. Stall	1149
Modeling of the Incorporation of Aluminium in Ga_{1-x}Al_xM (M=As or N) Alloys Grown by MOCVD	
S. Ruffenach-Clur, O. Briot, B. Gil and R.L. Aulombard	1153
MOCVD Growth and Properties of InGaN/GaN Multi-Quantum Wells	
S. Keller, F. Cabané, M.S. Minsky, X.H. Wu, M.P. Mack, J.S. Speck, E. Hu, L.A. Coldren, U.K. Mishra and S.P. DenBaars	1157
MBE Growth of III-V Nitride Thin Films and Quantum Well Structures	
M.A.L. Johnson, N. El-Masry, J.W. Cook Jr. and J.F. Schetzina	1161
Surface Reconstruction and As Surfactant Effects on MBE-Grown GaN Epilayers	
H. Okumura, H. Hamaguchi, K. Ohta, G. Feuillet, K. Balakrishnan, Y. Ishida, S.F. Chichibu, H. Nakanishi, T. Nagatomo and S. Yoshida	1167
An Accurate Method to Determine the Growth Conditions during Molecular Beam Epitaxy of Cubic GaN	
B. Schöttker, J. Kühler, D.J. As, D. Schikora and K. Lischka	1173
Elaboration of III-V Nitrides Quantum Dots in Molecular Beam Epitaxy	
B. Daudin, F. Widmann, G. Feuillet, Y. Samson, J.-. Rouvière and N. Pelekanos	1177

Growth of AlN on 6H- and 4H-SiC by Gas-Source Molecular Beam Epitaxy K. Järrendahl, S.A. Smith, T.S. Zheleva, R.S. Kern and R.F. Davis	1181
Molecular Beam Epitaxy Growth and Characterisation of GaAs_{1-x}N_x Layers J.V. Thordson, O. Zsebök, U. Södervall and T.G. Andersson	1185
Effect of Elastic Strain on Growth of Ternary Group-III Nitride Compounds S.Y. Karpov, Y. Makarov and M.S. Ramm	1189
Influence of Activated Nitrogen on Plasma Assisted MBE Growth of GaN U. Birkle, C. Thomas, M. Fehrer, S. Einfeldt, H. Heinke and D. Hommel	1193
Surface Reconstruction and MBE Growth of Cubic GaN on (001) GaAs: A Total Energy Study J.L.F.d. Silva, R. Enderlein, L.M.R. Scolfaro, J.R. Leite, A. Tabata, K. Lischka, D. Schikora and F. Bechstedt	1197
Growth and Characterization of High Quality Epitaxial GaN on ZnO(0001) by Reactive Molecular Epitaxy F. Hamdani, M. Yeadon, D.J. Smith, H. Tang, W. Kim, A. Salvador, A.E. Botchkarev, J.M. Gibson and H. Morkoç	1201
Low Temperature Growth of Gallium Nitride on Quartz and Sapphire Substrates E.M. Goldys, M.J. Paterson, H.Y. Zuo and T.L. Tansley	1205
STM Observation of Initial Nitridation Process of Ga on Si Substrates Y. Nakada and H. Okumura	1209
Nitridation of GaAs(100) Wafers for the Preparation of Zincblende-Structure Thick GaN Layers A. Yamamoto, T. Shin-ya, Y. Yamauchi and A. Hashimoto	1213
Magnesium-Doped GaN Films Grown by Molecular Beam Epitaxy on GaAs(111)B Substrates T.S. Cheng, C.T. Foxon, N.J. Jeffs, D.J. Dewsnip, L.B. Flannery, J.W. Orton, I. Harrison, S.V. Novikov, B.Y. Ber and Y.A. Kudriavtsev	1217
MBE Growth of Device-Quality Cubic GaN on Atomically Flat (001) GaAs Prepared by Atomic-Hydrogen Treatment at High Temperatures A. Yoshikawa, Z.X. Qin, H. Nagano, Y. Sugure, A.W. Jia, M. Kobayashi, Y. Kato and K. Takahashi	1221
Reactive UHV Sputtering and Structural Characterization of Epitaxial AlN/6H-SiC(0001) Thin Films S. Tungasmita, J. Birch, L. Hultman, E. Janzén and J.-. Sundgren	1225
Magnetron Sputter Epitaxy of Gallium Nitride on (0001) Sapphire J.B. Webb, D. Northcott, S. Charbonneau, F. Yang, D.J. Lockwood, O. Malvezin, P. Singh and J. Corbett	1229
Structural and Optical Properties of GaN Layers Directly Grown on 6H-SiC(0001) by Plasma-Assisted Molecular Beam Epitaxy B. Yang, O. Brandt, Y.G. Zhang, A.Z. Li, B. Jenichen, G. Paris and K. Ploog	1235
Transmission Electron Microscopy Study of GaN on SiC on SIMOX Grown by Metalorganic Chemical Vapor Deposition W.L. Zhou, P. Pirouz, F. Namavar, P.C. Colter, M. Yoganathan, M.W. Leksono and J.I. Pankove	1239
AlN Deposition by OMVPE and PLD Used as an Encapsulate for Ion Implanted SiC K.A. Jones, K. Xie, D.W. Eckart, M.C. Wood, V. Talyansky, R.D. Vispute, T. Venkatesan, K. Wongchotigul and M.G. Spencer	1243
The Atomic Structure of Prismatic Planar Defects in GaN/AlN Grown over Silicon Carbide and Sapphire Substrates G. Nouet, P. Vermaut, V. Potin, P. Ruterana, A. Salvador and H. Morkoç	1247
Surface Defects in GaN and Al_xGa_{1-x}N Epilayers Deposited on Sapphire by Organometallic Vapor Phase Epitaxy M.C. Shin, A.Y. Polyakov, M. Skowronski, G.S. Rohrer and R.G. Wilson	1251
Structural Characterisation of GaN Layers on Sapphire Grown by MOCVD B. Pécz, M.A. di Forte-Poisson, L. Tóth and G.Z. Radnóczy	1255
Excitonic Fine Structure and High Density Effects in GaN A. Hoffmann and L. Eckey	1259
Optical Transitions and Exciton Binding Energies in GaN Grown along Various Crystallographic Orientations B. Gil, O. Briot, R.L. Aulombard and S. Nakamura	1265

Free Exciton Recombination in Tensile Strained GaN Grown on GaAs R. Goldhahn, S. Shokhovets, H. Romanus, T.S. Cheng and C.T. Foxon	1271
Exciton Dynamics in Homoepitaxial GaN B. Monemar, P. Bergman, I.G. Ivanov, J.M. Baranowski, K. Pakula, I. Grzegory and K. Tsuno	1275
Exciton Dynamics of Thick GaN Epilayers Deposited by MOVPE on Al₂O₃ J. Allègre, P. Lefebvre, J. Camassel, B. Beaumont and P. Gibart	1279
Excitonic Quantum Efficiency of GaN A. Göldner, L. Eckey, A. Hoffmann, B. Gil and O. Briot	1283
Optical Absorption and Excitation Spectroscopy on GaInN/GaN Double Heterostructures and Quantum Wells A. Hangleiter, S. Heppel, J. Off, A. Sohmer and F. Scholz	1287
Lasing and Gain Mechanisms in AlGaIn-GaN-Double Heterostructures: Correlation with Structural Properties J. Holst, M. Straßburg, N.N. Ledentsov, L. Eckey, A. Göldner, A. Hoffmann, T. Hempel, D. Rudloff, F. Bertram, J. Christen, A.V. Sakharov, M.V. Maximov, A.S. Usikov, W.V. Lundin, B.V. Pushnyi and Z.I. Alferov	1291
Optical Properties of InGaIn/GaN Multiple Quantum Wells J. Allègre, P. Lefebvre, S. Juillaguet, J. Camassel, W. Knap, Q. Chen and M. Asif Khan	1295
Time-Resolved Spectroscopy on GaN/AlGaIn Double Heterostructures and Quantum Wells J.S. Im, J. Off, A. Sohmer, F. Scholz and A. Hangleiter	1299
Non-Linear Exciton Spectroscopy of GaN/AlGaIn Quantum Wells R. Cingolani, G. Coli, R. Rinaldi, L. Calcagnile, H. Tang, A.E. Botchkarev, W. Kim, A. Salvador and H. Morkoç	1303
Quantum Confinement Stark Effect in InGaIn SQW Studied by Electric Field Modulated PL Spectra Y. Iyechika, Y. Ono and T. Takada	1307
Optical Characterization of InGaIn Layers and GaN/InGaIn/GaN Double Heterostructures A. Graber, R. Averbek, U. Barnhöfer, H. Riechert and H. Tews	1311
Optical and Structural Studies of Thick AlGaIn Alloy Layers and AlGaIn/GaN Heterostructures on Sapphire Substrates W.V. Lundin, A.S. Usikov, B.V. Pushnyi, U.I. Ushakov, M.V. Stepanov, N.M. Shmidt, T.V. Shubina, A.V. Sakharov, N.N. Faleev, V. Solov'ev, A.A. Sitnikova, Y.A. Kudriavtsev, B.Y. Ber and Y.M. Zadiranov	1315
Room Temperature Photoluminescence Linewidth versus Material Quality of GaN B. Monemar, I.A. Buyanova, P. Bergman, H. Amano and I. Akasaki	1319
Residual Donors in GaN Epitaxial Films - A Correlation of HALL Effect, SIMS and Photoluminescence Data M. Topf, W. Kriegseis, W. Burkhardt, I. Dirnstorfer, D. Meister and B.K. Meyer	1323
Are there any Shallow Acceptors in GaN? B. Monemar	1327
Crystal Structure and Optical Properties of Bulk GaN Crystals Grown from a Melt at Reduced Pressure V. Sukhovveyev, V. Ivantsov, A.S. Zubrilov, V. Nikolaev, I.P. Nikitina, V. Bougrov, D. Tsvetkov and V. Dmitriev	1331
Characterization of GaN Quantum Dots on AlGaIn/SiC Substrate Using Cathodoluminescence A. Petersson, S. Tanaka, Y. Aoyagj and L. Samuelson	1335
Cathodoluminescence of Cubic GaN Epilayers C.M. Wang, D.J. As, D. Schikora, B. Schöttker and K. Lischka	1339
Optical Properties of Cubic Phase GaN Epilayers Grown by Molecular Beam Epitaxy on SiC/Silicon (100) Substrates M. Godlewski, V.Y. Ivanov, P. Bergman, B. Monemar, A. Barski and R. Langer	1343
Analysis of Reflectivity Measurements for GaN Films Grown on GaAs: Influence of Surface Roughness and Interface Layers S. Shokhovets, R. Goldhahn, V. Cimalla, T.S. Cheng and C.T. Foxon	1347
Effect of Thermal Strain and Carrier Concentration on the Phonon Frequencies of GaN N. Wieser, M. Klose, F. Scholz and J. Off	1351
Characterization of GaN Epilayers Grown on Sapphire and SiC Substrates N. Wieser, M. Klose, F. Scholz, J. Off and Y. Dutrieux	1355

Photoluminescence and Raman Scattering Characterization of GaN, InGaN and AlGaN Films Using a UV Excitation Raman-Photoluminescence Microscope Z.C. Feng, M. Schurman, C.A. Tran, T. Salagaj, B. Karlicek, I.T. Ferguson, R.A. Stall, C.D. Dyer, K.P.J. Williams and G.D. Pitt	1359
Raman Microprobe Measurement of Under-Damped LO-Phonon-Plasmon Coupled Mode in n-Type GaN H. Harima, H. Sakashita and S. Nakashima	1363
Micro-Raman and Electron Microscopy Analysis of Cubic GaN Layers on (001) GaAs A. Tabata, R. Enderlein, A.P. Lima, J.R. Leite, V. Lemos, S. Kaiser, D. Schikora, B. Schöttker, U. Köhler and K. Lischka	1367
Surface Polariton Raman Spectroscopy in Cubic GaN Epitaxial Layers V.Y. Davydov, A.V. Subashiev, T.S. Cheng, C.T. Foxon, I.N. Goncharuk, A.N. Smirnov, R.V. Zolotareva and W.V. Lundin	1371
Electrical Characterization of Dopants and Deep Level Defects for III-V Nitrides Grown by Metalorganic Chemical Vapor Deposition W. Götz and N.M. Johnson	1375
Optical Admittance Spectroscopy of Deep Centers in Galliumnitride - Correlation with Photoluminescence A. Krtschil, P. Fischer, H. Witte, M. Lisker, J. Christen, U. Birkle, S. Einfeldt and D. Hommel	1381
A Two-Band Analysis of Electrical Transport in n-Type GaN Epilayers M.G. Cheong, K.S. Oh, E.K. Suh and H.J. Lee	1385
Electrical Characterization of the AlN/Si(111) System T. Ouisse, H.P.D. Schenk, S. Karmann and U. Kaiser	1389
Electrical and Optical Properties of Highly Strained GaN Epilayers A.S. Usikov, W.V. Lundin, B.V. Pushnyi, N.M. Schmidt, V.Y. Davydov, A.V. Sakharov, T.V. Shubina, A.A. Toropov, N.N. Faleev, M.P. Shcheglov and A.F. Tsatsul'nikov	1393
Investigation of Thermal Annealing Processes on the Activation of Mg Acceptors and the Structural Quality of GaN B. Schineller, A. Guttzeit, O. Schön, M. Heuken, K. Heime and R. Beccard	1397
Nanometre Scale Reactive Ion Etching of GaN Epilayers D. Coquillat, S.K. Murad, A. Ribayrol, C.J.M. Smith, R.M. De La Rue, C.D.W. Wilkinson, O. Briot and R.L. Aulombard	1403
Ti/Al and Cr/Al Ohmic Contacts to n-Type GaN Formed by Furnace Annealing N. Papanicolaou, A.H. Edwards, M.V. Rao, J.A. Mittereder and W.T. Anderson	1407
Schottky Barrier Modification on n-GaN Using a Shallow p-Type Implant K. Matocha, T.P. Chow, H. Lu and I. Bhat	1411
Electrical Characteristics of In Situ Grown Lateral P⁺N GaN Junction Diodes on Sapphire Substrates J.B. Fedison, T.P. Chow, H. Lu and I. Bhat	1415
Nitride-Based Emitters on SiC Substrates J. Edmond, G. Bulman, H.S. Kong, M. Leonard, K. Doverspike, W. Weeks, J. Niccum, S.T. Sheppard, G. Negley, D. Slater, J.D. Brown, J.T. Swindell, T. Overocker, J.F. Schetzina, Y.K. Song, M. Kuball and A.V. Nurmikko	1421
Blue-U.V. Homojunction GaN LEDs Fabricated by MOVPE B. Beaumont, F. Calle, S. Haffouz, E. Monroy, M. Leroux, E. Calleja, P. Lorenzini, E. Muñoz Merino and P. Gibart	1425
Electroluminescence of GaN pn Diodes T. Nagatomo and H. Saitou	1429
Ultraviolet Stimulated Emission in GaN/AlGaN Multiple Quantum Wells L. Calcagnile, G. Coli, D. Rinaldi, R. Cingolani, H. Tang, A.E. Botchkarev, W. Kim, A. Salvador and H. Morkoç	1433
An Investigation of Breakdown Mechanisms in Al(GaN) MSM Photodetectors I.T. Ferguson, S. Liang, C.A. Tran, R.F. Karlicek, Z.C. Feng, Y. Lu and C. Joseph	1437
High Speed, Low Noise Ultraviolet Photodetectors Based on GaN p-i-n and AlGaN(p)-GaN(i)-GaN(n) Structures G. Xu, A. Salvador, A.E. Botchkarev, W. Kim, C. Lu, H. Tang, H. Morkoç, G. Smith, M. Estes, T. Dang and P. Wolf	1441
Substrate Bias Effects in AlGaIn/GaN Doped Channel Heterostructure Field Effect Transistors Grown on Doped SiC Substrates R. Gaska, M.S. Shur, J.W. Yang, A. Osinsky, A.O. Orlov and G.L. Snider	1445

Two-Dimensional Electronic Transport in AlGa_N/Ga_N Heterostructures W. Walukiewicz, L. Hsu and E.E. Haller	1449
Annealed Si_{1-x}C_x Emitter Silicon Heterojunction Bipolar Transistors R. Alcubilla, D. Bardés, A. Orpella, J. Calderer, L.F. Marsal, J. Pallarès and X. Correiga	1455
Ultraviolet Excitonic Laser Action at Room Temperature in ZnO Nanocrystalline Epitaxial Films M. Kawasaki, A. Ohtomo, H. Koinuma, Y. Sakurai, Y. Yoshida, Z.K. Tang, P. Yu, G.K.L. Wang and Y. Segawa	1459
Double Heterostructure Based on ZnO and Mg_xZn_{1-x}O A. Ohtomo, M. Kawasaki, T. Koida, H. Koinuma, Y. Sakurai, Y. Yoshida, M. Sumiya, S. Fuke, T. Yasuda and Y. Segawa	1463