

# Table of Contents

## Preface

<b>Impact of Defects on the Technology of Highly Integrated Circuits</b>	
B.O. Kolbesen, W. Bergholz and H. Wendt	1
<b>Defects and Future Semiconductor Devices</b>	
D.V. Lang	13
<b>Configurations and Properties of Hydrogen in Crystalline Semiconductors</b>	
S.J. Pearton, M. Stavola and J.W. Corbett	25
<b>Defect Metastability and Bistability</b>	
G.D. Watkins	39
<b>The EL2 Defect in GaAs</b>	
J. Dabrowski and M. Scheffler	51
<b>Magneto-Optical and ODMR Investigations on Intrinsic and Extrinsic Defects in GaAs</b>	
B.K. Meyer	59
<b>Defects Induced by Reactive Ion Etching (RIE) in GaAs and Correlation with EL2</b>	
T. Ikoma and Y. Hagihara	67
<b>ESR-Spectra of Defects in Plastically Deformed GaAs</b>	
M. Wattenbach, J. Krüger, C. Kisielowski-Kemmerich and H. Alexander	73
<b>The Temperature Dependence of the Hole Ionization Cross Section of EL2 in GaAs</b>	
P. Omling, P. Silverberg and L. Samuelson	79
<b>Metastable to Stable EL2 Regeneration via an 'Auger' Mechanism Induced by the Debye Tail</b>	
X. Boddaert, D. Stiévenard, M. Lannoo and P. Boher	85
<b>EL2 and the Electronic Structure of the As<sub>Ga</sub>-As<sub>Sj</sub> Pair in GaAs: The Role of Jahn-Teller Relaxation and Coulomb Interaction</b>	
G.A. Baraff, M. Schluter and M. Lannoo	91
<b>The EL2 Defect and the Isolated Arsenic Antisite Defect in GaAs</b>	
H.J. von Bardeleben, J.C. Bourgoin and D. Stiévenard	97
<b>EL2 - Intracenter Absorption under Hydrostatic Pressure</b>	
M. Baj and P. Dreszer	101
<b>Infrared-Induced Paramagnetic Centres in GaAs and Properties of Metastable EL2</b>	
J. Bittebierre, R.T. Cox, R. Picard and E. Molva	107
<b>Anisotropy and Isotropy of Electric Field Effects for the EL2 and E3 Defects in GaAs</b>	
L. Dobaczewski	113
<b>Correlation Effects in Native Defects in GaAs</b>	
M.J. Caldas and A. Fazzio	119
<b>A Local Vibration Mode Absorption Study on the Metastability of EL2 Centres in GaAs</b>	
W.K. Ge, D. Jiang, C. Song and J. Zheng	125
<b>Generation Process of EL2 Centers in GaAs</b>	
M. Suezawa, K. Sumino and F. Orito	129
<b>Characterization of EL2 Level in As-Grown GaAs Prepared by MBE</b>	
V. Smid, P. Hubik, A. Bosacchi, S. Franchi, E. Gombia and L. Vanzetti	135
<b>Interstitial Defect Reactions in Silicon</b>	
L.C. Kimerling, M.T. Asom, J.L. Benton, P.J. Drevinsky and C.E. Caefer	141
<b>Carbon-Related Processes in Crystalline Silicon</b>	
G. Davies	151
<b>Oxygen-Carbon Interactions in Silicon: Photoluminescence Defect Spectrum at 1.06 eV Emission Energy</b>	
W. Kürner, K. Thonke, R. Sauer, M.T. Asom and W. Zulehner	159
<b>Peculiarities of Behavior of Irradiated Heat-Treated Si</b>	
V.B. Neimash, V.M. Siratsky, M.G. Sosnin, V.M. Tsmots, V.I. Shakhovtsov, V.L. Shindich and M.G. Mil'vidskii	165
<b>On the Role of Point Defects in Gettering Processes</b>	
J. Vanhellemont and C. Claeys	171

<b>The Dominant Recombination Centres in Proton-Irradiated Silicon after Long-Term Annealing</b>	177
M.W. Hüppi	
<b>Deep Levels in Silicon as a Result of CoSi<sub>2</sub> Formation</b>	183
L.W. Lu, G. Groeseneken, L. Van den Hove and K. Maex	
<b>Precipitation Phenomena in CMOS Technology</b>	189
I. Fàbian, T. Kormàny, K. Erdélyi and E.K. Pal	
<b>Formation of SiO<sub>X</sub> Precipitates in Technological Silicon Wafers during Heating Processes: Investigations with Infrared Spectroscopy</b>	195
E. Hild, S. Nouredin and T. Kormàny	
<b>Influence of Defects on the Impurity Diffusion in SIMOX Structures</b>	201
D. Tsoukalas, P. Normand and N. Guillemot	
<b>Defects in High-Dose Oxygen Implanted Silicon</b>	207
A. De Veirman, K. Yallup, J. Van Landuyt and H.E. Maes	
<b>Conventional and Rapid Thermal Annealing Induced Defects in Czochralski Silicon</b>	213
E. Susi, A. Poggi, R. Fabbri, G. Lulli and A.G. Adegboyega	
<b>Quenched-In Defects in Thermally Treated and Pulsed Laser Irradiated Silicon</b>	219
K. Nakashima	
<b>Effects of Boron Doping on the Annealing Characteristics of Cz-Silicon</b>	225
W. Puff, P. Mascher, D. Kerr and S. Dannefaer	
<b>Influence of Hydrostatic Pressure on Deep Levels in Silicon Induced by Annealing</b>	231
V. Smid, J. Zeman, J. Kristofik, J.J. Mares, Y.V. Vyzhigin, V.A. Kostylev, N.A. Sobolev, V.V. Eliseev and V.M. Likunova	
<b>Impact of Volume Defects on Gold Gettering in Cz-Si Wafers</b>	237
F.G. Kirsch, K. Schmalz and I. Babanskaya	
<b>Parallel Stress and Perpendicular Strain Depth-Distributions in [001] Silicon Amorphized by Ion Implantation</b>	243
F. Cembali, R. Fabbri, P. Negrini, M. Servidori and A. Zani	
<b>Defects in Amorphous Silicon</b>	249
S.T. Pantelides	
<b>Theory of 4d Transition-Metal Ions in Silicon: Total-Energies, Diffusion, Electronic and Magnetic Properties</b>	257
F. Beeler and M. Scheffler	
<b>Green's-Function Calculation of the Formation Entropy of a Vacancy in Silicon</b>	263
J.R. Leite, E.C.F.d. Silva and A. Dal Pino	
<b>Equilibrium Geometries and Electronic Structure of Oxygen Related Defects in Silicon</b>	269
P.J. Kelly	
<b>Screening of the Coulomb Interaction and Transition Metal Energy Levels Pinning to the Semiconductor Neutrality Level</b>	275
J.M. Langer, C. Delerue and M. Lannoo	
<b>One- and Two-Oxygen Defects in Silicon - A Theoretical Study</b>	281
P. Deák, L.C. Snyder, J.W. Corbett, R.Z. Wu and A. Sólyom	
<b>Localized Resonant State and Its Appearance in Energy Gap in Pressurized GaAs</b>	287
A. Oshiyama	
<b>Computation of Hyperfine Interactions for Substitutional Se<sup>+</sup> and S<sup>+</sup> Impurities in Silicon</b>	293
H. Overhof, M. Scheffler and C.M. Weinert	
<b>Parameter-Free Calculations of the Pressure Dependence of Impurity Levels, Entropies and of Defect-Formation Volumes</b>	299
D. Weider, M. Scheffler and U. Scherz	
<b>Detecting the Dynamic Aspect of the Jahn-Teller Coupling for the V<sup>3</sup> Defect in GaAs</b>	305
F.G. Anderson and F.S. Ham	
<b>Electronic Structure of Nitrogen NN-Pairs in GaP from Excitation and Zeeman Spectroscopy</b>	311
Q.X. Zhao and B. Monemar	
<b>Localized Defect States in Tetrahedrally Bonded Semiconductors</b>	317
S. Goettig and C.G. Morgan-Pond	

<b>Cluster Ab Initio Calculation of the Localized Lattice Excitations due to Interstitial Oxygen in Silicon</b>	323
C. Kaneta, H. Yamada-Kaneta and A. Ohsawa	
<b>Computation of Structure, Stability and Gap States for Core Models of the Oxygen Thermal Donors in Silicon</b>	329
L.C. Snyder, P. Deák, R.Z. Wu and J.W. Corbett	
<b>Fluorine-Silicon Reactions and the Etching of Crystalline Silicon</b>	335
C.G. Van de Walle, F.R. McFeely and S.T. Pantelides	
<b>Photothermal Ionization Spectroscopy</b>	341
H.G. Grimmeiss, M. Kleverman and J. Olajos	
<b>The Electronic Structure of Platinum, Palladium and Nickel in Silicon</b>	355
A.B. van Oosten, N.T. Son, L.S. Vlasenko and C.A.J. Ammerlaan	
<b>Time Resolved Photoluminescence Measurements on Noble Gas Related Defects in Silicon</b>	361
G. Bohnert, A. Hangleiter, K. Weronek and K. Thonke	
<b>Perturbed Angular Correlation Spectroscopy of In-Li Pairs in Silicon</b>	367
M. Deicher, G. Grübel, R. Keller, E. Recknagel, N. Schulz, H. Skudlik and T. Wichert	
<b>Electronic Characterization of Defects in Iron-Doped P-Type Silicon</b>	373
W. Gehlhoff, K. Irmscher and U. Rehse	
<b>Photoluminescence from Defects in Silicon Grown by Molecular Beam Epitaxy</b>	379
E.C. Lightowers, M.J. Gregson, V. Higgs, S.T. Davey, C.J. Gibbings and C.G. Tuppen	
<b>Electronic Energy Level of Off-Center Substitutional Nitrogen in Silicon</b>	385
K. Murakami, H. Kurabayashi and K. Masuda	
<b>The Multiconfigurational Carbon-Antimony Pair in Silicon</b>	391
B.W. Benson, E. Gurer and G.D. Watkins	
<b>Excitation Spectrum of the Interstitial Iron Donor in Silicon</b>	397
J. Olajos, B. Bech Nielsen, M. Kleverman, P. Omling, P. Emanuelsson and H.G. Grimmeiss	
<b>Shift and Splittings of Three Palladium-Related Deep Levels in Silicon under Uniaxial Stresses and the Symmetries of Their Corresponding Centers</b>	403
J. Zhou, L. Wang, X. Yao and G. Qin	
<b>Bistability of Iron-Group III Acceptor Pairs in Silicon</b>	409
L.V.C. Assali and J.R. Leite	
<b>3d-4d Transition Metal Complex Formation in Silicon</b>	415
R. Czaputa, M. Midl, H. Feichtinger and A.J. Bauer	
<b>Photoluminescence from Transition Metals in Silicon</b>	421
M.C. do Carmo, M.I. Calao, G. Davies and E.C. Lightowers	
<b>Volume Relaxation and Pressure Coefficients of Interstitial 3d-Defects in Silicon</b>	427
H. Feichtinger and T. Prescha	
<b>Photoluminescence Study of Nickel Doped Silicon</b>	433
M.H. Nazaré and M.F. Thomaz	
<b>Tin Related Defect in Electron Irradiated n-Type Silicon Studied by DLTS</b>	439
J. Nielsen, K.B. Nielsen and A.N. Larsen	
<b>Electron Paramagnetic Resonance Studies of Defects in Indium-Doped Silicon</b>	445
P. Omling, P. Emanuelsson and H.G. Grimmeiss	
<b>Infrared Absorption Studies of the Divacancy in Silicon-New Properties of and Interpretation of the 0.34 eV Peak</b>	451
J. Svensson, B.G. Svensson and B. Monemar	
<b>Physical Behaviour of 4d Transition Metal Impurity in Silicon</b>	457
J. Zhou, X.J. Ji, S.Y. Li, W. Jian, J.L. Gao and Z.Y. Han	
<b>Level Splitting of the Cd-Ground State in Silicon</b>	463
H. Wolf, S. Deubler, D. Forkel-Wirth, F. Meyer, M. Uhrmacher and W. Witthuhn	
<b>Temperature Dependence of the Capture Cross Section of Se<sup>0</sup> as Measured by Microwave Absorption Spectroscopy (MAS)</b>	469
T. Pavelka and B. Hemm	
<b>Metastable Thermal Donor States in Germanium Identified by Far-IR Spectroscopy</b>	473
P. Clauws and J. Vennik	
<b>A Metastable Precursor to the Di-Carbon Centre in Crystalline Silicon</b>	481
S.P. Chappell, G. Davies, E.C. Lightowers and R.C. Newman	

<b>The Bistability of Thermal Donors in Silicon Investigated by Infrared Spectroscopy</b>	487
J. Hage and P. Wagner	
<b>Pressure Studies of 'Resonant' Metastable Localized Electron State in Heavily Doped O-GaAs</b>	487
L. Dmowski, D. Wasik, E. Litwin-Staszewska, T. Suski, P. Wiśniewski and W.H. Zhuang	493
<b>Entropy-Driven Metastable Defects in Silicon</b>	499
B. Hamilton, A.R. Peaker and S.T. Pantelides	
<b>Chemical Trends in II-VI Semiconductors Doped with 3d Impurities</b>	505
K.A. Kikoin and V.I. Sokolov	
<b>Electrical Properties of Twinned ZnSe: P-Type Conductivity and Chaos</b>	513
G.F. Neumark	
<b>Deep Levels due to Transition Metal Impurities in CdTe</b>	519
G. Hendorfer and W. Jantsch	
<b>Time Resolved Spectroscopy of Deeply Cu-Bound Excitons in ZnS</b>	525
A. Hoffmann, A. Franz, A. Ismail, F. Asch and I. Broser	
<b>Photoexcitation and Relaxation Mechanism of Electrons in Narrow Gap Semiconductors Doped with Amphoteric Deep Impurities</b>	531
S. Shimomura, H. Takahashi, S. Takaoka and K. Murase	
<b>Identification of Interstitial Copper and Its Pair with Substitutional Copper in Germanium</b>	537
Y. Kamiura and F. Hashimoto	
<b>Electronic Structure of 3d Transition-Atom Impurities in Zinc Selenide</b>	543
H. Chacham, J.L. Alves and M.L. de Siqueira	
<b>Study on the Compensation Mechanisms of CuInS<sub>2</sub></b>	549
H.Y. Ueng and H.L. Hwang	
<b>Conductivity Control of MOCVD-Grown ZnS Films Doped with I Donor and Na, N Acceptors</b>	555
Z. Kawazu, Y. Kawakami, T. Taguchi and A. Hiraki	
<b>Color Centers in Annealing of Neutron-Irradiated Type Ib and Ia Diamonds</b>	561
Y. Nisida, Y. Mita, K. Mori, S. Okuda, S. Sato, S. Yazu, M. Nakagawa and M. Okada	
<b>Influence of the Cobalt on the Electroluminescence Spectra of ZnO</b>	567
A. Miralles, A. Cornet and J.R. Morante	
<b>Optical Properties of Defects in Crystals (CdS) Plastically Deformed at 4.2-300 K</b>	573
V.D. Negriy and Y.A. Ossipyan	
<b>Oxygen in Silicon</b>	579
J.W. Corbett, P. Deák, J.L. Lindström, L.M. Roth and L.C. Snyder	
<b>Thermal Donor Formation and Mechanism of Enhanced Oxygen Diffusion in Silicon</b>	589
V.P. Markevich, L.F. Makarenko and L.I. Murin	
<b>Heat-Treatment Centres and Thermal Donors in Silicon</b>	595
T. Gregorkiewicz, H.H.P.T. Bekman and C.A.J. Ammerlaan	
<b>The NL 10 Thermal Donor in Silicon</b>	601
H.H.P.T. Bekman, T. Gregorkiewicz and C.A.J. Ammerlaan	
<b>Endor Investigations on Heat Treatment Centers in Oxygen Rich Si</b>	607
J. Michel, N. Meilwes and J.M. Spaeth	
<b>Thermal Donor Formation in Boron Doped Silicon</b>	613
M. Claybourn and R.C. Newman	
<b>The Role of Nitrogen in the Formation of Oxygen-Related Thermal Donors in Silicon</b>	619
J.A. Griffin, J. Hartung and J. Weber	
<b>Calculated Thermodynamic Potentials for the Vacancy and the Oxygen A-Center in Silicon</b>	625
S. Biernacki, U. Scherz, R. Gillert and M. Scheffler	
<b>Nitrogen-Carbon-Oxygen Radiative Centers in Silicon: Uniaxial Stress Measurements</b>	631
A. Dörnen, R. Sauer and G. Pensl	
<b>Local Phonon Coupling Model for Anharmonic Lattice Excitation in Si: O</b>	637
H. Yamada-Kaneta, C. Kaneta, T. Ogawa and K. Wada	
<b>Correlations between TD Annihilation and Oxygen Precipitation in Czochralski-Grown Silicon</b>	643
M. Reiche and J. Reichel	
<b>Influence of Silicide Growth on the Formation Rate of Thermal Donors in Silicon</b>	649
D. Mathiot	

<b>Atomic Geometry and Its Stability of Oxygen Impurities in Silicon</b>	655
M. Saito and A. Oshiyama	
<b>Formation of Oxide Precipitates in Cz Grown Silicon</b>	661
J. Seres and E. Hild	
<b>New Thermal Donors and Processes Associated with Oxygen Clustering in Cz-Si at 600° C</b>	667
K. Schmalz, K. Tittelbach, V.V. Emtsev and Y.N. Daluda	
<b>Novel Thermal Donors Generated in Cz Silicon by Prolonged Annealing at 470° C</b>	673
Y. Kamiura, F. Hashimoto and M. Yoneta	
<b>Defects in Heterostructures and Superlattices</b>	679
D. Stiévenard and S.L. Feng	
<b>The Atomic Structure of GaAs/AlGaAs Interfaces and Its Correlation with the Optical Properties of Quantum Wells</b>	
A. Ourmazd, J. Cunningham, D.W. Taylor, J.A. Rentschler and C.W. Tu	689
<b>Photoionization of Deep Traps in AlGaAs/GaAs Quantum Wells</b>	
M. Takikawa, K. Kelting, G. Brunthaler, M. Takechi and J. Komono	695
<b>Zinc and Sulphur in Silicon: Experimental Evidence for Kick-Out Diffusion Behaviour</b>	
N. Stolwijk, D. Grünebaum, M. Perret and M. Brohl	701
<b>Diffusion and Solubility of Platinum in Silicon</b>	
J. Hauber, W. Frank and N. Stolwijk	707
<b>Self-Diffusion Mechanisms in Diamond, SiC, Si and Ge</b>	
J. Bernholc, A. Antonelli, C. Wang and R.F. Davis	713
<b>A New Model of Anomalous Phosphorus Diffusion in Silicon</b>	
M. Budil, H. Pötzl, G. Stingeder, M. Grasserbauer and K. Goser	719
<b>Diffusion and Solubility of Titanium in Silicon</b>	
S. Hocine and D. Mathiot	725
<b>Diffusion of Cobalt in Silicon</b>	
J. Utzig and D. Gilles	729
<b>Superdiffusion of Zn into GaAs in an Array of GaAs/Zn/GaAs during Electron Irradiation at 50°C</b>	
T. Wada, A. Takeda and M. Ichimura	735
<b>A Fast Diffusing Species in Silicon Crystals</b>	
T. Zundel, J. Weber, P.O. Hahn, A. Schnegg and H. Prigge	741
<b>Strain Effects Induced by Gold Diffusion in Silicon</b>	
A. Henry, H. Weman, O.O. Awadelkarim and B. Monemar	747
<b>Diffusion of Carbon-14 in Silicon</b>	
F. Rollert, N. Stolwijk and H. Mehrer	753
<b>Diffusion and Charge State of Hydrogen in Si</b>	
E.M. Omeljanovsky, A.V. Pakhomov, A.Y. Polyakov and O.M. Borodina	759
<b>Characterization of an Anion Antisite Defect as a Deep Double Donor in InP</b>	
K. Ando, A. Katsui, D.Y. Jeon, H.P. Gislason and G.D. Watkins	761
<b>Optically Detected Magnetic Resonance Studies of Bound Exciton Triplets for Complex Defects in GaP</b>	
B. Monemar, W.M. Chen and M. Godlewski	769
<b>Isotopic Effects in GaAs:Ni</b>	
B. Clerjaud, D. Côte, F. Gendron, M. Krause and W. Ulrici	775
<b>Deep Levels due to 4d- and 5d-Transition Element Impurities in III-V Semiconductors</b>	
A.A. Gippius, V.V. Chernyaev, N.Y. Ponomarev and V.V. Ushakov	779
<b>Determination of the FR3 Acceptor Level by Direct Excitation of the FR3 EPR in Undoped Semiinsulating GaAs</b>	
M. Baeumler, P.M. Mooney and U. Kaufmann	785
<b>Positron Annihilation Spectroscopy of the Native Vacancies in As-Grown GaAs</b>	
C. Corbel, F. Pierre, P.J. Häutojärvi, K. Saarinen and P. Moser	791
<b>Magnetic Circular Dichroism Investigation of the Neutral and the Ionized Manganese Acceptor in GaAs</b>	
M. Baeumler, B.K. Meyer, U. Kaufmann and J. Schneider	797
<b>Interpretation of the Electric Field Dependent Thermal Emission Data of Deep Traps</b>	
T. Pavelka and G. Ferenczi	803

<b>Optically Anisotropic Deep Luminescent Centers in GaAs</b>	809
S.S. Ostapenko and M.K. Sheinkman	
<b>Raman Spectroscopic Study of Si Local Vibrational Modes in GaAs</b>	815
J. Wagner, M. Ramsteiner, R. Murray and R.C. Newman	
<b>Deep Donor-Acceptor Pair Recombination in Bulk GaP Studied by ODMR and DLTS Techniques</b>	
O.O. Awadelkarim, M. Godlewski and B. Monemar	821
<b>High Resolution Measurements of the <math>^3A_2 - ^3T_2</math> Absorption Spectrum in V-Doped GaAs</b>	
A. Wysmolek, Z. Liro and A.M. Hennel	827
<b>Group-IV Impurity Related Centers in GaAs</b>	
V.M.S. Gomes, R. Pintanel, L.M.R. Scolfaro, J.R. Leite and E.A. Menezes	833
<b>The Effect of Deep Electron Traps on Luminescent Properties of VPE Te-Doped <math>\text{GaAs}_{0.62}\text{P}_{0.38}</math> Epitaxial Layers</b>	
P. Kamiński, Z. Nizinski and Roszkiewicz	839
<b>Solubility of the Native Deep-Level Defect Typical of LPE-Grown AlGaAs</b>	
P. Krispin	845
<b>Reduction of Capture Barrier Height of Pressure-Induced Deep Donors (DX Center) in GaAs:Si</b>	
M.F. Li, P.Y. Yu, W. Shan, W.L. Hansen and E.R. Weber	851
<b>Degeneracy Factor and Pressure Dependence of Si-Induced Deep Impurity States in <math>\text{Al}_x\text{Ga}_{1-x}\text{As}</math> from Transport Experiments under Hydrostatic Pressure</b>	
S. Azema, V. Mosser, J. Camassel, R. Piotrzkowski, J. Robert, P. Gibart, J.-. Contour, J. Massié and A. Marty	857
<b>Magneto-Optical Investigations on Intrinsic Acceptors in GaAs</b>	
K. Krambrock, B.K. Meyer and J.M. Spaeth	863
<b>Photoluminescence Uniaxial Stress Study of <math>\text{Fe}_{2+}</math> in InP</b>	
K. Thonke, K. Pressel, H.U. Hermann and A. Dörnen	869
<b>Optical Absorption and EPR of <math>\text{V}_{4+}</math> in GaP</b>	
W. Ulrici, J. Kreissl, D.G. Hayes, L. Eaves and K. Friedland	875
<b>Capture and Recombination Processes in Epitaxial Fe-Doped InP</b>	
K. Huang and B.W. Wessels	881
<b>Incorporation of Si into GaAs Lattice</b>	
J. Pastrník, J. Oswald, I. Gregora and V. Vorlíček	887
<b>Shallow Positron Traps in Gallium Arsenide</b>	
S. Dannefaer, P. Mascher and D. Kerr	893
<b>A Novel <math>\text{P}_{\text{Ga}}</math>- Antisite Related Deep Isoelectronic Complex Defect in Gold- And Lithium-Doped GaP</b>	
W.M. Chen, B. Monemar and M.-. Pistol	899
<b>Phonon Scattering from V and Ni Centres in GaP and InP</b>	
N.D. Butler, L.J. Challis, M. Sahraoui-Tahar, B. Salce, W. Ulrici and B. Cockayne	905
<b>Neutral Complex (Au-Li) Defects in GaP</b>	
P. Bergman, Q.X. Zhao, B. Monemar and M.-. Pistol	911
<b>The Relationship of Growth Conditions to Structural Defects of LPE-<math>\text{AL}_x\text{Ga}_{1-x}\text{Sb}</math></b>	
N. Kitamura, K. Higuchi, M. Ichimura, A. Usami and T. Wada	917
<b>Field Dependence of Thermal Emission from Oxygen in GaP</b>	
U.S. Qurashi, M. Zafar Iqbal and N. Baber	923
<b>Hall Mobility Reduction due to Electron Scattering by Potential Fluctuation in Si-GaAs</b>	
Y. Nakamura, Y.H. Ohtsuki and T. Kikuta	929
<b>Photoluminescence Study of <math>\text{Fe}^{2+}</math> and Local Atomic Arrangements in <math>\text{In}_{1-x}\text{Ga}_x\text{P}</math> Alloys</b>	
A. Louati, T. Benyattou, P. Roura, G. Bremond, G. Guillot and R. Coquille	935
<b>Defect Structure in Laser Diodes</b>	
U. Zeimer and I. Rechenberg	939
<b>Nonstoichiometry Related Acceptors in GaAs</b>	
L.C. Kimerling, M.T. Asom, F.A. Thiel and J.M. Parsey	945
<b>Hall Effects, DLTS and Optical Investigations on the Intrinsic 78/203 meV Acceptor in GaAs</b>	
G. Roos, A. Schöner, G. Pensl, K. Krambrock, B.K. Meyer, J.M. Spaeth and J. Wagner	951

<b>Dislocations and Microdefects in Bridgman GaAs</b>	957
B. Jenichen, R. Koehler, H. Menniger, H. Raidt, R. Gleichmann and A. Hoeppner	
<b>Charge States of Hydrogen in p-Type and n-Type Silicon</b>	961
N.M. Johnson and C. Herring	
<b>The Electronic Structure of Isolated Atomic Hydrogen or Muonium in Si and GaAs</b>	
R.F. Kiefl, J.H. Brewer, S.R. Kreitzman, G.M. Luke, T.M. Riseman, T.L. Estle, M. Celio and E.J. Ansaldo	967
<b>Electronic Structure of Hydrogen and Shallow Acceptor Complexes in Silicon</b>	
T. Sasaki and H. Katayama-Yoshida	973
<b>Hydrogen Diffusion and Passivation of Shallow Impurities in Crystalline Silicon</b>	
P.J.H. Denteneer, C.G. Van de Walle, Y. Bar-Yam and S.T. Pantelides	979
<b>Semiempirical Electronic-Structure Calculations of Bond-Centered Interstitial Hydrogen in Silicon</b>	
W.B. Fowler, G.G. DeLeo and M.J. Dorogi	985
<b>Hydrogen Diffusion and Shallow Acceptor Passivation in p-Type InP</b>	
J. Chevalier, A. Jalil, B. Theys, J.C. Pesant, M. Aucouturier, B. Rose, C. Kazmierski and A. Mircea	991
<b>Infrared Study of the Passivation of Zinc Acceptors by Hydrogen in Indium Phosphide</b>	
B. Pajot, J. Chevallier, B. Theys and B. Rose	997
<b>Symmetries of Hydrogen-Associated Centers in Silicon</b>	
B.B. Nielsen, J. Olajos and H.G. Grimmeiss	1003
<b>Hydrogen Passivation of Impurity-Related Defects in Germanium</b>	
K. Ito, C. Ban, K. Mizuno and T. Ito	1009
<b>Off-Axis Motions and Distortions in Acceptor-H Complexes from Uniaxial Stress Studies</b>	
K. Bergman, M. Stavola, S.J. Pearton, J. Lopata, T. Hayes and H.G. Grimmeiss	1015
<b>Determination of Energy Level of Atomic H in Crystalline Silicon by Use of Hydrogenation of Radiation Defects</b>	
Y. Du, M. Yan and G. Qin	1021
<b>Hydrogenation of GaAs during MBE Growth</b>	
A. Bosacchi, S. Franchi, E. Gombia, R. Mosca, P. Allegri, V. Avanzini and C. Ghezzi	1027
<b>Identification of Microdefects Induced in Si after Hydrogen and Helium Plasma Treatments</b>	
M. Singh, J. Weber, T. Zundel, M. Konuma and H. Cerva	1033
<b>Isotope Studies of the Nature of IR-Active Center in c-Si:H(D)</b>	
B.N. Mukashev, M.F. Tamendarov and S.Z. Tokmoldin	1039
<b>Thermal Stability of Acceptor-Hydrogen Pairs in Silicon</b>	
M. Deicher, G. Grübel, R. Keller, E. Recknagel, N. Schulz, H. Skudlik and T. Wichert	1045
<b>Theory of Phosphorus-Hydrogen Complexes in Passivated Silicon</b>	
A.A. Bonapasta, A. Lapicciarella, N. Tomassini and M. Capizzi	1051
<b>Spontaneous Hydrogen Injection into Silicon</b>	
A.E. Jaworowski	1057
<b>Hydrogen Passivation of Donors and Acceptors in InP</b>	
E.M. Omeljanovsky, A.V. Pakhomov and A.Y. Polyakov	1063
<b>Two Electron D-State of DX-Centers</b>	
K. Khachaturyan, E.R. Weber and M. Kaminska	1067
<b>The Deep Donor (DX Center) in GaAs: Determination of the Entropy Term in the Activation Energy</b>	
T.N. Theis, T.N. Morgan, B.D. Parker and S.L. Wright	1073
<b>The Vacancy-Interstitial Model of DX Centers</b>	
T.N. Morgan	1079
<b>The Double-Faced DX Center in <math>\text{Al}_x\text{Ga}_{1-x}\text{As}</math></b>	
J.C.M. Henning, E.A. Montie and J.P.M. Ansems	1085
<b>Long Lived Resonance States in Si-Doped AlGaAs</b>	
H.P. Hjalmarson and T.J. Drummond	1091
<b>Luminescence of Tellurium Related Deep Center in GaAs under Hydrostatic Pressure</b>	
M. Zigone, P. Seguy, H. Roux-Buisson and G. Martinez	1097
<b>Pressure Dependence of the DX Center in <math>\text{Al}_{0.35}\text{Ga}_{0.65}\text{As:Te}</math></b>	
M.F. Li, W. Shan, P.Y. Yu, W.L. Hansen, E.R. Weber and E. Bauser	1103

<b>Alloy Effects on Emission Rates for Deep Donors (DX Centers) in Al<sub>x</sub>Ga<sub>1-x</sub>As with Very Low AlAs Mole Fraction</b>	
P.M. Mooney, T.N. Theis and S.L. Wright	1109
<b>Fine Structure, Alloy Broadening and Multi-Peaks in DX Center Spectroscopy</b>	
E. Calleja, A. Gómez, J.M. Criado and E. Muñoz Merino	1115
<b>Capture Kinetics of the DX Center in GaAlAs:Si under High Pressure</b>	
R. Piotrkowski	1121
<b>Metastability of Antisite Defects in GaAs under Negative Electron Affinity</b>	
N.T. Bagraev	1125
<b>Persistent Photoluminescence of DX-Centers in Ga<sub>1-x</sub>Al<sub>x</sub>As:Si</b>	
W. Jantsch, G. Brunthaler, K. Ploog, J.E. Dmochowski and J.M. Langer	1131
<b>Applications of Mössbauer Spectroscopy to Investigations of Defects in Semiconductors</b>	
A. Nylandsted-Larsen, J.W. Petersen and G. Weyer	1137
<b>Magnetic Circular Dichroism Study of Electron-Irradiation Induced Defects in InP</b>	
H.P. Gislason, D.Y. Jeon, K. Ando and G.D. Watkins	1145
<b>The Fate of Frenkel Pairs in Silicon and Germanium: What Do we Know about it?</b>	
V.V. Emtsev, T.V. Mashovets, V.V. Mikhnovich and N.A. Vitovskii	1151
<b>Positron Annihilation in Electron Irradiated Silicon</b>	
P. Mascher, S. Dannefaer and D. Kerr	1157
<b>The Influence of Germanium on the Formation and Annealing of Radiation Damage in Silicon</b>	
A.G. Italyantsev, L.I. Khirunenko, V.N. Mordkovich, E.E. Rubinova, E.M. Temper, V.A. Trunov, V.I. Shakhovtsov, L.I. Shpinar and V.I. Yashnik	1163
<b>IR Studies of Electron-Irradiated Aluminium-Doped Silicon</b>	
Y.I. Latushko and V.V. Petrov	1169
<b>The EPR Study of Inhomogeneous Deformations in Neutron-Irradiated Silicon</b>	
A.A. Karanovich and A.V. Dvurechenskii	1175
<b>Formation of Point Defect Clusters by Electron Irradiation in GaP, InAs and InP</b>	
M. Hirata, M. Hirata, S. Takeda and M. Kiritani	1181
<b>Formation of Defects in Ion Implanted Silicon during Rapid Isothermal Annealing</b>	
R. Lenhard and S. Luby	1187
<b>Electron-Beam Epitaxy and Superdiffusion in Alloy Semiconductors by Electron-Beam Irradiation</b>	
T. Wada, Y. Maeda, T. Yamada, S. Kojima and M. Ichimura	1193
<b>Positron Annihilation and Tem Study of Lattice Defects of Fusion Neutron Irradiated Silicon</b>	
R. Oshima, M. Mori, G. Hua, S. Honda, M. Kiritani and F.E. Fujita	1199
<b>Neutrino-Recoil Experiments in Germanium</b>	
M. Brüssler, H. Metzner and R. Sielemann	1205
<b>Overlapping Deep Levels in Electron-Bombarded N-Type Silicon</b>	
B.G. Svensson, B.M.S. Larsson and K.-. Rydén	1211
<b>PAC-Study of Ternary Compound Formation by Ion Implantation</b>	
U. Feuser, R. Vianden, R. Gwilliam, C. Jeynes, B.J. Sealy and J.C. Soares	1217
<b>Lattice Location of Ion Implanted Dopants in GaAs Using Radioactive Probes</b>	
S. Winter, S. Blässer, H. Hofstass, S.G. Jahn, G. Lindner and E. Recknagel	1221
<b>Depth Profile of Neutral Planar Tetravacancies in 3 MeV Phosphorus Implanted Silicon as Studied by EPR</b>	
Y. Yajima, N. Natsuaki and S. Nishimatsu	1227
<b>Fast Neutron Irradiation Induced Defects in High Purity Germanium</b>	
N. Fourches, A. Huck, G. Walter and J.C. Bourgoin	1233
<b>The Removal Kinetis of Boron and Phosphorus Atoms from Substitutional Site in Si Caused by Interaction with Radiation Defects</b>	
V.D. Akhmetov, V.V. Bolotov, G.N. Kamayev and L.S. Smirnov	1239
<b>Mössbauer Study of the Electronic and Vibrational Properties of Implanted Te in GaAs and Al<sub>x</sub>Ga<sub>1-x</sub>As</b>	
G. Langouche, H. Bemelmans, J. Odeurs, G. Borghs, M. de Potter, W. Deraedt and M. Van Rossum	1245

<b>Defects in Silicon after Proton and Electron Irradiation</b>	1251
D. Forkel-Wirth, S. Deubler, U. Reislöhner, K. Spörl, W. Witthuhn and H. Wolf	
<b>Nuclear Magnetic Resonance Field Cycling: A New Defect Spectroscopy for III-V Semiconductors</b>	1257
P.J. McDonald, E.P. O'Reilly and A. Habanyama	
<b>Studies of Electron-Hole Recombination Processes at Deep Levels in GaAs and GaP by Means of Transient Optical Absorption Spectroscopy</b>	1265
T. Sugiyama, Y. Ishikawa, K. Tanimura, Y. Hayashi and N. Itoh	
<b>A Novel Technique for the Investigation of the Interface State Energy Distribution in Schottky Contacts: Evaluation from the I-V Characteristics</b>	1271
Z.E. Horváth	
<b>Transient Microwave Absorption Spectroscopy - Experimental Verification</b>	1277
J. Wöckinger, W. Jantsch and G. Ferenczi	
<b>Study on the Dislocation Lines in Indium Doped GaAs Crystals by IR Scattering Tomography and Transmission Microscopy</b>	1283
K. Sakai and T. Ogawa	
<b>Photoluminescence and Optical Beam Induced Current Imaging of Defects</b>	1289
P.D. Pester and T.A. Wilson	
<b>Investigation of Stacking Faults in Silicon by Induced Current Methods</b>	1295
A. Castaldini, A. Cavallini, A. Poggi and E. Susi	
<b>Characterization of Deep Defects in Semi-Insulating GaAs by Capacitance and Conductance DLTS with Electrical and Optical Excitations</b>	1301
F. Dubicky	
<b>Defect Analysis in Semiconductors by Dechanneling</b>	1307
K. Gärtner, W. Wesch and A. Jordanow	
<b>Study of the Defect Depth Distribution in Heat Treated Si Wafers by X-Ray Topography</b>	1313
E.K. Pal, E. Hild, T. Kormány and S. Nouredin	
<b>Temperature Dependence of Absorption Coefficient in Silicon of Lower Purity</b>	1319
V. Schlosser	
<b>Developement of a Scanning Minority Carrier Transient Spectroscopy Method: Application to the Study of Gold Diffusion in a Silicon Bicrystal</b>	1325
T. Heiser, A. Mesli and P. Siffert	
<b>Defect Analysis in SiO<sub>2</sub>/Si Structures by Electron Tunneling</b>	1331
H. Köster and M. Schmid	
<b>Defect and Impurity Studies in III-V Quantum Wells Using Fourier Transform Photoluminescence Spectroscopy</b>	1337
B. Hamilton and G. Clarke	
<b>Crystal Defect Study in III-V Compound Technology</b>	1345
A.M. Huber and C. Grattepain	
<b>Multiphonon Recombination in Semiconductors</b>	1351
I.N. Yassievich	
<b>Two-Electron Capture in Semiconductors with Deep Defects</b>	1361
N.T. Bagraev, N.M. Kolchanova, V.A. Mashkov and I.S. Polovtsev	
<b>Influence of Dislocations on Galvanomagnetic and Optical Properties of GaAs</b>	1367
J.-. Farvacque, D. Vignaud, D. Ferré and E. Depraetère	
<b>Metastability of Electrical Properties of Dislocations in Silicon</b>	1373
O.V. Feklisova, E.B. Yakimov and N. Yarykin	
<b>On the Nature of the Impurity Atmosphere around Dislocations in Bulk n-Type GaAs</b>	1379
C. Frigeri	
<b>Effect of Impurities on Dislocation Activity in GaAs</b>	1385
I. Yonenaga and K. Sumino	
<b>Magneto-Optics of Excitons Bound to Dislocations in CdS</b>	1391
J. Gutowski and A. Hoffmann	
<b>Deep Level Studies in GaAs-Ga<sub>0.5</sub>Al<sub>0.5</sub>As Superlattices Grown by MOCVD</b>	1397
S. Ababou, G. Bremond, P. Roura, L. Mayet, G. Guillot and J.J. Coleman	
<b>Manganese Levels in GaAs under Hydrostatic Pressure, in AlGaAs, and in GaAs/AlGaAs Quantum Wells - A Comparative Study</b>	1403
F. Bantien, G.L. Hofman, K. Reimann and J. Weber	

<b>Process Dependent Interface States of Ag/(110)GaAs Schottky Diodes</b>	1409
H.-. Schmutzler, W. Platen, D. Kohl and K. Wolter	
<b>Screening Effects and Density of States of Shallow Impurities in GaAs-(Ga,Al)As Quantum-Well Wires</b>	1415
G. Weber, P.A. Schulz and L.E. Oliveira	
<b>Transient Spectroscopy on Individual Defect Levels</b>	1421
A. Karwath and M. Schulz	
<b>Pressure Dependence of Schottky Barrier Height at Pt/GaAs Interface</b>	1427
W. Shan, M.F. Li, P.Y. Yu, W. Walukiewicz and W.L. Hansen	
<b>Photoluminescence and Transmision Electron Microscopy of Defects in SiC Grown on Si</b>	1433
W.J. Choyke, J.A. Powell, T.T. Cheng and P. Pirouz	
<b>Deep Levels in GaAs Mesfets</b>	1439
P. Macháč, V. Pantucek and J. Merta	
<b>Defects in MOS Technologies</b>	1445
D. Korytár, P. Kavicky, M. Hulman, A. Weissensteiner and L. Tuchscher	
<b>Lattice Deformation and Defect Structure of GaAs/Native Oxide Interfaces</b>	1451
S. Lányi, M. Wolcyrz, E. Pinčík and V. Nadazdy	
<b>Influence of the Surface Layer Defects on the Conduction Mechanism in Semi-Insulating Gallium Arsenide</b>	1457
J. Gual, J. Samitier, A. Pérez-Rodríguez, J.R. Morante, P. Boher and M. Renaud	
<b>Investigation of Trapping Properties in Simox Films by Photo-Induced Current Transient Spectroscopy</b>	1463
G. Papaioannou, V. Ioannou-Souglidis, S. Cristoloveanu, M. Bruel and P.L.F. Hemment	
<b>Coherent Potential Approximation Calculations of the Electronic Structure of Amorphous Silicon</b>	1469
A.K. Wronski, M.K. Urbanski and S.M. Pietruszko	
<b>Influence of the Field Induced Doping Effect on the Density of States in Highly Doped N-Type a-Si:H</b>	1475
D.L. Huber and G. Zentai	
<b>Influence of the Defect Density of Amorphous Silicon at the Substrate Interface on the Schottky Barrier Characteristics</b>	1481
J.C. van den Heuvel, R.C. van Oort, M.J. Geerts, B. Bokhorst and J.W. Metselaar	
<b>Microinhomogeneities Characterized by Photocurrent Measurements and the Sem-Ebic Technique in Alpha-Si:H Layers</b>	1487
M. Füstöss-Wegner, L. Pogány, M. Koós, L.S. Tóth and G. Zentai	