

Contents

Conference Organization	vii
Contents	ix
Preface and acknowledgements S.K. Estreicher, M.W. Holtz, C.H. Seager and A.F. Wright	xvii
Conference Photograph	xviii
1. Papers from Sunday plenary session	
Anatomy of the ICDS series: A bibliometric analysis M. Cardona and W. Marx	1
Recalling the origins of DLTS D.V. Lang	7
2. Defects and devices	
Point and extended defects engineering as a key to advancing the technology of light-emitting diodes based on single-crystal Si and SiGe layers N.A. Sobolev	10
Modelling (100) hydrogen-induced platelets in silicon with a multi-scale molecular dynamics approach G. Moras, L. Colombi Ciacchi, G. Csanyi and A. De Vita	16
Gain and defect bi-stability in radiation damaged silicon bipolar transistors R.M. Fleming, C.H. Seager, D.V. Lang, E. Bielejec and J.M. Campbell	21
Understanding the defect physics in polycrystalline photovoltaic materials Y. Yan, K.M. Jones, C.S. Jiang, X.Z. Wu, R. Noufi and M.M. Al-Jassim	25
Performance degradation mechanism of irradiated GaAlAs LED H. Ohyama, K. Takakura, H. Shitogiden, M. Motoki, K. Matsuo, S. Kuboyama, E. Simoen and C. Claeys	33
Effect of gate interface on performance degradation of irradiated SiC-MESFET H. Ohyama, K. Takakura, M. Yoneoka, K. Uemura, M. Motoki, K. Matsuo, M. Arai, S. Kuboyama, E. Simoen and C. Claeys	37
The impact of surface morphology on C- and Si-face 4H-SiC Schottky barrier diodes K.-Y. Lee, C.-F. Huang, W. Chen and M.A. Capone	41
Si-related defects in InGaP/GaAs heterojunction bipolar transistors H. Yamada, N. Fukuhara and M. Hata	44
Photocurrent spectroscopy of an Fe/Zn _{0.96} Fe _{0.04} S Schottky diode B.K. Li, C. Wang, I.K. Sou, W.K. Ge and J.N. Wang	48
3. C, Si, Ge, and compounds	
The n-type doping of diamond: Present status and pending questions M.-A. Pinault, J. Barjon, T. Kociniewski, F. Jomard and J. Chevallier	51
Li and Na in diamond: A comparison of DFT models E.B. Lombardi and A. Mainwood	57
Anomaly enhancement of the dislocation velocity in SiC G. Savini, G. Savini, A. Marocchi, I. Suarez-Martinez, G. Haffenden, M.I. Heggie and S. Öberg	62
Prominent defects in semi-insulating SiC substrates N.T. Son, P. Carlsson, A. Gällström, B. Magnusson and E. Janzen	67
Nitrogen-related point defect in 4H and 6H SiC M.E. Zvanut and J. van Tol	73

Behaviour of defects in semi-insulating 4H-SiC after ultra-high temperature anneal treatments N.Y. Garces, E.R. Glaser, W.E. Carlos and M.A. Fanton	77
Investigation of electrically active defects of silicon carbide using atomistic scale modeling and simulation A. Chatterjee, A. Bhat and K. Matocha	81
The hidden secrets of the E-center in Si and Ge A.N. Larsen and A. Mesli	85
Hydrogen molecules in semiconductors J. Weber, M. Hiller and E.V. Lavrov	91
A Raman scattering study of H ₂ trapped near O in Si M. Hiller, E.V. Lavrov and J. Weber	97
⁵⁷ Fe diffusion in n-type Si after GeV implantation of ⁵⁷ Mn Y. Yoshida, Y. Kobayashi, K. Yukihira, K. Hayakawa, K. Suzuki, A. Yoshida, H. Ueno, A. Yoshimi, K. Shimada, D. Nagae, K. Asahi and G. Langouche	101
First-principles study of iron and iron pairs in Si M. Sanati and S.K. Estreicher	105
Observation of vacancy in crystalline silicon using low-temperature ultrasonic measurements T. Goto, H. Yamada-Kaneta, K. Sato, M. Hikin, Y. Nemoto and S. Nakamura	109
Distribution of electrically active nickel atoms in silicon crystals measured by means of deep level transient spectroscopy S. Tanaka and H. Kitagawa	115
Iron impurities in multicrystalline silicon studied by Mössbauer spectroscopy Y. Yoshida, S. Aoki, K. Sakata, Y. Suzuki, M. Adachi and K. Suzuki	119
Single vacancies in slowly cooled silicon crystals M. Suezawa and I. Yonenaga	123
An attempt to specify thermal history in CZ silicon wafers and possibilities for its modification G. Kissinger, A. Sattler, T. Müller and W. von Ammon	126
Chemical composition of nitrogen–oxygen shallow donor complexes in silicon H.Ch. Alt, H.E. Wagner, W.v. Ammon, F. Bittersberger, A. Huber and L. Koester	130
Defect-related photoluminescence in indium-implanted silicon K. Terashima and M. Horikawa	134
Vacancies in CZ silicon crystals observed by low-temperature ultrasonic measurements H. Yamada-Kaneta, T. Goto, Y. Nemoto, K. Sato, M. Hikin, Y. Saito and S. Nakamura	138
First-principles studies of di-arsenic interstitial and its implications for arsenic-interstitial diffusion in crystalline silicon Y. Kim, T.A. Kirichenko, N. Kong, L. Larson and S.K. Banerjee	144
Influence of high-magnetic-field on dislocation–oxygen interaction in silicon I. Yonenaga, K. Takahashi, T. Taishi and Y. Ohno	148
Diffusion of transition-metal impurities in silicon K. Matsukawa, K. Shirai, H. Yamaguchi and H. Katayama-Yoshida	151
Effects of annealing on the electrical properties of highly resistive float zone p-type silicon V. Vankova and A.I. Kingon	155
First-principles study on the local vibrational modes of nitrogen–oxygen defects in silicon N. Fujita, R. Jones, S. Öberg and P.R. Briddon	159
Theoretical study of the C _i O _i and I _s C _i O _i defects in Si D.J. Backlund and S.K. Estreicher	163
Fermi level dependence of Mössbauer spectroscopic components corresponding to iron interstitials and their clusters in silicon Y. Yoshida, Y. Suzuki, A. Matsushita, K. Suzuki and K. Sakata	167
First-principles investigations of Fe–H interactions in silicon N. Gonzalez Szwacki and S.K. Estreicher	171
Passivation and reactivation of carriers in B- and P-doped Si treated with atomic hydrogen N. Fukata, S. Sato, S. Fukuda, K. Ishioka, M. Kitajima, S. Hishita and K. Murakami	175
Strong compensation of n-type Ge via formation of donor–vacancy complexes J. Coutinho, C. Janke, A. Carvalho, V.J.B. Torres, S. Öberg, R. Jones and P.R. Briddon	179
Electrically active defects induced by irradiations with electrons, neutrons and ions in Ge-rich SiGe alloys V.P. Markevich, A.R. Peaker, I. Capan, S.B. Lastovskii, L. Dobaczewski, V.V. Emtsev and N.V. Abrosimov	184

Deep level transient spectroscopy of transition metal impurities in germanium P. Clauws, J. Van Gheluwe, J. Lauwaert, E. Simoen, J. Vanhellemont, M. Meuris and A. Theuwis	188
Identification of stable and metastable forms of VO ₂ centers in germanium A. Carvalho, V.J.B. Torres, V.P. Markevich, J. Coutinho, V.V. Litvinov, A.R. Peaker, R. Jones and P.R. Briddon	192
Retardation of boron diffusion in SiGe alloy J. Bang, H. Kim, J. Kang, W.-J. Lee and K.J. Chang	196
Interstitial carbon-related defects in Si _{1-x} Ge _x alloys L.I. Khirunenko, Yu.V. Pomozov, M.G. Sosnin, A. Duvanskii, V.J.B. Torres, J. Coutinho, R. Jones, P.R. Briddon, N.V. Abrosimov and H. Riemann	200
Ab initio calculation of the formation energy of charged vacancies in germanium P. Śpiewak, K. Sueoka, J. Vanhellemont, K.J. Kurzydłowski, K. Mlynarczyk, P. Wabiński and I. Romandic	205
Electrical passivation by hydrogen of substitutional cobalt in monocrystalline germanium J. Lauwaert, J. Van Gheluwe and P. Clauws	210
Radiotracer study of cobalt diffusion and solubility in electronic-grade germanium wafers L. Lerner and N.A. Stolwijk	214
Formation of low-resistivity region in p-Si substrate of SiGe/Si episystem by remote-hydrogen plasma treatment Y. Yamashita, Y. Sakamoto, Y. Kamiura and T. Ishiyama	218
Carrier lifetime dependence on doping, metal implants and excitation density in Ge and Si E. Gaubas, J. Vanhellemont, E. Simoen, I. Romandic, W. Geens and P. Clauws	222
Thermal stability of Co, Ni, Pt or Ru Schottky contacts on n-Si and defects introduced thereon during contacts fabrication using electron beam deposition C. Nyamhere, A. Chawanda, A.G.M. Das, F.D. Auret and M. Hayes	226
4. Compound semiconductors	
Atomistic structure of stacking faults in a commercial GaAs:Si wafer revealed by cross-sectional scanning tunneling microscopy Y. Ohno, T. Taishi, I. Yonenaga and S. Takeda	230
Ultrafast carrier trapping in Er-doped and Er,O-codoped GaAs revealed by pump and probe technique Y. Fujiwara, S. Takemoto, K. Nakamura, K. Shimada, M. Suzuki, K. Hidaka, Y. Terai and M. Tonouchi	234
The apparent effect of sample surface damage on the dielectric parameters of GaAs J.A.A. Engelbrecht, N.G. Hashe, K.T. Hillie and C.H. Claassens	238
Thermal annealing study of as-grown n-type MOCVD GaAs N.A. Naz, U.S. Qurashi and M. Zafar Iqbal	242
Influence of boron on the point defect equilibrium in highly n-doped gallium arsenide single crystals U. Kretzer, F. Börner, T. Bünger and S. Eichler	246
Doubly charged state of EL2 defect in MOCVD-grown GaAs N.A. Naz, U.S. Qurashi, A. Majid and M. Zafar Iqbal	250
⁸ Li in GaAs studied with β -NMR T. Dunlop, A.I. Mansour, Z. Salman, K.H. Chow, I. Fan, J. Jung, R.F. Kiefl, S.R. Kreitzman, C.D.P. Levy, W.A. MacFarlane, G.D. Morris and T.J. Parolin	254
Manganese–hydrogen complex in GaP B. Clerjaud, D. Wasik, R. Bouanani-Rahbi, G. Strzelecka, A. Hruban, M. Piersa and M. Kamińska	258
Defect reactions in gallium antimonide studied by zinc and self-diffusion K. Sunder and H. Bracht	262
Deep levels in GaAs/Al _{0.78} Ga _{0.22} As heterostructures U.S. Qurashi, N.A. Naz, M. Naeem Khan, N. Zafar, M. Zafar Iqbal, P. Krispin and R. Hey	266
Electronic properties of nanoscale multiple twin boundaries in indirect-gap AlGaAs Y. Ohno, N. Yamamoto, T. Taishi, I. Yonenaga and S. Takeda	270
Ab-initio modeling of carbon and carbon–hydrogen defects in InAs V.J.B. Torres, J. Coutinho and P.R. Briddon	275
Electrical and structural characterization of Fe implanted GaInP B. Fraboni, T. Cesca, A. Gasparotto, G. Mattei, F. Boscherini, G. Impellizzeri, F. Priolo, R. Jakomin, M. Longo and L. Tarricone	278
Electron statistics and cluster formation in CdF ₂ semiconductors with DX-centers S.A. Kazanskii, A.S. Shcheulin, A.I. Ryskin, N.A. Sobolev, D. Hilger and W.W. Warren Jr.	282

Thermodynamic properties of defects in CdTe as derived by diffusion experiments F. Wagner, H. Wolf, J. Kronenberg, Th. Wichert, R. Grill and E. Belas	286
Deep defect states in narrow band-gap semiconductors S.D. Mahanti, K. Hoang and S. Ahmad	291
Interlayer methods for reducing the dislocation density in gallium nitride M.J. Kappers, M.A. Moram, Y. Zhang, M.E. Vickers, Z.H. Barber and C.J. Humphreys	296
Metastability of the UV luminescence in Mg-doped GaN layers grown by MOVPE on quasi-bulk GaN templates G. Pozina, B. Monemar, P.P. Paskov, C. Hemmingsson, L. Hultman, H. Amano, I. Akasaki, T. Paskova, S. Figge, D. Hommel and A. Usui	302
Epitaxial lateral overgrowth of off-basal GaN thin-film growth orientations J.L. Hollander, M.J. Kappers and C.J. Humphreys	307
Deep electronic states associated with a metastable hole trap in n-type GaN D. Emiroglu, J.H. Evans-Freeman, M.J. Kappers, C. McAleese and C.J. Humphreys	311
Radiation-produced defects in n-GaN V.V. Emtsev, V.Yu. Davydov, V.V. Kozlovskii, G.A. Oganesyan, D.S. Poloskin, A.N. Smirnov, E.A. Tropp and Y.G. Morozov	315
Stability of the cubic phase in GaN doped with 3d-transition metal ions E.-A. Choi and K.J. Chang	319
Compensating defects in Si-doped AlN bulk crystals K. Irmischer, T. Schulz, M. Albrecht, C. Hartmann, J. Wollweber and R. Fornari	323
Optical and magnetic resonance studies of Mg-doped GaN homoepitaxial layers grown by molecular beam epitaxy E.R. Glaser, M. Murthy, J.A. Freitas Jr, D.F. Storm, L. Zhou and D.J. Smith	327
Enhancement of blue emission from GaN films and diodes by water vapor remote plasma treatment Y. Kamiura, M. Ogasawara, K. Fukutani, T. Ishiyama, Y. Yamashita, T. Mitani and T. Mukai	331
Shallow and deep defects in $\text{Al}_x\text{Ga}_{1-x}\text{N}$ structures D. Seghier and H.P. Gislasen	335
Identification of the local vibrational modes of small nitrogen clusters in dilute GaAsN A. Carvalho, S.J. Barker, R. Jones, R.S. Williams, M.J. Ashwin, R.C. Newman, P.N. Stavrinou, G. Parry, T.S. Jones, S. Öberg and P.R. Briddon	339
Electrical properties of GaAsN film grown by chemical beam epitaxy K. Nishimura, H. Suzuki, K. Saito, Y. Ohshita, N. Kojima and M. Yamaguchi	343
Vibrational spectroscopy of hydrogenated $\text{GaP}_{1-y}\text{N}_y$ S. Kleekajai, K. Colon, M. Stavola, W.B. Fowler, K.R. Martin, A. Polimeni, M. Capizzi, Y.G. Hong, H.P. Xin and C.W. Tu	347
In-adlayers on non-polar and polar InN surfaces: Ion scattering and photoemission studies T.D. Veal, P.D.C. King, M. Walker, C.F. McConvilie, H. Lu and W.J. Schaff	351
5. Defects in oxides	
Sources of n-type conductivity in ZnO M.D. McCluskey and S.J. Jokela	355
Luminescence properties of defects in ZnO M.A. Reschchikov, H. Morkoç, B. Nemeth, J. Nause, J. Xie, B. Hertog and A. Osinsky	358
Acceptor-related luminescence at 3.314 eV in zinc oxide confined to crystallographic line defects M. Schirra, R. Schneider, A. Reiser, G.M. Prinz, M. Feneberg, J. Biskupek, U. Kaiser, C.E. Krill, R. Sauer and K. Thonke	362
Hydrogen motion in ZnO E.V. Lavrov, F. Börner and J. Weber	366
Phosphorus-doped ZnO films grown nitrogen ambience by magnetron sputtering on sapphire substrates C.H. Ahn, Y.Y. Kim, S.W. Kang and H.K. Cho	370
Anomalous shifts of blue and yellow luminescence bands in MBE-grown ZnO films M.A. Reschchikov, V. Avrutin, N. Izumskaya, R. Shimada and H. Morkoç	374
Electronic properties of defects in pulsed-laser deposition grown ZnO with levels at 300 and 370 meV below the conduction band F.D. Auret, W.E. Meyer, P.J. Janse van Rensburg, M. Hayes, J.M. Nel, H. von Wenckstern, H. Schmidt, G. Biehne, H. Hochmuth, M. Lorenz and M. Grundmann	378

The structure of charge-compensated Fe ³⁺ ions in ZnO D.V. Azamat and M. Fanciulli	382
Fabrication of the hybrid ZnO LED structure grown on p-type GaN by metal organic chemical vapor deposition D.C. Kim, W.S. Han, B.H. Kong, H.K. Cho and C.H. Hong	386
Fabrication of ZnO films by PLD method with bias voltage H. Yamaguchi, T. Komiya, M. Yamada, K. Sato and T. Aoyama	391
Hydrogen complexes in ZnO grown by chemical vapor transport S.J. Jokela and M.D. McCluskey	395
Optical and structural properties of ZnO thin films grown on various substrates by metalorganic chemical vapor deposition B.H. Kong, S.K. Mohanta, D.C. Kim and H.K. Cho	399
Characterization of donor states in ZnO D. Seghier and H.P. Gislason	404
Epitaxial growth of high-temperature ZnO layers on sapphire substrate by magnetron sputtering Y.Y. Kim, S. Woo Kang, B.H. Kong and H.K. Cho	408
Optical characterization studies of grown-in defects in ZnO epilayers grown by molecular beam epitaxy X.J. Wang, I.A. Buyanova, W.M. Chen, C.J. Pan and C.W. Tu	413
Theoretical and experimental studies on oxygen vacancy in p-type ZnO Z.G. Yu, P. Wu and H. Gong	417
Hindered rotation of OD-Li in MgO: IR absorption experiments and theory K.R. Martin, C. Peng, S. Kleekajai, P. Blaney, E. Diamond, W. Beall Fowler, M. Stavola and R. González	421
Photo-induced defects of metal oxides: MgO and rutile TiO ₂ S. Mochizuki, F. Fujishiro, A. Iino, K. Shibata and H. Yamamoto	426
Shallow nitrogen acceptor in TiO ₂ studied by β -NMR spectroscopy M. Mihara, R. Matsumiya, K. Shimomura, K. Matsuta, M. Fukuda, D. Ishikawa, J. Komurasaki, D. Nishimura, T. Nagasawa, T. Izumikawa and T. Minamisono	430
Optical, electrical, and X-ray-structural studies on Verneuil-grown SrTiO ₃ single crystal: Annealing study S. Mochizuki, F. Fujishiro, K. Shibata, A. Ogi, T. Konya and K. Inaba	433
Oxygen defects in langasite (La ₃ Ga ₅ SiO ₁₄) single crystal grown by vertical Bridgman (VB) method T. Taishi, T. Hayashi, N. Bamba, Y. Ohno, I. Yonenaga and K. Hoshikawa	437
6. Magnetic impurities and spintronics	
Magneto-spectroscopy of donor-bound excitons in GaN A. Wysmolek, R. Stępniewski and M. Potemski	441
Hydrogen patterning of Ga _{1-x} Mn _x As for planar spintronics R. Farshchi, P.D. Ashby, D.J. Hwang, C.P. Grigoropoulos, R.V. Chopdekar, Y. Suzuki and O.D. Dubon	447
The magnetic interaction of Fe doped ZnO with intrinsic defects: A first principles study A. Debernardi and M. Fanciulli	451
Tuning of ferromagnetism through anion substitution in Ga–Mn–pnictide ferromagnetic semiconductors P.R. Stone, J.W. Beeman, K.M. Yu and O.D. Dubon	454
Magneto-optical studies of iron impurity in HVPE GaN A. Niedźwiadek, A. Wysmolek, D. Wasik, J. Szczytko, M. Kamińska, A. Twardowski, M.L. Sadowski, M. Potemski, B. Clerjaud, B. Pastuszka, B. Łucznik and I. Grzegory	458
Effective exchange interactions in CuAlO ₂ -based dilute magnetic semiconductors by first-principles calculations H. Kizaki, K. Sato and H. Katayama-Yoshida	462
Defect states of p-type InMnP:Zn implanted with Mn ion J.S. Kim, Y.-I. Lee, L. Ha, E.K. Kim, Y. Shon and T.W. Kang	465
7. Radiation-induced defects	
Dose rate dependence of radiation-induced lattice defects and performance degradation in npn Si bipolar transistors by 2-MeV electron irradiation K. Hayama, K. Takakura, H. Ohyama, S. Kuboyama, E. Simoen, A. Mercha and C. Claeys	469
Modeling fast-transient defect evolution and carrier recombination in pulse-neutron-irradiated Si devices S.M. Myers, W.R. Wampler, P.J. Cooper and D.B. King	473

Quantitative analysis of complexes in electron irradiated CZ silicon N. Inoue, H. Ohyama, Y. Goto and T. Sugiyama	477
Properties and identification of the oxygen-related radiation defects in silicon N. Yarykin and J. Weber	483
IR studies of oxygen–vacancy defects in electron-irradiated Ge-doped Si C.A. Londos, A. Andrianakis, D. Aliprantis, H. Ohyama, V.V. Emtsev and G.A. Oganesyan	487
Effects of defect clustering in neutron irradiated silicon C.H. Seager, R.M. Fleming, D.V. Lang, P.J. Cooper, E. Bielejec and J.M. Campbell	491
Self-interstitials and Frenkel pairs in electron-irradiated germanium A. Carvalho, R. Jones, J. Goss, C. Janke, J. Coutinho, S. Öberg and P.R. Briddon	495
A study of the dependence of electron-induced defects on the doping impurity density in n-type germanium by deep-level transient spectroscopy (DLTS) C. Nyamhere, F.D. Auret, A.G.M. Das and A. Chawanda	499
Deep levels in α -irradiated p-type MOCVD GaAs N.A. Naz, U.S. Qurashi and M. Zafar Iqbal	503
Magnetic resonance studies of defects in electron-irradiated ZnO substrates N.T. Son, I.G. Ivanov, A.Yu. Kuznetsov, B.G. Svensson, Q.X. Zhao, M. Willander, N. Morishita, T. Ohshima, H. Itoh, J. Isoya, E. Janzén and R. Yakimova	507
8. Nanostructures and low-dimensional systems	
Defect studies for the development of nano-scale silicon diffusion simulators M. Uematsu, Y. Shimizu and K.M. Itoh	511
Defect analysis of hydrogenated nanocrystalline Si thin films A. Cavallini, D. Cavalcoli, M. Rossi, A. Tomasi, S. Pizzini, D. Chrastina and G. Isella	519
Hydrogen passivation of P donors and defects in P-doped silicon nanowires synthesized by laser ablation N. Fukata, S. Matsushita, T. Tsurui, J. Chen, T. Sekiguchi, N. Uchida and K. Murakami	523
Electronic transport through Si nanocrystal films: Spin-dependent conductivity studies R.N. Pereira, A.R. Stegner, K. Klein, R. Lechner, R. Dietmueller, H. Wiggers, M.S. Brandt and M. Stutzmann	527
Algorithms for defects in nanostructures T.-L. Chan, M.L. Tiago and J.R. Chelikowsky	531
The structure and properties of vacancies in Si nano-crystals calculated by real space pseudopotential methods S.P. Beckman and J.R. Chelikowsky	537
Phosphorus doping of Si nanocrystals: Interface defects and charge compensation A.R. Stegner, R.N. Pereira, K. Klein, H. Wiggers, M.S. Brandt and M. Stutzmann	541
Alignment of hydrogen-related defect levels at the Si–SiO ₂ interface A. Alkauskas and A. Pasquarello	546
Probing defects at interfaces and interlayers of low-dimensional Si/insulator (HfO ₂ ; LaAlO ₃) structures by electron spin resonance A. Stesmans and V.V. Afanas'ev	550
Semiconductor defects at the 4 <i>H</i> -SiC(0 0 0 1)/SiO ₂ interface F. Devynck and A. Pasquarello	556
Influence of seed/crystal interface shape on dislocation generation in Czochralski Si crystal growth T. Taishi, Y. Ohno, I. Yonenaga and K. Hoshikawa	560
Passivation of hybrid-orientation direct silicon bonded interfaces M.C. Wagener, M. Seacrist and G.A. Rozgonyi	564
Characterization of interface fluctuations and emission mechanisms in InGaN/AlGaN multiple quantum wells J.-C. Lee, Y.-F. Wu, C.-H. Fang, J.-C. Wang and T.-E. Nee	568
Investigation of defect structures in InGaN/GaN multiple quantum wells grown on Si(1 1 1) substrate by metalorganic vapor phase epitaxy G.M. Wu and Y.L. Kao	572
DLTS study of the Wannier–Stark effect in Ge/Si QD superlattices M.M. Sobolev, G.E. Cirlin and A.A. Tonkikh	576
Electron- and hole-related electrical activity of InAs/GaAs quantum dots P. Kruszewski, L. Dobaczewski, V.P. Markevich, C. Mitchell, M. Missous and A.R. Peaker	580

Localization of defects in InAs QD symmetric InGaAs/GaAs DWELL structures J.L. Casas Espínola, T.V. Torchynska, E. Velasquez Lozada, L.V. Shcherbyna, A. Stintz and R. Peña Sierra	584
9. Isotopes	
Can highly enriched ^{28}Si reveal new things about old defects? M.L.W. Thewalt, M. Steger, A. Yang, N. Stavrias, M. Cardona, H. Riemann, N.V. Abrosimov, M.F. Churbanov, A.V. Gusev, A.D. Bulanov, I.D. Kovalev, A.K. Kaliteevskii, O.N. Godisov, P. Becker, H.-J. Pohl, J.W. Ager III and E.E. Haller	587
High resolution photoluminescence of sulphur- and copper-related isoelectronic bound excitons in highly enriched ^{28}Si A. Yang, M. Steger, M.L.W. Thewalt, M. Cardona, H. Riemann, N.V. Abrosimov, M.F. Churbanov, A.V. Gusev, A.D. Bulanov, I.D. Kovalev, A.K. Kaliteevskii, O.N. Godisov, P. Becker, H.-J. Pohl, J.W. Ager III and E.E. Haller	593
Simultaneous observation of the behavior of impurities and silicon atoms in silicon isotope superlattices Y. Shimizu, A. Takano, M. Uematsu and K.M. Itoh	597
Impurity absorption spectroscopy of the deep double donor sulfur in isotopically enriched silicon M. Steger, A. Yang, M.L.W. Thewalt, M. Cardona, H. Riemann, N.V. Abrosimov, M.F. Churbanov, A.V. Gusev, A.D. Bulanov, I.D. Kovalev, A.K. Kaliteevskii, O.N. Godisov, P. Becker, H.-J. Pohl, J.W. Ager III and E.E. Haller	600
10. Positrons and muons	
Defect studies in electron-irradiated ZnO and GaN F. Tuomisto, D.C. Look and G.C. Farlow	604
Elementally specific electron–positron annihilation radiation emitted from ion cores of group-V impurity–vacancy complexes in germanium N.Yu. Arutyunov and V.V. Emtsev	609
Effects of thermal treatment on optically active vacancy defects in CVD diamonds J.-M. Mäki, F. Tuomisto, C. Kelly, D. Fisher and P. Martineau	613
Muonium defect states and ionization energies in SiGe alloys P.J.C. King, R.L. Lichten, B.R. Carroll, Y.G. Celebi, K.H. Chow and I. Yonenaga	617
Stability and diffusivity of positively charged muonium in Si A.I. Mansour, Z. Salman, I. Fan, P.J.C. King, B. Hitti, S.P. Cottrell, J. Jung and K.H. Chow	621
Dynamics of diamagnetic muonium: Precession signature in Ge and optical excitation I. Fan, K.H. Chow, B. Hitti, R. Scheuermann, A.I. Mansour, R.L. Lichten, W.A. MacFarlane, J. Jung and B.E. Schultz .	624
Diffusion and trapping of positively charged muonium in InAs R.L. Lichten, J.E. Vernon, B.R. Carroll, Y.G. Celebi, P.J.C. King and S.F.J. Cox	627
Charge-state transitions of muonium in 6H silicon carbide H.N. Bani-Salamah, A.G. Meyer, B.R. Carroll, R.L. Lichten, Y.G. Celebi, K.H. Chow, P.J.C. King and S.F.J. Cox	631
Influence of optical excitation on the precession signature of charged muonium I. Fan, K.H. Chow, R. Scheuermann, B. Hitti, W.A. MacFarlane, B.E. Schultz, A.I. Mansour, J. Jung and R.L. Lichten .	635
11. Methods and microscopy	
From extended defects and interfaces to point defects in three dimensions—The case of $\text{In}_x\text{Ga}_{1-x}\text{N}$ C. Kisielowski, T.P. Bartel, P. Specht, F.-R. Chen and T.V. Shubina	639
TEM studies of as-grown, irradiated and annealed InN films Z. Liliental-Weber, R.E. Jones, H.C.M. van Genuchten, K.M. Yu, W. Walukiewicz, J.W. Ager III, E.E. Haller, H. Lu and W.J. Schaff	646
Control of the stacking fault areas in pseudomorphic ZnSe layers by photo-molecular beam epitaxy Y. Ohno, T. Taishi, I. Yonenaga, S. Ichikawa, R. Hirai and S. Takeda	650
Defect spectroscopy with local excitation from core levels I. Konovalov, L. Makhova and R. Midtank	654
<i>Ab-initio</i> simulations of self-diffusion mechanisms in semiconductors F. El-Mellouhi and N. Mousseau	658
Development of the ^8Li cross-relaxation technique: Applications in semiconductors and other condensed matter systems A.I. Mansour, G.D. Morris, Z. Salman, K.H. Chow, T. Dunlop, J. Jung, I. Fan, W.A. MacFarlane, R.F. Kiefl, T.J. Parolin, H. Saadaoui, D. Wang, M.D. Hossain, Q. Song, M. Smadella, O. Mosendz, B. Kardasz and B. Heinrich	662
Application of DLTS and Laplace-DLTS to defect characterization in high-resistivity semiconductors L.F. Makarenko and J.H. Evans-Freeman	666

Effect of improved band-gap description in density functional theory on defect energy levels in α -quartz A. Alkauskas and A. Pasquarello	670
Stochastically accelerated molecular dynamics: Application to 1-D D. West and S.B. Zhang	674
Aspects of point defects in coherent terahertz-wave spectroscopy J.-i. Nishizawa, T. Sasaki, Y. Oyama and T. Tanabe	677
Control of impurity diffusion by IR excitations K. Shirai, H. Yamaguchi and H. Katayama-Yoshida	682
12. Other defect issues	
Design and characterization of pentacene-inorganic interfaces P.G. Evans, B. Park, S. Seo, J. Zwickey, I. In, P. Paoprasert and P. Gopalan	686
Dislocation structures in tetragonal hen egg-white lysozyme crystals using synchrotron white-beam topography H. Koizumi, M. Tachibana, K. Kojima and I. Yonenaga	691
Rattling “guest” impurities in Si and Ge clathrate semiconductors C.W. Myles, K. Biswas and E. Nenghabi	695
Plastic strain field caused by dislocations G. Maciejewski	699
Valence control and metallization of boron by electronic doping H. Dekura, K. Shirai and H. Katayama-Yoshida	702