

Table of Contents

Committees	iv
Preface	v
Silicon Carbide Crystal and Substrate Technology: A Survey of Recent Advances	
H. McD. Hobgood, M.F. Brady, M.R. Calus, J.R. Jenny, R.T. Leonard, D.P. Malta, S.G. Müller, A.R. Powell, V.F. Tsvetkov, R.C. Glass and C.H. Carter Jr.	3
SiC Crystal Growth by HTCVD	
A. Ellison, B. Magnusson, B. Sundqvist, G.R. Pozina, P. Bergman, E. Janzén and A. Vehanen	9
Effects of Ionicity on Defect Physics of Wide-Band-Gap Semiconductors	
C.G. Van de Walle	15
Possibility of Power Electronics Paradigm Shift with Wide Band Gap Semiconductors	
H. Ohashi	21
High-Quality SiC Bulk Single Crystal Growth Based on Simulation and Experiment	
S.I. Nishizawa, T. Kato, Y. Kitou, N. Oyanagi, F. Hirose, H. Yamaguchi, W. Bahng and K. Arai	29
Development of Large Diameter High-Purity Semi-Insulating 4H-SiC Wafers for Microwave Devices	
J.R. Jenny, D.P. Malta, M.R. Calus, S.G. Müller, A.R. Powell, V.F. Tsvetkov, H. McD. Hobgood, R.C. Glass and C.H. Carter Jr.	35
Large Diameter 4H-SiC Substrates for Commercial Power Applications	
A.R. Powell, R.T. Leonard, M.F. Brady, S.G. Müller, V.F. Tsvetkov, R. Trussell, J.J. Sumakeris, H. McD. Hobgood, A.A. Burk, R.C. Glass and C.H. Carter Jr.	41
Investigation of Graphite Particle Inclusions in 6H-SiC Single Crystals Grown by Sublimation Boule Growth Technique	
T. Nishiguchi, M. Nakamura, T. Isshiki, S. Ohshima and S. Nishino	47
Study of Polytype Switching vs. Micropipes in PVT Grown SiC Single Crystals	
S.P. Wang, E.M. Sanchez, A. Kopec, M. Zhang and O. Hernandez	51
Analysis of Graphitization during Physical Vapor Transport Growth of Silicon Carbide	
P.J. Wellmann, Z.G. Herro, S.A. Sakwe, P.M. Masri, M.V. Bogdanov, S.Y. Karpov, A.V. Kulik, M.S. Ramm and Y. Makarov	55
Thermodynamic Analysis of the Production of Silicon Carbide via Silicon Dioxide and Carbon	
V.G. Sevastyanov, Y.S. Ezhov, E.P. Simonenko and N.T. Kuznetsov	59
Faceted Growth of SiC Bulk Crystals	
I.D. Matukov, D.S. Kalinin, M.V. Bogdanov, S.Y. Karpov, D.K. Ofengeim, M.S. Ramm, J.S. Barash, E.N. Mokhov, A.D. Roenkov, Y.A. Vodakov, M.G. Ramm, H. Helava and Y. Makarov	63
Theoretical Analysis of the Mass Transport in the Powder Charge in Long-Term Bulk SiC Growth	
A.V. Kulik, M.V. Bogdanov, S.Y. Karpov, M.S. Ramm and Y. Makarov	67
Free Growth of 4H-SiC by Sublimation Method	
J.M. Dedulle, M. Anikin, M. Pons, E. Blanquet, A. Pisch, R. Madar and C. Bernard	71
Advanced PVT Growth of 2 & 3-Inch Diameter 6H SiC Crystals	
T. Anderson, D.L. Barrett, J. Chen, W.T. Elkington, E. Emorhokpor, A. Gupta, C.J. Johnson, R.H. Hopkins, C. Martin, T. Kerr, E. Semenas, A.E. Souzis, C.D. Tanner, M. Yoganathan and I. Zwieback	75
Radial Expansion Growth of SiC Single Crystals with Higher Crystal Quality	
T. Fujimoto, H. Tsuge, M. Katsuno, N. Ohtani, H. Yashiro and M. Nakabayashi	79
Growth and Characterization of SiC Bulk Crystals Grown on an Off-Oriented (11-20) Seed Crystal	
M. Katsuno, N. Ohtani, T. Fujimoto and H. Yashiro	83
Growth of Bulk SiC by Halide Chemical Vapor Deposition	
M. Fanton, M. Skowronski, D. Snyder, H.J. Chung, S. Nigam, B. Weiland and S.W. Huh	87
Characterization of Thick 2-Inch 4H-SiC Layers Grown by the Continuous Feed-Physical Vapor Transport Method	
D. Chaussende, C. Balloud, L. Auvray, F. Baillet, M. Zielinski, S. Juillaguet, M. Mermoux, E. Pernot, J. Camassel, M. Pons and R. Madar	91

Effect of Thermal Field on Interface Step Structures during PVT Growth of (0001)Si 6H-SiC	
Z.G. Herro, B.M. Epelbaum, M. Bickermann, P.M. Masri and A. Winnacker	95
Large Diameter and Long Length Growth of SiC Single Crystal	
T. Kato, T. Ohno, F. Hirose, N. Oyanagi, S.I. Nishizawa and K. Arai	99
Effect of Crucible Design on the Shape and the Quality in 6H-SiC Crystals Grown by Physical Vapor Transport	
M.Y. Um, H.K. Song, H.J. Na, D.H. Kim, I.B. Song, S.Y. Jung, J.K. Jeong, J.B. Lee and H.J. Kim	103
Sublimation Growth of SiC Crystal Using Modified Crucible Design on 4H-SiC {03-38} Substrate and Defect Analysis	
T. Furusho, H. Takagi, S. Ota, H. Shiomi and S. Nishino	107
Natural Crystal Habit and Preferential Growth Directions during PVT of Silicon Carbide	
Z.G. Herro, B.M. Epelbaum, M. Bickermann, P.M. Masri, C. Seitz, A. Magerl and A. Winnacker	111
High Quality SiC Bulk Growth by Sublimation Method using Elemental Silicon and Carbon Powder as SiC Source Materials	
S. Ota, T. Furusho, H. Takagi, S. Oshima and S. Nishino	115
Flux Growth of SiC Crystals from Eutectic Melt SiC-B₄C	
B.M. Epelbaum, P.A. Gurzhiyants, Z.G. Herro, M. Bickermann and A. Winnacker	119
Solution Growth of Self-Standing 6H-SiC Single Crystal Using Metal Solvent	
K. Kusunoki, S. Munetoh, K. Kamei, M. Hasebe, T. Ujihara and K. Nakajima	123
The Effect of a Periodic Movement on the Die of the Bottom Line of the Melt/Gas Meniscus in the Case of Silicon Filaments Grown from the Melt in a Vacuum by Edge-Defined Film-Fed Growth Method	
L. Braescu, A.M. Balint and S. Balint	127
Continuous Growth of SiC Single Crystal by the Spray Dried Powder Made of Ultra-Fine Particle Precursors	
Y. Yamada, S.I. Nishizawa, S. Nakashima and K. Arai	131
Comparison between Various Chemical Systems for the CVD Step in the CF-PVT Crystal Growth Method	
L. Auvray, D. Chaussende, F. Baillet, L. Charpentier, M. Pons and R. Madar	135
In Situ SiC Feeding by Chemical Vapor Deposition for Bulk Growth	
L. Charpentier, F. Baillet, D. Chaussende, L. Auvray, M. Pons, E. Pernot and R. Madar	139
Stable Parameter Range for 3C-SiC Sublimation Growth on Graphite	
J. Wollweber, A. Mantzari, E.K. Polychroniadis, C. Balloud, A. Freudenberg, R. Nitschke and J. Camassel	143
Microstructure of Cubic SiC Grown by the Modified Lely-Method	
M. Nerding, K. Semmelroth, G. Pensl, H. Nagasawa and H.P. Strunk	147
Growth of 3C-SiC Bulk Material by the Modified Lely Method	
K. Semmelroth, M. Krieger, G. Pensl, H. Nagasawa, R. Püsche, M. Hundhausen, L. Ley, M. Nerding and H.P. Strunk	151
Characterization of SiC Epitaxial Structures using High-Resolution X-Ray Diffraction Techniques	
X. Huang, M. Dudley, W. Cho, R.S. Okojie and P.G. Neudeck	157
Surface Mechanisms in Homoepitaxial Growth on α-SiC{0001}-Vicinal Faces	
S. Nakamura, T. Kimoto and H. Matsunami	163
Step Free Surface Heteroepitaxy of 3C-SiC Layers on Patterned 4H/6H-SiC Mesas and Cantilevers	
P.G. Neudeck, J.A. Powell, A.J. Trunek and D.J. Spry	169
Flash Lamp Supported Deposition of 3C-SiC (FLASiC) – a Promising Technique to Produce High Quality Cubic SiC Layers	
W. Skorupa, D. Panknin, W. Anwand, M. Voelskow, G. Ferro, Y. Monteil, A. Leycuras, J. Pezoldt, R.A. McMahon, M. Smith, J. Camassel, J. Stoemenos, E.K. Polychroniadis, P. Godignon, N. Mestres, D. Turover, S. Rushworth and A. Friedberger	175
Properties and Suitability of 4H-SiC Epitaxial Layers Grown at Different CVD Systems for High Voltage Applications	
B. Thomas, W. Bartsch, R.A. Stein, R. Schörner and D. Stephani	181
Selective Growth of 4H-SiC on 4H-SiC Substrates using a High Temperature Mask	
C.H. Li, J. Seiler, I. Bhat and T.P. Chow	185

Homoepitaxial Growth of 4H-SiC on Trenched Substrates by Chemical Vapor Deposition	189
Y. Chen, T. Kimoto, Y. Takeuchi, R.K. Malhan and H. Matsunami	
Homoepitaxial On-Axis Growth of 4H- and 6H-SiC by CVD	193
C. Hallin, Q. Wahab, I.G. Ivanov, P. Bergman and E. Janzén	
High-Speed Growth of High-Purity Epitaxial Layers with Specular Surface on 4H-SiC(000-1) Face	197
K. Danno, T. Kimoto and H. Matsunami	
Growth of Device Quality 4H-SiC High Velocity Epitaxy	201
R. Yakimova, M. Syväjärvi, R.R. Ciechonski and Q. Wahab	
Fast Epitaxial Growth of Thick 4H-SiC with Specular Surface by Chimney-Type Vertical Hot-Wall Chemical Vapor Deposition	205
H. Fujiwara, K. Danno, T. Kimoto, T. Tojo and H. Matsunami	
4H-SiC Carbon-Face Epitaxial Layers Grown by Low-Pressure Hot-Wall Chemical Vapor Deposition	209
K. Kojima, T. Takahashi, Y. Ishida, S. Kuroda, H. Okumura and K. Arai	
Influence of C/Si Ratio on the 4H-SiC (0001) Epitaxial Growth and a Keynote for High-Rate Growth	213
Y. Ishida, T. Takahashi, K. Kojima, H. Okumura, K. Arai and S. Yoshida	
Comparative Studies of <0001> 4H-SiC Layers Grown with either Silane or HexaMethylDiSilane / Propane Precursor Systems	217
C. Sartel, C. Balloud, V. Soulière, S. Juillaguet, J. Dazord, Y. Monteil, J. Camassel and S. Rushworth	
Growth of Homoepitaxial Films on 4H-SiC(11-20)and 8° Off-Axis 4H-SiC(0001) Substrates and their Characterization	221
S.M. Bishop, E.A. Preble, C. Hallin, A. Henry, L. Storasta, H. Jacobsson, B.P. Wagner, Z.J. Reitmeier, E. Janzén and R.F. Davis	
Uniformity Improvement in SiC Epitaxial Growth by using Si-Condensation	225
S. Harada, K. Nakayama, M. Sasaki and H. Shiomi	
Growth and Characterization of the 4H-SiC Epilayers on Substrates with Different Off-Cut Directions	229
H. Tsuchida, I. Kamata, S. Izumi, T. Tawara and K. Izumi	
Homoepitaxial Growth of Al-Doped 4H-SiC Using Bis-Trimethylsilylmethane Precursor	233
H.K. Song, M.Y. Um, H.J. Na, D.H. Kim, I.B. Song, S.Y. Jung, J.K. Jeong, J.B. Lee and H.J. Kim	
Investigation of <1,1,-2,0> Epitaxial Layers Grown on a-Cut 4H-SiC Substrates	237
C. Blanc, C. Sartel, V. Soulière, S. Juillaguet, Y. Monteil and J. Camassel	
Vapour-Liquid-Solid Induced Localised Growth of Heavily Al Doped 4H-SiC on Patterned Substrate	241
C. Jacquier, G. Ferro, P. Godignon, J. Montserrat, O. Dezellus and Y. Monteil	
Comparison of Different Metal Additives to Si for the Homoepitaxial Growth of 4H-SiC Layers by Vapour-Liquid-Solid Mechanism	245
F. Abdoun, C. Jacquier, G. Ferro, F. Cauwet and Y. Monteil	
Simple Model for Calculation of SiC Epitaxial Layers Growth Rate in Vacuum	249
S.Y. Davydov, N.S. Savkina, A.A. Lebedev, M. Syväjärvi and R. Yakimova	
Modelling of SiC-Matrix Composite Formation by Thermal Gradient Chemical Vapour Infiltration	253
V.I. Kulik, A.V. Kulik, M.S. Ramm and Y. Makarov	
Pendo Epitaxial Growth of 3C-SiC on Si Substrates	257
A. Shoji, Y. Okui, T. Nishiguchi, S. Ohshima and S. Nishino	
Comparative Growth Behavior of 3C-SiC Mesa Heterofilms with and without Extended Defects	261
A.J. Trunek, P.G. Neudeck, J.A. Powell and D.J. Spry	
Checker-Board Carbonization for Control and Reduction of the Mean Curvature of 3C-SiC Layers Grown on Si(100) Substrates	265
T. Chassagne, G. Ferro, H. Haas, A. Leycuras, H. Mank and Y. Monteil	
Growth of SiC Films using Tetraethylsilane	269
N. Kubo, T. Kawase, S. Asahina, N. Kanayama, H. Tsuda, A. Moritani and K. Kitahara	

Investigation of 2 Inch SiC Layers Grown in a Resistively-Heated LP-CVD Reactor with Horizontal "Hot-Walls"	
T. Chassagne, A. Leycuras, C. Balloud, P. Arcade, H. Peyre and S. Juillaguet	273
Interfacial Strain and Defects in Si (001) Carbonization Layers for 3C-SiC Hetero-Epitaxy	
E. Bustarret, D. Araújo, D. Méndez, F.M. Morales, F.J. Pacheco, S.I. Molina, N. Rochat, G. Ferro and Y. Monteil	277
Potential of HMDS/C₃H₈ Precursor System for the Growth of State of the Art Heteroepitaxial 3C-SiC Layers on Si(100)	
G. Ferro, S. Rushworth, J. Camassel, S. Juillaguet, C. Balloud, E.K. Polychroniadis, Y. Stoimenos, P. Seigle-Ferrand, J. Dazord, Y. Monteil and L.M. Smith	281
Structural Analysis of (211) 3C-SiC on (211) Si Substrates Grown by Chemical Vapor Deposition	
T. Nishiguchi, Y. Mukai, M. Nakamura, K. Nishio, T. Isshiki, S. Ohshima and S. Nishino	285
Crystal Growth of 6H-SiC(01-14) on 3C-SiC(001) Substrate by Sublimation Epitaxy	
H. Takagi, T. Nishiguchi, S. Ohta, T. Furusho, S. Ohshima and S. Nishino	289
Structure and Composition of 3C-SiC:Ge Alloys Grown on Si (111) Substrates by SSMBE	
P. Weih, V. Cimalla, T. Stauden, R. Kosiba, L. Spieß, H. Romanus, M. Gubisch, W. Bock, T. Freitag, P. Fricke, O. Ambacher and J. Pezoldt	293
Influence of the Ge Coverage Prior to Carbonization on the Structure of SiC Grown on Si(111)	
F.M. Morales, C. Zgheib, S.I. Molina, D. Araújo, R. García, C. Fernández, A. Sanz-Hervás, P.M. Masri, P. Weih, T. Stauden, O. Ambacher and J. Pezoldt	297
Stress Control in 3C-SiC Films Grown on Si(111)	
C. Zgheib, P.M. Masri, P. Weih, O. Ambacher and J. Pezoldt	301
Development of a High-Throughput LPCVD Process for Depositing Low Stress Poly-SiC	
X.A. Fu, J. Dunning, C.A. Zorman and M. Mehregany	305
Low Temperature ECR-PECVD Microcrystalline SiC Growth by Pulsed Gas Flows	
M.J. Hernández, M. Cervera, J. Piqueras, T. del Caño and J. Jiménez	309
Investigation of Thick 3C-SiC Films Re-Grown on Thin 35 nm "Flash Lamp Annealed" 3C-SiC Layers	
G. Ferro, D. Panknin, J. Stoemenos, C. Balloud, J. Camassel, E.K. Polychroniadis, Y. Monteil and W. Skorupa	313
Low Temperature (320°C) Deposition of Hydrogenated Microcrystalline Cubic Silicon Carbide Thin Films	
S. Miyajima, A. Yamada and M. Konagai	317
Effect of Carbonization in Bias-Enhanced Nucleation Step during Highly-Oriented Growth of Diamond Films on 6H-SiC(0001) Substrate	
S.H. Seo, T.H. Lee, J.S. Park, J.S. Song and M.H. Oh	321
Formation of SiC/Si Multilayer Structures on Si(100) by Supersonic Free Jets of Single Gas Source CH₃SiH₃	
Y. Ikoma, R. Ohtani and T. Motooka	325
Growth of SiC Nanorods and Microcrystals by Carbon Nanotubes-Confining Reaction	
M. Shahjahan, Y.H. Mo and K.S. Nahm	329
Modelling and Regrowth Mechanisms of Flashlamp Processing of SiC-on-Silicon Heterostructures	
M. Smith, R.A. McMahon, M. Voelskow, W. Skorupa and J. Stoemenos	333
Structural Defects in SiC Crystals Investigated by High Energy X-Ray Diffraction	
M. Weisser, C. Seitz, P.J. Wellmann, R. Hock and A. Magerl	339
TEM Observations of 4H-SiC Deformed at Room Temperature and 150°C	
J.L. Demenet, X. Milhet, J. Rabier and P. Cordier	343
TEM Studies on the Initial Stage of Seeded Solution Growth of 6H-SiC using Metal Solvent	
K. Kamei, K. Kusunoki, S. Munetoh, T. Ujihara and K. Nakajima	347
Structural Characterization of Thin 3C-SiC Films Annealed by the Flash Lamp Process	
E.K. Polychroniadis, J. Stoemenos, G. Ferro, Y. Monteil, D. Panknin and W. Skorupa	351
Study of Dislocation Mobility in 4H SiC by X-Ray Transmission Topography, Chemical Etching and Transmission Electron Microscopy	
H. Idrissi, M. Lancin, G. Regula and B. Pichaud	355
TEM of Dislocations in Forward-Biased 4H-SiC PiN Diodes	
M. Zhang, H. Lendenmann and P. Pirouz	359

X-Ray Imaging and TEM Study of Micropipes Related to their Propagation through Porous SiC Layer/SiC Epilayer Interface	363
T.S. Argunova, M.Y. Gutkin, J.H. Je, L.M. Sorokin, G.N. Mosina, N.S. Savkina, V.B. Shuman and A.A. Lebedev	
Structural Transformation of Dislocated Micropipes in Silicon Carbide	367
M.Y. Gutkin, A.G. Sheinerman, T.S. Argunova, E.N. Mokhov, J.H. Je, Y. Hwu and W. Tsai	
Deformation of 4H-SiC Single Crystals Oriented for Prism Slip	371
M. Zhang, H. McD. Hobgood and P. Pirouz	
Inelastic Stress Relaxation in Single Crystal SiC Substrates	375
R.S. Okojie	
Dependence of Micropipe Dissociation on Surface Orientation	379
I. Kamata, H. Tsuchida, S. Izumi, T. Tawara and K. Izumi	
Analysis of Threading Dislocations in Wide-Bandgap Hexagonal Semiconductors by Energetic Approach	383
A.K. Semennikov, S.Y. Karpov, M.S. Ramm, A.E. Romanov and Y. Makarov	
Electron Back Scattering Diffraction (EBSD) as a Tool for the Investigation of 3C-SiC Nucleation and Growth on 6H or 4H	387
D. Chaussende, P. Chaudouët, L. Auvray, M. Pons and R. Madar	
Reconstruction of Cleaved 6H-SiC Surfaces	391
U. Starke, M. Tallarida, A. Kumar, K.M. Horn, O. Seifarth and L. Kipp	
The Atomic Structure of the Hydrogen Saturated a-Planes of 4H-SiC	395
T. Seyller, N. Sieber, K.V. Emtsey, R. Graupner, L. Ley, A. Tadich, D. James, J.D. Riley, R.C.G. Leckey and M. Polcik	
H-Induced Si-Rich 3C-Si(100) 3x2 Surface Metallization	399
M. D'Angelo, H. Enriquez, M. Silly, V. Derycke, V.Y. Aristov, P. Soukiassian, C. Ottaviani, M. Pedio and P. Perfetti	
Morphological Evolution of SiC(0001) Surfaces without Ambient Gas by High Temperature Annealing in High-Vacuum	403
A. Yasushi, N. Sano and T. Kaneko	
SiC Surface Nanostructures Induced by Self-Ordering of Nano-Facets	407
S. Tanaka, H. Nakagawa and I. Suemune	
Dynamic of Laser Ablation in SiC	411
A. Medvid and P.M. Lytvyn	
Tailoring the SiC Subsurface Stacking by the Chemical Potential	415
U. Starke, J. Bernhardt, J. Schardt, A. Seubert and K. Heinz	
Growth of Ultrathin Ag Films on 4H-SiC(0001)	419
S. Soubatch and U. Starke	
Wettability Study of SiC in Correlation with XPS Analysis	423
V. Stambouli, D. Chaussende, M. Anikin, G. Berthomé, V. Thoreau and J.C. Joud	
Interface Electronic Structures of Transition Metal(Cr, Fe) on 6H(4H)-SiC(0001)Si Face by Soft X-Ray Fluorescence Spectroscopy	427
M. Hirai, C. Kamezawa, S. Azatyan, Z. An, T. Shinagawa, T. Fujisawa, M. Kusaka and M. Iwami	
Modification of 6H-SiC Surface Defect Structure during Hydrogen Etching	431
R.T. Bondokov, N. Tipirneni, D.I. Cherednichenko and T.S. Sudarshan	
Defects in High-Purity Semi-Insulating SiC	437
N.T. Son, B. Magnusson, Z. Zolnai, A. Ellison and E. Janzén	
Antisites as Possible Origin of Irradiation Induced Photoluminescence Centers in SiC: A Theoretical Study on Clusters of Antisites and Carbon Interstitials in 4H-SiC	443
A. Gali, P. Deák, E. Rauls, P. Ordejón, F.H.C. Carlsson, I.G. Ivanov, N.T. Son, E. Janzén and W.J. Choyke	
A Theoretical Study of Carbon Clusters in SiC: a Sink and a Source of Carbon Interstitials	449
A. Mattausch, M. Bockstedte and O. Pankratov	
Density Functional Based Modelling of 30° Partial Dislocations in SiC	453
A.T. Blumenau, R. Jones, S. Öberg, P.R. Briddon and T. Frauenheim	
Atomic Computer Simulations of Defect Migration in 3C and 4H-SiC	457
F. Gao, W.J. Weber, M. Posselt and V. Belko	
Optical and EPR Signatures of Intrinsic Defects in Ultra High Purity 4H-SiC	461
W.E. Carlos, E.R. Glaser and B.V. Shanabrook	

EPR and Pulsed ENDOR Study of El6 and Related Defects in 4H-SiC	465
T. Umeda, Y. Ishitsuka, J. Isoya, N. Morishita, T. Ohshima and T. Kamiya	
Investigations of Possible Nitrogen Participation in the Z₁/Z₂ Defect in 4H-SiC	469
L. Storasta, A. Henry, P. Bergman and E. Janzén	
Annealing Behaviour of Vacancy-and Antisite-Related Defects in Electron-Irradiated 4H-SiC	
Z. Zolnai, N.T. Son, B. Magnusson, C. Hallin and E. Janzén	473
Spin Dependent Recombination at Deep-Level Centers in 6H Silicon Carbide/Silicon Metal Oxide Semiconductor Field Effect Transistors	
D.J. Meyer, N.A. Bohna, P.M. Lenahan and A.J. Lelis	477
Evidence for a Deep Two Charge State Defect in High Energy Electron Irradiated 4H-SiC	
G. Alfieri, E.V. Monakhov and B.G. Svensson	481
Negative-U-Centers in 4H- and 6H-SiC Detected by Spectral Light Excitation	
M. Weidner, G. Pensl, H. Nagasawa, A. Schöner and T. Ohshima	485
Optically Induced Transitions among Point Defects in High Purity and Vanadium-Doped Semi-Insulating 4H SiC	
M.E. Zvanut, V.V. Konovalov, W.C. Mitchel and W.D. Mitchell	489
Defects in He⁺ Irradiated 6H-SiC Probed by DLTS and LTPL Measurements	
A. Ruggiero, S. Libertino, M. Mauceri, R. Reitano, P. Musumeci, F. Roccaforte, F. La Via and L. Calcagno	493
The Influence of Recombination-Induced Migration of Hydrogen on the Formation of V_{Si}-H Complexes in SiC	
Y. Koshka and M.S. Mazzola	497
Photo-EPR and Hall Measurements on Undoped High Purity Semi-Insulating 4H-SiC Substrates	
E.N. Kalabukhova, S.N. Lukin, D.V. Savchenko, W.C. Mitchel and W.D. Mitchell	501
Excess Carrier Lifetime Mapping for Bulk SiC Wafers by Microwave Photoconductivity Decay Method and Its Relationship with Structural Defect Distribution	
M. Kato, M. Ichimura, M. Ichimura, E. Arai, S. Sumie and H. Hashizume	505
Investigations of Defects Introduced in 4H-SiC n-Type Epitaxial Layers by Hydrogen DC Plasma	
L. Ottaviani, E.B. Yakimov, P. Hidalgo and S. Martinuzzi	509
Midgap Defects in 4H-, 6H- and 3C-SiC Detected by Deep Level Optical Spectroscopy	
S.A. Reshanov, K. Schneider, R. Helbig, G. Pensl, H. Nagasawa and A. Schöner	513
Annealing Study on Radiation-Induced Defects in 6H-SiC	
M.V.B. Pinheiro, T. Lingner, F. Caudepon, S. Greulich-Weber and J.M. Spaeth	517
Crystallographic Defects under Surface Morphological Defects of 4H-SiC Homoepitaxial Films	
T. Okada, T. Kimoto, K. Yamai, H. Matsunami and F. Inoko	521
Formation of Stacking Faults in Diffused SiC p⁺/n⁻/n⁺ and p⁺/p⁻/n⁺ Diodes	
S.I. Soloviev, D.I. Cherednichenko and T.S. Sudarshan	525
Residual Stresses and Stacking Faults in n-Type 4H-SiC Epilayers	
R.S. Okojie, M. Zhang and P. Pirouz	529
Stacking Fault Formation Sites and Growth in Thick-Epi SiC PiN Diodes	
R.E. Stahlbush, M.E. Twigg, K.G. Irvine, J.J. Sumakeris, T.P. Chow, P.A. Losee, L. Zhu, Y. Tang and W. Wang	533
Partial Dislocations and Stacking Faults in 4H-SiC PiN Diodes	
M.E. Twigg, R.E. Stahlbush, M. Fatemi, S. Arthur, J.B. Fedison, J.B. Tucker and S.P. Wang	537
SiC Studied Via LEEN and Cathodoluminescence Spectroscopy	
L.J. Brillson, S.P. Tumakha, R.S. Okojie, M. Zhang and P. Pirouz	543
Properties of the Bound Excitons Associated to the 3838Å Line in 4H-SiC and the 4182Å Line in 6H-SiC	
A. Henry, M.S. Janson and E. Janzén	549
Electrical Transport Properties of n-Type 4H and 6H Silicon Carbide	
S. Contreras and J. Pernot	555
Further Investigation of Silicon Vacancy-Related Luminescence in 4H and 6H SiC	
J.W. Steeds, S.A. Furkert, J.M. Hayes and W. Sullivan	561
Evaluation of Free Carrier Lifetime and Deep Levels of the Thick 4H-SiC Epilayers	
T. Tawara, H. Tsuchida, S. Izumi, I. Kamata and K. Izumi	565

Photoluminescence Mapping of a SiC Wafer in Device Processing	
M. Tajima, T. Sugahara, N. Hoshino, S. Tanimoto, T. Takahashi, S. Nakashima and T. Yamamoto	569
Spontaneous Polarization of 4H SiC Determined from Optical Emissions of 4H/3C/4H-SiC Quantum Wells	
S. Bai, R.P. Devaty, W.J. Choyke, U. Kaiser, G. Wagner and M.F. MacMillan	573
Optical Investigation of Stacking Faults and Micro-Crystalline Inclusions In-Low-Doped 4H-SiC Layers	
S. Juillaguet, C. Balloud, J. Pernot, C. Sartel, V. Soulière, J. Camassel and Y. Monteil	577
Characterization of Double Stacking Faults Induced by Thermal Processing of Heavily N-Doped 4H-SiC Substrates	
B.J. Skromme, M.K. Mikhov, L. Chen, G. Samson, R.J. Wang, C.H. Li and I. Bhat	581
Photoluminescence Excitation Spectroscopy on the Donor-Acceptor Pair Luminescence in 4H and 6H SiC	
I.G. Ivanov and E. Janzén	585
Photoluminescence Study of C-H and C-D Centers in 4H SiC	
S. Bai, F. Yan, R.P. Devaty, W.J. Choyke, R. Grötzschel, G. Wagner and M.F. MacMillan	589
Optical Characterization of Full SiC Wafer	
I. El Harrouni, J.M. Bluet, D. Ziane, M. Mermoux, F. Baillet and G. Guillot	593
Electroluminescence of p-3C-SiC/n-6H-SiC Heterodiodes, Grown by Sublimation Epitaxy in Vacuum	
A.A. Lebedev, A.M. Strel'chuk, A.N. Kuznetsov and N.S. Savkina	597
Nondestructive Defect Characterization of SiC Epilayers and its Significance for SiC Device Research	
X.Y. Ma, M. Dudley and T.S. Sudarshan	601
Two-Photon Spectroscopy of 4H-SiC by Using Laser Pulses at Below-Gap Frequencies	
V. Grivickas, P. Grivickas, J. Linnros and A. Galeckas	605
Raman Imaging Characterization of Structural and Electrical Properties in 4H SiC	
M. Mermoux, A. Crisci and F. Baillet	609
Raman Scattering by Coupled Phonon-Plasmon Modes	
L.A. Falkovsky	613
Study of the Temperature Induced Polytype Conversion in Cubic CVD SiC by Raman Spectroscopy	
R. Püsche, M. Hundhausen, L. Ley, K. Semmelroth, F. Schmid, G. Pensl and H. Nagasawa	617
Anisotropy of Electron Mobility in n-Type 15R-SiC Studied by Raman Scattering	
E. Kurimoto, M. Hangyo, H. Harima, K. Kisoda, T. Nishiguchi, S. Nishino, S. Nakashima, M. Katsuno and N. Ohtani	621
Micro-Raman Investigation of Growth-Induced Defects in 6H and 4H SiC Crystals Grown by Sublimation Method	
S.H. Seo, J.H. Park, J.S. Song and M.H. Oh	625
Deep UV Excitation Raman Spectroscopy of Homoepitaxial 4H-SiC Films Grown by Microwave Plasma Chemical Vapor Deposition	
M. Okamoto, R. Kosugi, S. Nakashima, K. Fukuda and K. Arai	629
Crystal Quality Evaluation of 6H-SiC Layers Grown by Liquid Phase Epitaxy around Micropipes using Micro-Raman Scattering Spectroscopy	
T. Ujihara, S. Munetoh, K. Kusunoki, K. Kamei, N. Usami, K. Fujiwara, G. Sazaki and K. Nakajima	633
Low Temperature Annealing of Optical Centres in 4H SiC	
J.W. Steeds, S.A. Furkert, J.M. Hayes and W. Sullivan	637
Isotope Effects on Hydrogen-Related Bound Exciton Spectra in SiC	
S. Bai, W.J. Choyke and R.P. Devaty	641
On the Origin of the Below Band-Gap Absorption Bands in n-Type (N) 4H- and 6H-SiC	
R. Weingärtner, P.J. Wellmann and A. Winnacker	645
Temperature-Dependence of Zone-Center Phonon Modes in 4H-SiC	
C. Blanc, J. Pernot and J. Camassel	649
Brillouin Scattering Studies of Surface Acoustic Waves in SiC	
G.T. Andrews, M.J. Clouter, B. Mroz, Y. Shishkin, Y. Ke, R.P. Devaty and W.J. Choyke	653
Optical Investigation of the Built-In Strain in 3C-SiC Epilayers	
A. Galeckas, A.Y. Kuznetsov, T. Chassagne, G. Ferro, J. Linnros and V. Grivickas	657

Specificity of Electron Impact Ionization in Superstructure Silicon Carbide	661
V.I. Sankin, P.P. Shkrebyi, N.S. Savkina and A.A. Lepneva	
Nonequilibrium Carrier Lifetime and Diffusion Coefficients in 6H-SiC	665
G. Tamulaitis, I. Yilmaz, M.S. Shur, R. Gaska and T. Anderson	
Electrical Characterization of Semi-Insulating 6H-SiC Substrates	669
E.M. Sanchez, J. Wan, S.P. Wang, M.J. Loboda, C.H. Li and M. Skowronski	
Impact Ionization Coefficients of 4H-SiC	
T. Hatakeyama, T. Watanabe, K. Kojima, N. Sano, K. Shiraishi, M. Kushibe, S. Imai, T. Shinohe, T. Suzuki, T. Tanaka and K. Arai	673
Temperature-Dependent Hall Effect Measurements in Low – Compensated p-Type 4H-SiC	
L. Kasamakova-Kolaklieva, L. Storasta, I.G. Ivanov, B. Magnusson, S. Contreras, C. Consejo, J. Pernot, M. Zielinski and E. Janzén	677
Electrochemical C-V Profiling of n-Type 4H-SiC	
K. Zekentes, M. Kayambaki and S. Mousset	681
Impurity Conduction Observed in Al-Doped 6H-SiC	
M. Krieger, K. Semmelroth and G. Pensl	685
Anomalous Behavior of van der Pauw Sheet Resistance Measurements on 4H-SiC MOS Inversion Layers with Anisotropy Mobility	
N.S. Saks, M.G. Ancona and L.A. Lipkin	689
High Phonon-Drag Thermoelectric Efficiency of SiC at Low Temperatures	
E. Velmre, A. Udal and V. Grivickas	693
As-Grown and Process-Related Defects in Schottky Barrier Diodes Fabricated on Bulk Off-Axis n-Type 6H-SiC	
E. van Wyk and A.W.R. Leitch	697
Impact Ionization in α-SiC and Avalanche Photoamplifiers	
V.I. Sankin	701
Electrical Study of Fast Neutron Irradiated Devices Based on 4H-SiC CVD Epitaxial Layers	
E.V. Kalinina, G. Kholuyanov, A.M. Strel'chuk, D.V. Davydov, A. Hallén, A.O. Konstantinov and A. Nikiforov	705
The Nature of the Shallow Boron Acceptor in SiC - Localization versus Effective Mass Theory	
U. Gerstmann, A. Gali, P. Deák, T. Frauenheim and H. Overhof	711
The Solubility and Defect Equilibrium on the n-Type Dopants Nitrogen and Phosphorus in 4H-SiC: A Theoretical Study	
M. Bockstedte, A. Mattausch and O. Pankratov	715
Uniform Axial Charge Carrier Concentration in PVT-Grown p-Type 6H SiC by Non-Uniform Distribution of Boron in the Powder Source	
Z.G. Herro, M. Bickermann, B.M. Epelbaum, R. Weingärtner, U. Künecke and A. Winnacker	719
In-Situ Er-Doping of SiC Bulk Single Crystals	
R. Müller, P. Desperrier, C. Seitz, M. Weisser, A. Magerl, M. Maier, A. Winnacker and P.J. Wellmann	723
Growth of Phosphorous-Doped n-Type 6H-SiC Crystals using a Modified PVT Technique and Phosphine as Source	
P. Desperrier, R. Müller, A. Winnacker and P.J. Wellmann	727
Nitrogen Doping of Epitaxial SiC: Experimental Evidence of the Re-Incorporation of Etched Nitrogen during Growth	
J. Mezière, P. Ferret, E. Blanquet, M. Pons, L. Di Cioccio and T. Billon	731
Growth and Characterisation of Heavily Al-Doped 4H-SiC Layers Grown by VLS in an Al-Si Melt	
C. Jacquier, G. Ferro, C. Balloud, M. Zielinski, J. Camassel, E.K. Polychroniadis, J. Stoemenos, F. Cauwet and Y. Monteil	735
Relationship between Surface Structures and Aluminium Incorporation Behaviour of SiC in Chemical Vapor Deposition	
T. Hatayama, H. Yano, Y. Uraoka and T. Fuyuki	739
Formation of SiC Delta-Doped-Layer Structures by CVD	
K. Takahashi, M. Uchida, O. Kusumoto, K. Yamashita, R. Miyanaga and M. Kitabatake	743
As-Grown 4H-SiC Epilayers with Magnetic Properties	
M. Syväjärvi, V. Stanciu, M. Izadifard, W.M. Chen, I.A. Buyanova, P. Svedlindh and R. Yakimova	747

Reduction in Al Acceptor Density by Electron Irradiation in Al-Doped 4H-SiC	751
H. Matsuura, K. Aso, S. Kagamihara, H. Iwata, T. Ishida and K. Nishikawa	
Non-Contact Doping Profiling in Epitaxial SiC	755
A. Savtchouk, E. Oborina, A.M. Hoff and J. Lagowski	
Generation of Stacking Faults in Highly Doped n-Type 4H-SiC Substrates	759
M. Zhang, H. McD. Hobgood, M. Treu and P. Pirouz	
Spin-On Doping of Porous SiC with Er	763
Y. Koshka, Y. Song, J. Walker, S.E. Saddow and M.G. Mynbaeva	
Sc Impurity in Silicon Carbide	767
E.I. Yuryeva, V.I. Zubkov, V.S. Ballandovich and I.I. Parfenova	
Measurement of Low Level Nitrogen in Silicon Carbide Using SIMS	771
L. Wang	
Dilute Aluminium Concentration in 4H-SiC: from SIMS to LTPL Measurements	775
S. Juillaguet, M. Zielinski, C. Balloud, C. Sartel, C. Consejo, B. Boyer, V. Soulière, J. Camassel and Y. Monteil	
Crystallinity and Photoluminescence Evaluation of Er-Implanted n-Type 4H-SiC Subjected to an Annealing Process	779
S. Uekusa and H. Maruyama	
Radiotracer Investigation of Gadolinium Induced Deep Levels in Hexagonal Silicon Carbide	783
G. Pasold, F. Albrecht, C. Hülsen, R. Sielemann, W.-. Zeitz and W. Witthuhn	
Analysis of Different Vanadium Charge States in Vanadium Doped 6H-SiC by Low Temperature Optical Absorption and Electron Paramagnetic Resonance	787
M. Bickermann, K. Irmscher, B.M. Epelbaum and A. Winnacker	
Investigation of Electronic States of Pd in 4H-SiC by Means of Radiotracer-DLTS	791
U. Grossner, J. Grillenberger, F. Albrecht, G. Pasold, R. Sielemann, B.G. Svensson and W. Witthuhn	
Surface Preparation of 6H-Silicon Carbide Substrates for Growth of High-Quality SiC Epilayers	797
K.S. Lee, S.H. Lee, M. Kim and K.S. Nahm	
Electro-Chemical Mechanical Polishing of Silicon Carbide	801
C.H. Li, R.J. Wang, J. Seiler and I. Bhat	
Chemi-Mechanical Polishing of On-Axis Semi-Insulating SiC Substrates	805
V.D. Heydemann, W.J. Everson, R.D. Gamble, D. Snyder and M. Skowronski	
Surface Modification of 3C-SiC for Good Ni Ohmic Contact	809
J.I. Noh, S.H. Lee and K.S. Nahm	
Mechanisms in Electrochemical Etching of α-SiC Substrates	813
H. Mikami, T. Hatayama, H. Yano, Y. Uraoka and T. Fuyuki	
Modification of the Silicon Carbide by Proton Irradiation	817
E.V. Bogdanova, V.V. Kozlovski, D.S. Rumyantsev, A.N. Volkova and A.A. Lebedev	
Etching of SiC with Fluorine ECR Plasma	821
C. Förster, V. Cimalla, R. Kosiba, G. Ecke, P. Weih, O. Ambacher and J. Pezoldt	
Characterization of 3C-SiC Monocrystals Using Positron Annihilation Spectroscopy	825
X. Kerbiriou, A. Greddé, M.F. Barthe, P. Desgardin and G. Blondiaux	
Improvement of SiC Wafer Warp by Annealing	829
M. Sasaki, S. Harada, Y. Okamoto, H. Kinoshita, Y. Miyanagi and H. Shiomi	
Comparison of Different Surface Pre-Treatments to n-Type 4H-SiC and their Effect on the Specific Contact Resistance of Ni Ohmic Contacts	833
G. Pope, O. Guy and P.A. Mawby	
Structural Characterization of Alloyed Al/Ti and Ti Contacts on SiC	837
A. Parisini, A. Poggi and R. Nipoti	
Improved AlNi Ohmic Contacts to p-Type SiC	841
B.H. Tsao, S. Liu and J.D. Scofield	
Electrical Characterization of Deposited and Oxidized Ta₂Si as Dielectric Film for SiC Metal-Insulator-Semiconductor Structures	845
A. Pérez-Tomás, D. Tournier, J. Montserrat, N. Mestres, F. Sandiumenge and J. Millan	
In-Situ Investigation of Carbon Reduction at Ni/4H-SiC Interface Using a Silicon Interlayer	849
W.Y. Lee, K.S. Teng and S.P. Wilks	

The Formation of Low Resistance Ohmic Contacts to 4H-SiC, Circumventing the Need for Post Annealing, Studied by Specific Contact Resistance Measurements and X-Ray Photoelectron Spectroscopy	853
O. Guy, G. Pope, I. Blackwood, K.S. Teng, W.Y. Lee, S.P. Wilks and P.A. Mawby	
The Basic Parameters of Diffusion Welded Al Schottky Contacts to p- and n-SiC	857
O. Korolkov, N. Sleptsuk, J. Ruut and T. Rang	
Schottky-Ohmic Transition in Nickel Silicide/SiC-4H System: the Effect of Non Uniform Schottky Barrier	861
F. La Via, F. Roccaforte, V. Raineri, M. Mauceri, A. Ruggiero, P. Musumeci and L. Calcagno	
Effects of Thermal Treatments on the Structural and Electrical Properties of Ni/Ti Bilayers Schottky Contacts on 6H-SiC	865
F. Roccaforte, F. La Via, A. Baeri, V. Raineri, L. Calcagno and F. Mangano	
Electrical Characterization of Inhomogeneous Ni₂/Si/SiC Schottky Contacts	869
F. Roccaforte, F. La Via, V. Raineri, R. Pierobon and E. Zanoni	
Study of TiW/Au Thin Films Metallization Stack for High Temperature and Harsh Environment Devices on 6H Silicon Carbide	873
A. Baeri, V. Raineri, F. Roccaforte, F. La Via and E. Zanetti	
High Temperature and High Power Stability Investigation of Al-Based Ohmic Contacts to p-Type 4H-SiC	877
R. Kakanakov, L. Kasamakova-Kolaklieva, N. Hristeva, G. Lepoeva, J.B. Gomes, I. Avramova and T. Marinova	
Contact Resistivity and Barrier Height of Al/Ti Ohmic Contacts on p-Type Ion Implanted 4H- and 6H-SiC	881
A. Scorzoni, F. Moscatelli, A. Poggi, G.C. Cardinali and R. Nipoti	
Effect of High-Dose Aluminium Implantation on 4H-SiC Oxidation	885
L. Cheng, J.R.B. Casady, J. Mazzola, J.B. Casady, Y. Koshka and V. Bondarenko	
Structural Defects Formed in Al-Implanted and Annealed 4H-SiC	889
K.A. Jones, T.S. Zheleva, V.N. Kulkarni, M.H. Ervin, M.A. Derenge and R.D. Vispute	
Room Temperature Implantation and Activation Kinetics of Nitrogen and Phosphorus in 4H-SiC Crystals	893
S. Blanqué, R. Pérez, P. Godignon, N. Mestres, E. Morvan, A. Kerlain, C. Dua, C. Brylinski, M. Zielinski and J. Camassel	
Effect of Implantation Temperature on Redistribution of Al in SiC during Annealing	897
I.O. Usov, A.A. Suvorova and A.V. Suvorov	
Effects of Annealing Conditions on Resistance Lowering of High-Phosphorus-Implanted 4H-SiC	901
J. Senzaki, K. Fukuda and K. Arai	
Characterization of Electrical Properties in High-Dose Implanted and Post-Implantation-Annealed 4H-SiC Wafers using Infrared Reflectance Spectroscopy	905
K. Narita, Y. Hijikata, H. Yaguchi, S. Yoshida, J. Senzaki and S. Nakashima	
Annealing Process of N⁺-P⁺-Ions Coimplanted along with Si⁺-, C⁺- or Ne⁺-Ions into 4H-SiC – Governed by Formation of Electrically Neutral Complexes or by Site-Competition-Effect?	909
F. Schmid and G. Pensl	
Low Sheet Resistance of High-Dose Aluminium Implanted 4H-SiC using (11-20) Face	913
Y. Negoro, K. Katsumoto, H. Matsunami, T. Kimoto, G. Pensl and F. Schmid	
Boron Diffusion in Intrinsic, n-Type and p-Type 4H-SiC	917
M.K. Linnarsson, M.S. Janson, A. Schöner, A.O. Konstantinov and B.G. Svensson	
Investigation of Two-Stage Activation Annealing of Al-Implanted 4H-SiC Layers	921
J.N. Merrett, J.D. Scofield, B.H. Tsao, M.S. Mazzola, D. Seale, W.A. Draper, I. Sankin, J.B. Casady and V. Bondarenko	
Reactive Ion Etching of Silicon Carbide with Patterned Boron Implantation	925
K. Vassilevski, J. Hedley, A.B. Horsfall, C.M. Johnson and N.G. Wright	
Activation of Implanted Al and Co-Implanted Al/C or Al/Si in 4H-SiC	929
K.A. Jones, T.S. Zheleva, M.H. Ervin, P.B. Shah, M.A. Derenge, G.J. Gerardi, J.A. Freitas and R.D. Vispute	
Flat Surface after High-Temperature Annealing for Phosphorus-Ion Implanted 4H-SiC(0001) using Graphite Cap	933
Y. Negoro, K. Katsumoto, T. Kimoto and H. Matsunami	

Contribution of X-Ray Diffraction Simulations to Experimental Study of High Energy He Implantation at High Dose in 4H-SiC at Room Temperature	
A. Declémey, A.A. Shiryaev, S. Stepanov, J.F. Barbot, M.F. Beaufort, E. Oliviero, E. Ntsoenzok and T. Sauvage	937
Visible Light Laser Irradiation: a Tool for Implantation Damage Reduction	
J. Camassel, H. Peyre, D.J. Brink, M. Zielinski, S. Blanqué, N. Mestres and P. Godignon	941
SiC Donor Doping by 300°C P Implantation: Characterization of the Doped Layer Properties in Dependence of the Post-Implantation Annealing Temperature	
A. Poggi, R. Nipoti, F. Moscatelli, G.C. Cardinali and M. Canino	945
SiC-Based Current Limiter Devices	
J. Chante, D. Tournier, D. Planson, C. Raynaud, M. Lazar, M.L. Locatelli and P. Brosselard	951
High Voltage (500V-14kV) 4H-SiC Unipolar Bipolar Darlington Transistors for High-Power and High-Temperature Applications	
J.H. Zhao, L.X. Li, K. Tone, P. Alexandrov, L. Fursin, J. Carter and M. Weiner	957
SiC Devices for High Voltage High Power Applications	
Y. Sugawara	963
First Principles Derivation of Carrier Transport across Metal - SiC Barriers	
C.B. Dimitriu, A.B. Horsfall, N.G. Wright, C.M. Johnson, K. Vassilevski and A.G. O'Neill	969
Modeling of the Influence of Schottky Barrier Inhomogeneities on SiC Diode Characteristics	
R. Weiss, L. Frey and H. Ryssel	973
Theoretical Investigations of Microwave Characteristics of Tunnett Diodes Made of Silicon Carbide	
V.V. Buniyatyan, V.M. Aroutiounian, K. Zekentes, N. Camara and P. Soukiassian	977
Challenges and First Results of SiC Schottky Diode Manufacturing using a 3-Inch Technology	
M. Treu, R. Rupp, H. Brunner, F. Dahlquist and C. Hecht	981
4H-SiC Power Schottky Diodes. On the Way to Solve the Size Limiting Issues	
A. Syrkin, V. Dmitriev, V. Soukhoveev, M.G. Mynbaeva, R. Kakanakov, C. Hallin and E. Janzén	985
Edge Termination of SiC Schottky Diodes with Guard Rings Formed by High Energy Boron Implantation	
K. Vassilevski, A.B. Horsfall, C.M. Johnson and N.G. Wright	989
Extraction of the Schottky Barrier Height for Ti/Al Contacts on 4H-SiC from I-V and C-V Measurements	
F. Moscatelli, A. Scorzoni, A. Poggi, G.C. Cardinali and R. Nipoti	993
Origin of Leakage Current in SiC Schottky Barrier Diodes at High Temperature	
H. Saitoh, T. Kimoto and H. Matsunami	997
Improvements in the Reverse Characteristics of 4H-SiC Schottky Barrier Diodes by Hydrogen Treatments	
D.H. Kim, H.J. Na, S.Y. Jung, I.B. Song, M.Y. Um, H.K. Song, J.K. Jeong, J.B. Lee and H.J. Kim	1001
P-n Junction Periphery Protection of 4H-SiC Power p-i-n Diodes Using Epitaxy and Dry Etching	
G. Sarov, T. Cholakova and R. Kakanakov	1005
Fabrication of Mesa-Type pn Diodes without Forward Degradation on Ultra-High-Quality 6H-SiC Substrate	
Y. Tanaka, T. Ohno, N. Oyanagi, S.I. Nishizawa, T. Suzuki, K. Fukuda, T. Yatsuo and K. Arai	1009
Fabrication and Characterization of 4H-SiC pn Diode with Field Limiting Ring	
W. Bahng, G.H. Song, H.W. Kim, K.S. Seo and N.K. Kim	1013
Current Transport Mechanisms in 4H-SiC PiN Diodes	
N. Camara, E. Bano and K. Zekentes	1017
On-Chip Temperature Monitoring of a SiC Current Limiter	
D. Tournier, P. Godignon, J. Millan, D. Planson, J. Chante, F. Sarrus and J.- de Palma	1021
The Role of the Ion Implanted Emitter State on 6H-SiC Power Diodes Behavior. A Statistical Study	
M. Lazar, G.C. Cardinali, C. Raynaud, A. Poggi, D. Planson, R. Nipoti and J. Chante	1025
Low Voltage Silicon Carbide Zener Diode	
K. Vassilevski, K. Zekentes, A.B. Horsfall, C.M. Johnson and N.G. Wright	1029

Design, Fabrication and Characterization of 5 kV 4H-SiC p⁺n Planar Bipolar Diodes Protected by Junction Termination Extension	1033
C. Raynaud, M. Lazar, D. Planson, J. Chante and Z. Sassi	
Comparison between Implanted and Epitaxial PiN-Diodes on 4H-Silicon Carbide	1037
U. Zimmermann, M. Domeij, A. Hallén and M. Östling	
4H-SiC p-n Diode using Internal Ring (IR) Termination Technique	1041
G.H. Song, H.W. Kim, W. Bahng, S.C. Kim and N.K. Kim	
Numerical Study of Current Crowding Phenomenon in Complementary 4H-SiC JBS Rectifiers	
T. Rang, G. Higelin and R. Kurel	1045
Influence of H₂ Pre-Treatment on Ni/4H-SiC Schottky Diode Properties	1049
Y. Yamamoto, T. Hatayama, H. Yano, Y. Uraoka and T. Fuyuki	
The Role of Carrier Lifetime in Forward Bias Degradation of 4H-SiC PiN Diodes	1053
A. Hefner, T. McNutt, D. Berning, R. Singh and A. Akuffo	
High-Quality 3C-SiC pn-Structures Created by Sublimation Epitaxy on a 6H-SiC Substrate	1057
A.M. Strel'chuk, A.A. Lebedev, A.N. Kuznetsov, N.S. Savkina and V.A. Soloviev	
High Breakdown Field p-Type 3C-SiC Schottky Diodes Grown on Step-Free 4H-SiC Mesas	1061
D.J. Spry, A.J. Trunek and P.G. Neudeck	
Electrical Properties of pn Diodes on 4H-SiC(000-1) C-Face and (11-20) Face	1065
Y. Tanaka, K. Kojima, T. Suzuki, T. Hayashi, K. Fukuda, T. Yatsuo and K. Arai	
Avalanche Multiplication and Breakdown in 4H-SiC Diodes	1069
B.K. Ng, J. David, D.J. Massey, R.C. Tozer, G.J. Rees, F. Yan, J.H. Zhao and M. Weiner	
Investigation of Rapid Thermal Annealed pn-Junctions in SiC	1073
M. Rambach, R. Weiss, L. Frey, A.J. Bauer and H. Ryssel	
Ballistic Electron Emission Microscopy Study of p-Type 4H-SiC	1077
Y. Ding, K.B. Park, J.P. Pelz, A.V. Los and M.S. Mazzola	
Defect Influence on the Electrical Properties of 4H-SiC Schottky Diodes	
L. Scaltrito, E. Celasco, S. Porro, S. Ferrero, F. Giorgis, C.F. Pirri, D. Perrone, U.M. Meotto, P. Mandracci, G. Richieri, L. Merlin, A. Cavallini, A. Castaldini and M. Rossi	1081
Analysis of Structural Defects in the 4H-SiC Epilayers and their Influence on the Electrical Properties	
S. Izumi, I. Kamata, T. Tawara, H. Fujisawa and H. Tsuchida	1085
Simulation and Prototype Fabrication of Microwave Modulators with 4H-SiC p-i-n Diodes	
A.V. Bludov, M.S. Boltovets, K. Vassilevski, A.V. Zorenko, K. Zekentes, A.A. Lebedev and V.A. Krivutsa	1089
Bulk SiC Devices for High Radiation Environments	
W. Cunningham, M. Cooke, J. Melone, M. Horn, V. Kazukauskas, P.R. Roy, F. Doherty, M. Glaser, J.V. Vaitkus, M. Rahman and D. Rezel	1093
2.5KV-30A Inductively Loaded Half-Bridge Inverter Switching using 4H-SiC MPS Free-Wheeling Diodes	
Y.Z. Li, L. Fursin, J. Wu, P. Alexandrov and J.H. Zhao	1097
Design and Implementation of the Optimized Edge Termination in 1.8 kV 4H-SiC PiN Diodes	
I. Sankin, W.A. Draper, J.N. Merrett, J.R.B. Casady and J.B. Casady	1101
High Power 4H-SiC PiN Diodes with Minimal Forward Voltage Drift	
M.K. Das, J.J. Sumakeris, M.J. Paisley and A.R. Powell	1105
4,308V, 20.9 mΩ·cm² 4H-SiC MPS Diodes Based on a 30μm Drift Layer	
J. Wu, L. Fursin, Y.Z. Li, P. Alexandrov and J.H. Zhao	1109
Approaches to Stabilizing the Forward Voltage of Bipolar SiC Devices	
J.J. Sumakeris, M.K. Das, H. McD. Hobgood, S.G. Müller, M.J. Paisley, S.Y. Ha, M. Skowronski, J.W. Palmour and C.H. Carter Jr.	1113
Extrinsic Base Design of SiC Bipolar Transistors	
E. Danielsson, M. Domeij, C. Zetterling, M. Östling and A. Schöner	1117
Analysis of Power Dissipation and High Temperature Operation in 4H-SiC Bipolar Junction Transistors with 4.9 MW/cm² Power Density Handling Ability	
I. Perez-Wurfl, J. Torvik and B. Van Zeghbroeck	1121
Simple Self-Aligned Fabrication Process for Silicon Carbide Static Induction Transistors	
K. Dynefors, V. Desmaris, J. Eriksson, P.Å. Nilsson, N. Rorsman and H. Zirath	1125

Influence of Different Peripheral Protections on the Breakover Voltage of a 4H-SiC GTO Thyristor	P. Brosselard, V. Zorngiebel, D. Planson, S. Scharnholz, J. Chante, E. Spahn, C. Raynaud and M. Lazar	1129
Characteristics of 6H-SiC Bipolar JTE Diodes Realized by Sublimation Epitaxy and Al Implantation	A.M. Strel'chuk, A.A. Lebedev, D.V. Davydov, N.S. Savkina, A.N. Kuznetsov, M. Valakh, V.S. Kiselev, B.N. Romanyuk, C. Raynaud, J. Chante and M.L. Locatelli	1133
The First 4H-SiC BJT-Based 20 kHz, 7HP PWM DC-to-AC Inverter for Induction Motor Control Applications	J.H. Zhao, J.H. Zhang, Y.B. Luo, X. Hu, Y.Z. Li, H. Yu, J. Lai, P. Alexandrov, L. Fursin, L.X. Li, J. Carter and M. Weiner	1137
SiC BJT Technology for Power Switching and RF Applications	A.K. Agarwal, S.H. Ryu, C. Capell, J. Richmond, J.W. Palmour, H. Bartlow, T.P. Chow, S. Scozzie, W. Tipton, S. Baynes and K.A. Jones	1141
Base Current Gain of Power (1800 V, 10 A) 4H-SiC npn-BJTs	P.A. Ivanov, M.E. Levinstein, A.K. Agarwal, J.W. Palmour and S.H. Ryu	1145
High Power (500V-70A) and High Gain(44-47) 4H-SiC Bipolar Junction Transistors	J.H. Zhang, P. Alexandrov and J.H. Zhao	1149
Assessment of "Normally On" and "Quasi On" SiC VJFET's in Half-Bridge Circuits	M.S. Mazzola, J.B. Casady, N. Merrett, I. Sankin, W.A. Draper, D. Seale, V. Bondarenko, Y. Koshka, J. Gafford and R. Kelly	1153
1,530V, 17.5mΩcm² Normally-Off 4H-SiC VJFET Design, Fabrication and Characterization	L. Fursin, L.X. Li and J.H. Zhao	1157
4,340V, 40 mΩcm² Normally-Off 4H-SiC VJFET	J.H. Zhao, L. Fursin, P. Alexandrov, L.X. Li and M. Weiner	1161
A 500V, Very High Current Gain ($\beta=1517$) 4H-SiC Bipolar Darlington Transistor	J.H. Zhang, P. Alexandrov and J.H. Zhao	1165
640 and Tested in a Half-Bridge Inverter up to 20A at $V_{Bus}=900V$	J.H. Zhao, J.H. Zhang, P. Alexandrov and T. Burke	1169
A High Voltage (1,750V) and High Current Gain ($\beta=24.8$) 4H-SiC Bipolar Junction Transistor using a Thin (12 μm) Drift layer	J.H. Zhao, J.H. Zhang, P. Alexandrov, L.X. Li and T. Burke	1173
Effect of Passivation on Device Stability and Gate Reverse Characteristics on 4H-SiC MESFETs	A. Kerlain, E. Morvan, C. Dua, N. Caillas and C. Brylinski	1177
Fabrication and Characterization of 4H-SiC Planar MESFET Using Ion- Implantation	H.J. Na, D.H. Kim, S.Y. Jung, I.B. Song, M.Y. Um, H.K. Song, J.K. Jeong, J.B. Lee and H.J. Kim	1181
Deep Level Investigation by Current and Capacitance Transient Spectroscopy in 4H-SiC MESFETs on Semi-Insulating Substrates	M. Gassoumi, N. Sghaier, I. Dermoul, F. Chekir, H. Maaref, J.M. Bluet, G. Guillot, E. Morvan, O. Noblanc, C. Dua and C. Brylinski	1185
600V 4H-SiC RESURF-Type JFET	K. Fujikawa, S. Harada, A. Ito, T. Kimoto and H. Matsunami	1189
Influence of Buffer Layer on DC and RF Performance of 4H SiC MESFET	A.V. Los, M.S. Mazzola, D. Kajfez, B.T. McDaniel, C.E. Smith, J.W. Kretchmer, L.B. Rowland and J.B. Casady	1193
Design of 1.7 to 14 kV Normally-Off Trenched and Implanted Vertical JFET in 4H-SiC	L.X. Li and J.H. Zhao	1197
Optimization of Vertical Silicon Carbide Field Effect Transistors towards a Cost Attractive SiC Power Switch	P. Friedrichs, R. Elpelt, R. Schörner, H. Mittlehner and D. Stephani	1201
RF Performance and Reliability of SiC MESFETs on High Purity Semi-Insulating Substrates	S. Sriram, A. Ward, C. Janke, T.S. Alcorn, H. Hagleitner, J. Henning, K. Wieber, J.R. Jenny, J.J. Sumakeris and S.T. Allen	1205
High Frequency Measurements and Simulations of SiC MESFETs up to 250°C	W. Liu, C. Zetterling, M. Östling, J. Eriksson, N. Rorsman and H. Zirath	1209

6A, 1kV 4H-SiC Normally-Off Trenched-and-Implanted Vertical JFETs	1213
J.H. Zhao, K. Tone, L.X. Li, P. Alexandrov, L. Fursin and M. Weiner	
A 600V Deep-Implanted Gate Vertical JFET	1217
M. Mizukami, O. Takikawa, M. Murooka, S. Imai, K. Kinoshita, T. Hatakeyama, M. Tsukuda, W. Saito, I. Omura and T. Shinohe	
Single Contact-Material MESFETs on 4H-SiC	1221
S. Tanimoto, M. Inada, N. Kiritani, M. Hoshi, H. Okushi and K. Arai	
DC and RF Performance of Insulating Gate 4H-SiC Depletion Mode Field Effect Transistors	1225
R. Jonsson, Q. Wahab and S. Rudner	
Investigation of the Scalability of 4H-SiC MESFETs for High Frequency Applications	1229
N. Rorsman, P.Å. Nilsson, J. Eriksson, K. Andersson and H. Zirath	
The Theoretical Study on Total Power Dissipation of SiC Devices in Comparison with Si Devices	1233
K. Adachi, H. Ohashi and K. Arai	
Scattering Probabilities for Multiband Hole States at High Electric Fields and High Collision Rates in 4H-SiC	1237
A. Martinez, M. Hjelm, H.-. Nilsson and U. Lindefelt	
Edge Termination Technique for SiC Power Devices	1241
H.W. Kim, W. Bahng, G.H. Song, S.C. Kim, N.K. Kim and E.D. Kim	
BIFET – a Novel Bipolar SiC Switch for High Voltage Power Electronics	1245
H. Mitlehner, P. Friedrichs, R. Elpelt, K.O. Dohnke, R. Schörner and D. Stephani	
A Review of SiC Power Switch: Achievements, Difficulties and Perspectives	1249
I. Sankin, J.N. Merrett, W.A. Draper, J.R.B. Casady and J.B. Casady	
A Highly Effective Edge Termination Design for SiC Planar High Power Devices	1253
R. Pérez, N. Mestres, S. Blanqué, D. Tournier, X. Jordá, P. Godignon and R. Nipoti	
Optimization of JTE Edge Terminations for 10 kV Power Devices in 4H-SiC	1257
X. Wang and J.A. Cooper	
The SiC-SiO₂ Interface: A Unique Advantage of SiC as a Wide Energy-Gap Material	1263
S. Dimitrijev	
A Long-Term Reliability of Thermal Oxides Grown on n-Type 4H-SiC Wafer	1269
J. Senzaki, M. Goto, K. Kojima, K. Yamabe and K. Fukuda	
Recent Advances in (0001) 4H-SiC MOS Device Technology	1275
M.K. Das	
Characterizations of SiC/SiO₂ Interface Quality Toward High Power MOSFETs Realization	1281
D. Ziane, J.M. Bluet, G. Guillot, P. Godignon, J. Montserrat, R.R. Ciechonski, M. Syväjärvi, R. Yakimova, L. Chen and P.A. Mawby	
Hall Effect Measurements in SiC Buried-Channel MOS Devices	1287
N.S. Saks and S.H. Ryu	
First-Principles Study of O Adsorption at SiC Surface	1293
R. Rurali, E. Wachowicz, P. Ordejón, P. Godignon, J. Rebollo and P. Hyldgaard	
Interface States in Abrupt SiO₂/4H- and 6HSiC(0001) from First-Principles: Effects of Si Dangling Bonds, C Dangling Bonds and C Clusters	1297
T. Ohnuma, H. Tsuchida and T. Jikimoto	
Investigation of SiO₂/SiC Interface using Positron Annihilation Technique	1301
M. Maekawa, A. Kawasuso, M. Yoshikawa and A. Ichimiya	
A Comparison between SiO₂/4H-SiC Interface Traps on (0001) and (11-20) Faces	1305
H.Ö. Ólafsson, C. Hallin and E.Ö. Sveinbjörnsson	
Interface Properties of 4H-SiC/SiO₂ with MOS Capacitors and FETs Annealed in O₂, N₂O, NO and CO₂	1309
W. Wang, S. Banerjee, T.P. Chow, R.J. Gutmann, T. Isaacs-Smith, J.R. Williams, K.A. Jones, A.J. Lelis, W. Tipton, S. Scozzie and A.K. Agarwal	
Initial Oxidation of 6H-SiC (0001) (3 x 3)-R30° and 3 x 3 Surfaces Studied by AES and RHEED	1313
T. Aoyama, W. Voegeli, A. Ichimiya, Y. Hisada and S. Mukainakano	
Initial Stages of Thermal Oxidation of 4H-SiC (11-20) Studied by Photoelectron Spectroscopy	1317
T. Seyller, K.V. Emtsev, R. Graupner and L. Ley	

Oxidation Studies of Non-Polar 4H-SiC Surfaces	1321
C. Virojanadara and L.I. Johansson	
Carbon-Terminated 3C-SiC(100) Surface Oxidation Studied by High-Resolution Core Level Photoemission Spectroscopy using Synchrotron Radiation	
J. Roy, M. Silly, H. Enriquez, P. Soukiassian, C. Crotti, S. Fontana and P. Perfetti	1325
A Photoemission Study of Polar and Non-Polar SiC Surfaces Oxidized in N₂O	
L.I. Johansson, C. Virojanadara, T. Eickhoff and W. Drube	1329
Radical Nitridation of Ultra-Thin SiO₂/SiC Structure	
H. Yano, Y. Furumoto, T. Niwa, T. Hatayama, Y. Uraoka and T. Fuyuki	1333
Ellipsometric Study of Thermal Silicon Oxide and Sacrificial Silicon Oxide on 4H-SiC	
L. Chen, O. Guy, G. Pope, K.S. Teng, T. Maffeis, S.P. Wilks, P.A. Mawby, T.E. Jenkins, A. Brieva and D.J. Hayton	1337
Photoemission Spectroscopic Studies on Oxide/SiC Interfaces Formed by Dry and Pyrogenic Oxidation	
Y. Hijikata, H. Yaguchi, Y. Ishida, M. Yoshikawa, T. Kamiya and S. Yoshida	1341
Diluted Nitric Oxide (NO) Annealing of SiO₂/4H-SiC in Cold-Wall Oxidation Furnace	
R. Kosugi and K. Fukuda	1345
Thermal Oxidation of 4H-Silicon Using the Afterglow Method	
A.M. Hoff, E. Oborina, S.E. Saddow and A. Savtchouk	1349
Fast Oxidation of 4H-SiC at Room Temperature by Electrochemical Methods	
H. Mikami, T. Hatayama, H. Yano, Y. Uraoka and T. Fuyuki	1353
Characterization of a Thermal Oxidation Process on SiC Preamorphized by Ar Ion Implantation	
A. Poggi, R. Nipoti, S. Solmi, M. Bersani and L. Vanzetti	1357
Electronic Properties of SiON/HfO₂ Insulating Stacks on 4H-SiC (0001)	
V.V. Afanas'ev, S.A. Campbell, K.Y. Cheong, F. Ciobanu, S. Dimitrijev, G. Pensl, A. Stesmans and L. Zhong	1361
Characterization of Non-Equilibrium Charge of MOS Capacitors on p-Type 4H SiC	
K.Y. Cheong, S. Dimitrijev and J.S. Han	1365
Structural and Electronic Properties of the 6H-SiC(0001)/Al₂O₃ Interface Prepared by Atomic Layer Deposition	
T. Seyller, K.Y. Gao, L. Ley, G. Pensl, F. Ciobanu, A. Tadich, J.D. Riley and R.C.G. Leckey	1369
Development of Sol-Gel MgO Thin Films for SiC Insulation Applications	
C. Bondoux, P. Prené, P. Belleville, F. Guillet and R. Jérision	1373
Effect of In-Situ Chemical Surface Treatments on AlN/SiC Interfacial Contamination	
D.O. Stodilka, B.P. Gila, C.R. Abernathy, E. Lambers, F. Ren and S.J. Pearton	1377
Comparison of the Electrical Channel Properties between Dry- and Wet- Oxidized 6H-SiC MOSFETs Investigated by Hall Effect	
M. Laube, G. Pensl, K.K. Lee and T. Ohshima	1381
Development of 10 kV 4H-SiC Power DMOSFETs	
S.H. Ryu, A.K. Agarwal, S. Krishnaswami, J. Richmond and J.W. Palmour	1385
Static and Dynamic Characterization of 20A, 600V SiC MOS-Enhanced JFET	
E. Hanna, H.R. Chang, A.V. Radun, Q. Zhang and M. Gomez	1389
Self-Aligned Short-Channel Vertical Power DMOSFETs in 4H-SiC	
M. Matin, A. Saha and J.A. Cooper	1393
Fabrication of Double Implanted (0001) 4H-SiC MOSFETs by using Pyrogenic Re-Oxidation Annealing	
R. Kosugi, N. Kiritani, K. Suzuki, T. Yatsuo, K. Adachi and K. Fukuda	1397
A P-Channel MOSFET on 4H-SiC	
J.S. Han, K.Y. Cheong, S. Dimitrijev, M. Laube and G. Pensl	1401
Relationship between the Current Direction in the Inversion Layer and the Electrical Characteristics of Metal-Oxide-Semiconductor Field Effect Transistors on 3C-SiC	
T. Ohshima, K.K. Lee, Y. Ishida, Y. Tanaka, K. Kojima, T. Takahashi, M. Yoshikawa, H. Okumura, K. Arai and T. Kamiya	1405
4H-SiC MOSFETs with a Novel Channel Structure (Sandwiched Channel MOSFET)	
J. Kaido, T. Kimoto, J. Suda and H. Matsunami	1409
930, 170Ω.cm² Lateral Two-Zone RESURF MOSFETs in 4H-SiC with NO Annealing	
W. Wang, S. Banerjee, T.P. Chow and R.J. Gutmann	1413

4H-SiC MOSFETs on C(000-1) Face with Inversion Channel Mobility of 127cm²/Vs	1417
K. Fukuda, M. Kato, J. Senzaki, K. Kojima and T. Suzuki	
Fabrication of 4H-SiC Double-Epitaxial MOSFETs	1421
S. Harada, M. Okamoto, T. Yatsuo, K. Adachi, K. Suzuki, S. Suzuki, K. Fukuda and K. Arai	
Enhancement of Inversion Channel Mobility in 4H-SiC MOSFETs using a Gate Oxide Grown in Nitrous Oxide (N₂O)	1425
G. Gudjónsson, H.Ö. Ólafsson and E.Ö. Sveinbjörnsson	
High Channel Mobilities of MOSFETs on Highly-Doped 4H-SiC (11-20) Face by Oxidation in N₂O Ambient	1429
Y. Kanzaki, H. Kinbara, H. Kosugi, J. Suda, T. Kimoto and H. Matsunami	
Benefits of High-k Dielectrics in 4H-SiC Trench MOSFETs	1433
N.G. Wright, N. Poolamai, K. Vassilevski, A.B. Horsfall and C.M. Johnson	
Simulation Study of 4H-SiC Junction-Gated MOSFETs from 300 K to 773 K	1437
H.S. Lee, S. Koo, C. Zetterling, E. Danielsson, M. Domeij and M. Östling	
Evaluation of Trench Oxide Protection Techniques on Ultra High Voltage (10 kV) 4H-SiC UMOSFETs	1441
S.J. Rashid, A. Mihaila, F. Udrea, R.K. Malhan and G. Amaratunga	
SiC JMOSFETs for High-Temperature Stable Circuit Operation	1445
S. Koo, C. Zetterling, H.S. Lee and M. Östling	
Advanced Processing Techniques for Silicon Carbide MEMS and NEMS	1451
C.A. Zorman and M. Mehregany	
Microscopic Structure and Electrical Activity of 4H-SiC/SiO₂ Interface Defects : an EPR Study of Oxidized Porous SiC	1457
H.J. von Bardeleben, J.L. Cantin, Y. Shishkin, R.P. Devaty and W.J. Choyke	
Porous Silicon Carbide as a Membrane for Implantable Biosensors	1463
A.J. Rosenbloom, Y. Shishkin, D.M. Sipe, Y. Ke, R.P. Devaty and W.J. Choyke	
Triangular Pore Formation in Highly Doped n-Type 4H SiC	1467
Y. Shishkin, W.J. Choyke and R.P. Devaty	
Porous Structure of Anodized p-Type 6H SiC	1471
Y. Shishkin, Y. Ke, R.P. Devaty and W.J. Choyke	
Vibrational and Emission Properties of Porous 6H-SiC	1475
A.M. Rossi, V. Ballarini, S. Ferrero and F. Giorgis	
Porous SiC for HT Chemical Sensing Devices: an Assessment of its Thermal Stability	1479
J. Bai, G. Dhanaraj, P.I. Gouma, M. Dudley and M.G. Mynbaeva	
SiC Base Micro-Probe for Myocardial Ischemia Monitoring	1483
J. Pascual, F. Valvo, P. Godignon, J. Aguiló, J. Millan, J. Camassel and N. Mestres	
Electrical Characterisation of the Gamma and UV Irradiated Epitaxial 1.2 kV 4H-SiC PiN Diodes	1487
M. Wolborski, M. Bakowski and W. Klamra	
Demonstration of the First 4H-SiC Metal-Semiconductor-Metal Ultraviolet Photodector	1491
Z. Wu, X. Xin, F. Yan and J.H. Zhao	
Towards the Fabrication and Measurement of High Sensitivity SiC-UV Detectors with Oxide Ramp Termination	1495
G. Brezeanu, P. Godignon, E. Dimitrova, C. Raynaud, D. Planson, A. Mihaila, F. Udrea, J. Millan, G. Amaratunga and C. Boianeanu	
Hydrogen Gas Sensors using 3C-SiC/Si Epitaxial Layers	1499
T.J. Fawcett, J.T. Wolan, R.L. Myers-Ward, J. Walker and S.E. Saddow	
Electrical and Optical Characterization of Electron Irradiated X Rays Detectors Based on 4H-SiC Epitaxial Layers	1503
A. Le Donne, S. Binetti, M. Acciarri, A. Castaldini, F. Nava, A. Cavallini and S. Pizzini	
Substrate Bias Amplification of a SiC Junction Field Effect Transistor with a Catalytic Gate Electrode	1507
S. Nakagomi, M. Takahashi, Y. Kokubun, L. Unéus, S. Savage, H. Wingbrant, M. Andersson, I. Lundström, M. Löfdahl and A. Lloyd Spetz	
Development of 3C-SiC SOI Structures using Si on Polycrystalline SiC Wafer Bonded Substrates	1511
R.L. Myers-Ward, S.E. Saddow, S.P. Rao, K.D. Hobart, M. Fatemi and F.J. Kub	

Formation of 3C-SiC Films Embedded in SiO₂ by Sacrificial Oxidation		
D. Panknin, P. Godignon, N. Mestres, E.K. Polychroniadis, J. Stoemenos, G. Ferro, J. Pezoldt and W. Skorupa		1515
Young's Modulus and Residual Stress of Polycrystalline 3C-SiC Films Grown by LPCVD and Measured by the Load-Deflection Technique		
X.A. Fu, J. Dunning, C.A. Zorman and M. Mehregany		1519
Characterization of Polycrystalline SiC Thin Films for MEMS Applications using Surface Micromachined Devices		
J. Dunning, X.A. Fu, S. Rajgopal, M. Mehregany and C.A. Zorman		1523
Reaction Bonding of Microstructured Silicon Carbide using Polymer and Silicon Thin Film		
K. Rajanna, S. Tanaka, T. Itoh and M. Esashi		1527
Fabrication of Suspended Nanomechanical Structures from Bulk 6H-SiC Substrates		
X.M.H. Huang, X.L. Feng, M.K. Prakash, S. Kumar, C.A. Zorman, M. Mehregany and M.L. Roukes		1531
Sublimation Growth of Bulk AlN Crystals: Process Temperature and Growth Rate		
B.M. Epelbaum, M. Bickermann and A. Winnacker		1537
Structural, Optical and Electrical Properties of Bulk AlN Crystals Grown by PVT		
M. Bickermann, B.M. Epelbaum and A. Winnacker		1541
Experimental and Theoretical Analysis of Sublimation Growth of Bulk AlN Crystals		
E.N. Mokhov, S.N. Smirnov, A.S. Segal, D. Bazarevskiy, Y. Makarov, M.G. Ramm and H. Helava		1545
X-Ray Photoelectron Spectroscopy of Nitride Layer on SiC by Thermal Nitridation Using NH₃		
L. YingShen, S. Hashimoto, K. Abe, R. Hayashibe, T. Yamagami, M. Nakao and K. Kamimura		1549
Plasma-Assisted Molecular Beam Epitaxial Growth of AlN Films on Vicinal Sapphire (0001) Substrates		
X. Shen and H. Okumura		1553
Growth of GaN/AlN Quantum Dots on SiC (000-1) by Plasma-Assisted MBE		
N. Gogneau, F. Fossard, E. Monroy, S. Monnoye, H. Mank and B. Daudin		1557
Control of the 2D/3D Transition of Cubic GaN/AlN Nanostructures on 3C-SiC Epilayers		
S. Founta, N. Gogneau, E. Martinez, G. Ferro, Y. Monteil, B. Daudin and H. Mariette		1561
In-Situ Monitoring of AlN Crystal Growth on 6H-SiC by the Use of a Pyrometer		
T. Suzuki and T. Inushima		1565
Towards High-Quality AlN/SiC Hetero-Interface by Controlling Initial Processes in Molecular-Beam Epitaxy		
N. Onojima, J. Kaido, J. Suda, T. Kimoto and H. Matsunami		1569
Growth of N-Face Polarity III-Nitride Heterostructures on C-Face 4H-SiC by Plasma-Assisted MBE		
E. Monroy, E. Sarigiannidou, F. Fossard, E. Enjalbert, N. Gogneau, E. Bellet-Amalric, J. Brault, J.-. Rouvière, L.S. Dang, S. Monnoye, H. Mank and B. Daudin		1573
Direct Growth of High Quality GaN by Plasma Assisted Molecular Beam Epitaxy on 4H-SiC Substrates		
F. Fossard, J. Brault, N. Gogneau, E. Monroy, F. Enjalbert, L.S. Dang, E. Bellet-Amalric, S. Monnoye, B. Daudin and H. Mank		1577
GaN Laterally Overgrown on Sapphire by Low Pressure Hydride Vapor Phase Epitaxy		
J. Napierala, D.M. Martin, H.-. Bühlmann, S. Gradecak and M. Ilegems		1581
Growth and Field Emission of GaN Nanowires		
T.Y. Kim, S.H. Lee, Y.H. Mo and K.S. Nahm		1585
Intraband Transitions on GaN/AlN Quantum Wells Grown on Sapphire (0001) and 6H-SiC Substrates		
A. Helman, M. Tchernycheva, K. Moumanis, A. Lusson, E. Warde, F.H. Julien, E. Monroy, F. Fossard, B. Daudin and L.S. Dang		1589
Photoluminescence of GaN/AlN Quantum Dots Grown on SiC Substrates		
F. Fossard, N. Gogneau, E. Monroy, L.S. Dang, S. Monnoye, H. Mank and B. Daudin		1593
Growth of GaN Films on Porous 4H-SiC Substrate by Metal-Organic Chemical Vapor Deposition		
J.K. Jeong, H.K. Song, M.Y. Um, H.J. Kim, H. Seo, H.J. Kim, E. Yoon, C.S. Hwang and H.J. Kim		1597

X-Ray Diffraction Imaging of GaN-Based Heterostructures on SiC	
B. Poust, P. Feichtinger, R. Sandhu, I.P. Smorchkova, B. Heying, T. Block, M. Wojtowicz and M.S. Goorsky	1601
Effects of Crystallinity on Hydrogen Exfoliation of GaN Layers	
S. Hayashi, B. Poust, B. Heying and M.S. Goorsky	1605
Radiotracer Spectroscopy on Group II Acceptors in GaN	
F. Albrecht, G. Pasold, J. Grillenberger, U. Reislöhner, M. Dietrich, W. Witthuhn and Isolde Collaboration	1609
Properties of the 3.4 eV Luminescence Band in GaN and its Relation to Stacking Faults	
B.J. Skromme, L. Chen, M.K. Miksov, H. Yamane, M. Aoki and F.J. DiSalvo	1613
An Ab Initio Study of Intrinsic Stacking Faults in GaN	
H. Iwata, S. Öberg and P.R. Briddon	1617
AlGaN / GaN HEMT Structures Grown on SiCOI Wafers Obtained by the Smart CutTM Technology	
H. Larhèche, B. Faure, C. Richtarch, F. Letertre, R. Langer and P. Bove	1621
Thermal Characterisation of AlGaN/GaN HEMTs using Micro-Raman Scattering Spectroscopy and Pulsed I-V Measurements	
R. Aubry, J.-. Jacquet, C. Dua, H. Gérard, B. Dessertenne, M.A. di Forte-Poisson, Y. Cordier and S.L. Delage	1625
High CW Power 0.3 μm Gate AlGaN/GaN HEMTs Grown by MBE on Sapphire	
V. Desmaris, J. Eriksson, N. Rorsman and H. Zirath	1629
Self-Aligned N+ Polysilicon-Gate GaN MOSFETs	
K. Matocha, T.P. Chow and R.J. Gutmann	1633