

Table of Contents

Preface

Challenges to Positron and Positronium Physics by Materials Science	
A. Seeger	1
The Expansion of Free-Volume in Main Chain Polymers Seen by Positron Annihilation Lifetime Spectroscopy and the Vogel-Fulcher Temperature T_0	
J. Krištiak, J. Bartoš, O. Šauša and P. Bandžuch	35
The Industrial Applications of Positron Annihilation Spectroscopy in Performance Polymers	
H. Yang and Y.C. Jean	40
Positron Annihilation in Conducting Polymer	
S.J. Wang, B. Wang, S.Q. Li, Z.L. Peng, Y.Q. Dai, C.Q. He and S.P. Zhang	46
Modeling Positron-Electron Correlations in Solids	
L. Gilgien, R. Car and D.M. Ceperley	52
Positron Annihilation Lifetime Spectroscopy Applied to the Measurement of Hole Volumes in Crosslinking Polyimides	
A.H. Baugher, W.J. Kossler, K.G. Petzinger and R.H. Pater	57
Thermalisation of Positronium in Polymers	
C. Dauwe, B. van Waeyenberge, G. Consolati, J. Kansy, D. Segers, T. van Hoecke and F. Du Prez	62
Positronium Formation in Polypropylene and Polyethylene-Effects of γ-Irradiation and Electric Field-	
T. Kobayashi, W. Zheng, K. Hirata and T. Suzuki	67
Positronium Formation, Thermalization and Localization in Polymers	
F.H.J. Maurer and C. Wang	72
Positron Analysis of Defects in Metals	
A. van Veen, A.C. Kruseman, H. Schut, P.E. Mijnarends, B.J. Kooi and J.T.M. de Hosson	76
Thermal Vacancies and Their Effects in Intermetallic Alloys	
R. Würschum and H.E. Schaefer	81
Further Insight into the Decomposition Processes in Age-Hardenable Commercial Al-Zn-Mg Alloys	
A. Somoza	86
Age-Momentum-Correlation (AMOC) Experiments by Means of an MeV Positron Beam	
H. Stoll, P. Castellaz, S. Koch, J. Major, H. Schneider, A. Seeger and A. Siegle	92
Comments on Roundtable I: AMOC	
I.K. Mackenzie	97
On the Correlation between I_3 and the Electron Mobility in Liquids: New I_3 Measurements and Monte Carlo Simulations	
I. Billard, T. Goulet, J.-. Jay-Gerin and A. Bonnenfant	99
Short Track Model of Positronium Formation and Related Topics	
Y. Ito	104
Present Performance Limits of Pulsed Positron Beams	
P. Sperr and G. Kögel	109
Moderation of Positrons Generated by an Electron Linac	
R. Suzuki, T. Ohdaira, T. Mikado, A. Uédono, H. Ohgaki, T. Yamazaki and S. Tanigawa	114
Progress Towards Measuring Atomic Scale Magnetism with Fast Channeled Positrons	
L.V. Hau, A.W. Hunt, J.A. Golovchenko, R. Haakenaasen and K.G. Lynn	119
Muonium Formation Compared with Positronium	
D.C. Walker	124
High Resolution Compton Scattering: A New Probe of Fermiology and Electron Correlation Effects	
A. Bansil and S. Kaprzyk	129
Electron Momentum Density via High-Resolution Compton Scattering Spectroscopy	
Y. Sakurai	135

Momentum Density Studies Using High Resolution Compton Scattering	140
S. Manninen and K. Hämäläinen	
Positron States and Annihilation Characteristics at Semiconductor Surfaces	145
N.G. Fazleev, J.L. Fry and A.H. Weiss	
Electron Momentum Density Distribution in Lithium: Analysis by the Maximum Entropy Method	150
L. Dobrzański, Y. Tanaka and Y. Sakurai	
Three Dimensional Momentum Density by TOF-(X,eX) Spectrometer	156
F. Itoh, H. Sakurai, M. Ozaki, M. Itou, S. Kishimoto and H. Kawata	
Fermiology via Positron-Electron Momentum Densities: Recent Trends and Future Prognosis in Bristol?	161
M.A. Alam, H.M. Fretwell, S.B. Dugdale, A. Rodríguez-González and A.G. Major	
Chemical Identity of Atoms Using Core Electron Annihilations	166
P. Asoka-Kumar	
Positron States and Annihilation at Defects in Semiconductors	171
M.J. Puska	
Electron Momentum Distribution in Semiconductors: A Comparative Study of the Compton Profile and Positron Angular Correlation Methods	179
B.K. Panda, S. Fung and C.D. Beling	
Theoretical Study on Positron 2D-ACAR for Semiconductors	184
M. Saito, Z. Tang, T. Chiba and M. Hasegawa	
Momentum Density of High T_c Copper Oxides	189
B. Barbiellini and P.M. Platzman	
Positron 2D-ACAR Calculations on Organic Conductors	194
S. Ishibashi, A.A. Manuel and L. Hoffmann	
Investigations of Fullerenes Using Positron Annihilation Spectroscopy	199
C.S. Sundar, A. Bharathi, M. Premila, P. Gopalan and Y. Hariharan	
Vacancy Defects in Low-Temperature-Grown GaAs Observed by Continuous and Pulsed Slow Positrons	204
J. Gebauer, R. Krause-Rehberg, S. Eichler, W. Bauer-Kugelmann, G. Kögel, W. Triftshäuser, M. Luysberg, H. Sohn and E.R. Weber	
Exotic Decays of Positronium and C-Odd Bosons	209
M. Skalsey	
Variable-Energy Positron Lifetime Studies of Al_2O_3 Films on Aluminide Metals	214
J. Xu, L.D. Hulett, B. Somieski, R. Suzuki and T. Ohdaira	
Oxygen-Related Defects - Positron Interaction in Si	218
M. Fujinami	
Studies of Positron-Matter Interactions Using Stored Positrons in an Electrostatic Trap	223
K. Iwata, R.G. Greaves, C. Kurz, S.J. Gilbert and C.M. Surko	
Of Positron Scattering and Annihilation from Molecules	228
G. Laricchia	
Melt 4.0 a Program for Positron Lifetime Analysis	233
A. Shukla, L. Hoffmann, A.A. Manuel and M. Peter	
Reliability of Ortho-Positronium Lifetime Distribution Analysis in Polymers by Using CONTIN Program	238
H. Cao, G.H. Dai, J.P. Yuan and Y.C. Jean	
Recent Investigations on the Reconstruction of Defect Profiles from Data Obtained by Pulsed Positron Beams	243
G. Kögel	
Unexpected Role of Chaotic Transport in a Positron Accumulator	248
B. Ghaffari, R.S. Conti and D.W. Gidley	
o-Ps in Solid Materials: Perturbation Theory Calculations	251
A. Domján, K. Süvegh and A. Vértes	
Tunnel Self-Trapping of Positronium in Alkali Halide Crystals	254
I.V. Bondarev and T. Hyodo	

Single-Quantum Annihilation and Two-Quantum Annihilation-in-Flight Measurements of Electron Distributions Using Channeled Positrons	
R. Haakenaasen, A.W. Hunt, J.A. Golovchenko, R.H. Howell, F.A. Selim, K.G. Lynn, T.E. Cowan and L.V. Hau	257
Positron Mobility in Semi-Insulating 4H-SiC	
C.D. Beling, S. Fung, S.H. Cheung, M. Gong, C.C. Ling, Y.F. Hu and G. Brauer	260
Spin Precession for Channeled Positrons and Electrons	
A.W. Hunt, L.V. Hau and J.A. Golovchenko	263
Calculations of Multiple Scattering for Fast Positrons and Electrons	
F.A. Selim, J.A. Golovchenko, E.J. Opila, R. Howell and G.R. Heath	266
The Effects of Positron Diffusion and its Application in Composite System	
J. Jiang, X.Z. Zhou and C.W. Lung	269
Fragmentation of CH₃F by Positron Impact	
J. Moxom, J. Xu, L.D. Hulett, D.M. Schrader, G. Laricchia and B. Somieski	272
Structural Transformations in DNA Molecules Investigated by Positron Lifetime Spectroscopy	
D.K. Agrawal, K.P. Singh and P.C. Jain	275
A Study of Polymer Degradation Using Doppler Broadening Positron Annihilation Spectroscopy	
N.T. Beyeler, K. Weiß and J.P. Schaffer	278
Fe²⁺ Spin-Crossover Complexes: Structure and Positron Annihilation	
M. Bokor, T. Marek, K. Süvegh, K. Tompa and A. Vértes	281
Peculiar Orientation of Molecules on Free Surfaces in Liquids	
V. Byakov and S.V. Stepanov	284
Slowing Down of Positrons and Muons in Ordinary and Heavy Water Formation Probabilities of Ps, H₂ and Mu	
S.V. Stepanov and V. Byakov	287
Microstructure of Cellulose Studied by Positron Annihilation Lifetime Spectroscopy	
H. Cao, J.P. Yuan, Y.C. Jean, A. Pekarovicova and R.A. Venditti	290
Magnetic Quenching of Positronium in Some Polyurethanes	
G. Consolati and F. Quasso	293
Lifetimes of o-Ps in the Pores of Silica Gel	
T. Goworek, K. Ciesielski, B. Jasińska and J. Wawryszczuk	296
Brönsted Acidity in Y-Zeolites by 2D-ACAR	
K.J. Hung, C.C. Huang, D.C. Huang, P.K. Tseng and W.F. Huang	299
Nonlinear Optical Materials Studied by Positron Annihilation Spectroscopy	
C.M. Huang, T.C. Sandreczki and Y.C. Jean	302
Change in Free Volume Parameters of Poly(vinyl alcohol) Gels Studied by Positron Annihilation Lifetime Measurement	
K. Ito, Y. Ujihira and M. Higa	305
Free Volumes in Perfect Molecular Crystals and o-Ps Lifetime	
B. Jasińska, A.E. Kozioł and T. Goworek	308
Monte-Carlo Calculation on PsH: Binding Energy and Annihilation Rate	
N. Jiang and D.M. Schrader	312
A New Computer Program for Analysis of Positron Annihilation Lifetime Spectra of Polymers and Porous Materials by ETLA	
J. Kansy	315
Electron Delocalization in Cr^{II} Complexes Probed by the Rate Constants of Ortho- in Para-Positronium Conversion Reactions	
A. Fantola-Lazzarini, E. Lazzarini and M. Mariani	318
On the Ortho- into Para-Positronium Conversion Reactions Promoted by V^{II} Complexes	
A. Fantola-Lazzarini, E. Lazzarini and M. Mariani	321
Temperature Dependence of the Probability and Inhibition of Positronium Formation in Iso-Octane Solutions of Ethyl Bromide	
B. Lévay	324
Study of Ortho-Positronium Hole Volume Distribution in Synthetic Zeolites	
H.F.M. Mohamed and A.M.A. El-Sayed	327

Positron Annihilation in Long-Chain Organic Molecule-Intercalated Montmorillonite	330
M. Murakami, H. Sano and S. Hashimoto	
Effect of Plasticizer on Free Volume and Permeability in Cellulose Acetate Pseudolatex Membranes Studied by Positron Annihilation and Tracer Diffusion Methods	333
N.V. Seetala, S.V. Sastry, C.S. Maxie and M.A. Khan	
Free Volume in Layered Organosilicate-Polystyrene Nanocomposites	336
B.G. Olson, Z.L. Peng, R. Srithawatpong, J.D. McGervey, H. Ishida, A.M. Jamieson, E. Manias and E.P. Giannelis	
Positron Annihilation Lifetime Studies of Free Volume in Miscible High-Vinyl Polybutadiene/cis-Polyisoprene Blends	339
Z.L. Peng, B.G. Olson, R. Srithawatpong, J.D. McGervey, A.M. Jamieson and H. Ishida	
Vacancy-Type Defects in Iron-Pyrite FeS_{2-x}	342
W. Puff, M. Birkholz, A.G. Balogh and S. Fiechter	
Positronium Spin Exchange with O_2 in Zeolites and Silica Gels	345
M. Senba and R.A. Dunlap	
Hydrogen-Bounded Clusters in Aqueous Solutions: A Combined Positron Annihilation and FTIR Study	348
K. Süvegh, A. Domján, G. Magyarfalvi, G. Vankó and A. Vértes	
Relaxation Behavior of Poly(methylphenylsilylenemethylene) at Low Temperature Studied by Positron Annihilation	351
T. Suzuki, N. Oshima, E. Hamada, T. Ogawa, M. Murakami and Y. Ito	
Elastic Thermalization as an Approximation of Positronium-Phonon Interaction	354
B. van Waeyenberge and C. Dauwe	
Positron and Positronium Annihilation Lifetime Studies of Pores and Free Volumes in Silica Xerogels Prepared by Sol-Gel Process	357
Y. Wakabayashi, H.L. Li, Y. Ujihira, K. Kamitani, H. Inoue and A. Makishima	
Using PAT to Study $^1\text{O}_2$ Induced by He-Ne Laser	360
R. Zhang and Y.Y. Wang	
PALS Investigation of Styrene Copolymers	363
C. Wästlund and F.H.J. Maurer	
Positron Annihilation Lifetime Study of Pure and Treated Polyvinyl Chloride	366
I.Y. Al-Qaradawi and E. Wolf	
Free Volume Changes in Water Containing Cr(VI) and Cr(III) Using PALS	369
M.M. Madani, R.R. Miron and R.D. Granata	
Study of Free-Volume Distributions in Polyisoprene by Means of Positron Annihilation Lifetime Spectroscopy	372
N. Mostafa, M. Mohsen, Y.C. Jean and H.A. Ismail	
Change in Free Volume Parameters of Polyacrylamide Gels Studied by Positron Annihilation Lifetime Measurement	375
K. Ito, Y. Ujihira, T. Yamashita and K. Horie	
Positronium Production at Condensed Layers of Hydrogen on Graphite	378
P.C. Rice-Evans, R. Morton and D.P. van der Werf	
Positronium Formation at a Graphite Surface in the Presence of Physisorbed Krypton	381
R. Morton, D.P. van der Werf and P.C. Rice-Evans	
Phase Diagram Studies in Some Surfactant Solutions Employing Positron Annihilation Spectroscopy	384
S.R. Choudhury, R. Yadav, P.H. Khani and P.C. Jain	
Free-Volume Properties and Positronium Formation in Poly(vinyl acetate) and Poly(methyl Methacrylate)	387
C. Wang, F.H.J. Maurer, M.M. Eldrup and N.J. Pedersen	
Gas Permeation Studied by Positron Annihilation	390
J.P. Yuan, H. Cao, X. Hong, H. Yang, S.S. Jordan, W.J. Koros and Y.C. Jean	
Free-Volume of Polycarbonates at Different Gas Pressure Studied by Positron Annihilation	393
J. Bohlen, J. Wolff and R. Kirchheim	
Free-Volume in Epoxy-Coal Resins Studied by Positron Annihilation	396
M. Dębowska and A. Baranowski	
Variation of Free Volume in Polystyrene-Polyphenylene Ether Blends Probed by Positron Annihilation Lifetime Technique	399
H.L. Li, Y. Ujihira, A. Nanasawa and Y.C. Jean	

Dehydration of Gypsum Studied by Positron Annihilation Lifetime Technique	402
M. Mohsen, E.A.H. Gomaa, H. Schut and A. van Veen	
Further Results on Long-Lived Positronium States in Zeosil	405
Z. Kajcsos, G. Duplâtre, L. Varga, I. Billard, L. Liszkay, L. Lohonyai, P. Caullet, J. Patarin and K. Lázár	
Many-Body Theory of Electron-Positron Interaction in Metallic Lithium	408
H. Stachowiak, E. Boroński and G. Banach	
Positron 2D-ACAR in Perfect Crystals of Diamond, Si and Ge: First-Principles Calculations and Experiments	411
Z. Tang, M. Hasegawa, T. Chiba, M. Saito, H. Sumiya, Z.Q. Li, T. Akahane, Y. Kawazoe and S. Yamaguchi	
Positron 2D-ACAR Study of Divacancies in Si: Experiments and Theory	414
M. Hasegawa, Z. Tang, T. Chiba, M. Saito, A. Kawasuso, T. Akahane, Z.-. Li, Y. Kawazoe and S. Yamaguchi	
Positron Wave-Function Effects (?) and the Fermi Surface of Paramagnetic Cr and Mo	417
H.M. Fretwell, S.B. Dugdale, A. Rodríguez-González, M.A. Alam, N. Shiotani, M.J. Cooper, V. Sundararajan and R.M. Singru	
Electronic Structure, Atomic Configuration and Positron Annihilation Spectroscopy of Extended Defects in Metals	420
M. Šob, I. Turek and V. Vitek	
The Calculation of the Optical Potential Responsible for the Absorption of a Positron at the Vacancy	423
J. Dryzek	
Trapping of Nitrogen at the Fe-AlN Precipitate Interface Studied by the Positron Doppler Broadening Technique	427
H. Schut, A. van Veen, L.V. Jørgensen, S. van der Zwaag and N. Geerlofs	
Positron Annihilation Lifetime Study of Irradiated and Deformed Ni	430
K. Ueno, M. Ohmura, M. Kimura, Y. Kamimura, M. Takenaka, T. Tsutsumi, K. Ohsawa, A. Kaniava and E. Kuramoto	
Estimation of Zirconia Sintering Behavior by Positron Annihilation Lifetime Measurement	433
Y. Yagi, S. Hirano, M. Miyayama and Y. Ujihira	
Positron Annihilation Study of the Influence of Grain Size and Purity on the Annealing Behaviour of Nano-Crystalline Copper	436
M.M. Eldrup, P.G. Sanders and J.R. Weertman	
Positron Lifetimes and Doppler Broadening in Polycrystalline Titanium	439
R. Král, G. Bischof, G. Krexner and V. Gröger	
Structural Evolution of the 2024 Aluminium-Copper-Magnesium-Based Alloy by Positron Annihilation Spectroscopy and Transmission Electron Microscopy	442
M. Biasini, N. de Diego, J. del Río, A. Dupasquier, M. Valli and H.P. Martinz	
Positron Lifetime Study in Single Crystals of Iron(II) Coordination Compounds	445
A. Vértes, M. Bokor, K. Süvegh and T. Marek	
Recent Developments in 3D Reconstruction from 2D-ACAR	448
S.B. Dugdale, H.M. Fretwell, D.C.R. Hedley, M.A. Alam and R.N. West	
Positron Annihilation Studies of Icosahedral AlCuRu and AlCuFe Alloys	451
E. Hamada, N. Oshima, T. Suzuki, K. Sato, I. Kanazawa, M. Nakata and S. Takeuchi	
Dynamic Studies on Cu-Based Shape Memory Alloy Using Positron Lifetime Spectroscopy	454
A.P. Huang, C.C. Ling, S. Fung, C.D. Beling, C.W.H. Lam and C.Y. Chung	
Recovery of Cold-Rolled V-Ti Alloys	457
T. Leguey and R. Pareja	
Positron Trapping Defects in Neutron-Irradiated Vitreous and Crystalline SiO₂	460
M. Saneyasu, M. Hasegawa, Z. Tang, M. Tabata, M. Fujinami, Y. Ito and S. Yamaguchi	
Effect of Ultraviolet Irradiation on Oxide Fine Grains Studied with Positron Annihilation and ESR	463
H. Saito and T. Hyodo	
Temperature Dependence of Positron Annihilation in β-Cyclodextrin and β-Cyclodextrin Complexes	466
F.H. Hsu, Y. Hu, J.H. Hadley Jr. and T. Trinh	
Pressure Dependence of the Void Size in Silica Studied by Positron Annihilation	469
C. Hugenschmidt and K. Maier	

Fluence Dependence of the Formation of Open-Volume Defects in Silicon After Ion Implantation		
S. Eichler, F. Börner, J. Gebauer and R. Krause-Rehberg		472
A High Resolution Investigation of the Anisotropic Electron-Positron Momentum Distribution in Diamond		
R.W.N. Nilen, S.H. Connell, D.T. Britton, C.G. Fischer, E.J. Sendezera, W.G. Schmidt, J.P.F. Sellschop and W.S. Verwoerd		475
Positron Annihilation in Fine Powders and Fine-Grained Materials		
T.E.M. Staab and R. Krause-Rehberg		479
2D-ACAR Studies of ET-Based Organic Superconductors		
H.L. Yen, Y. Lou, Y.N. Xu, W.Y. Ching and Y.C. Jean		482
Positron Annihilation Study of CeCu₂Si₂		
D. Vasumathi, B. Barbiellini, A.A. Manuel, L. Hoffmann, T. Jarlborg, R. Modler, C. Geibel, F. Steglich, M. Peter, D. Jaccard, P. Haen and P. Lejay		485
Use of a Newly Developed Compact 2D-ACAR Spectrometer for the Study of Positronium in Solids		
T. Hyodo, Y. Nagai, H. Saito, Y. Nagashima, A. Vértes and K. Süvegh		488
Proton Induced Defects in Bi-Based Cuprate Superconductors		
P. Sen, P.M.G. Nambissan, S.K. Bandyopadhyay, P. Barat and P. Mukherjee		491
Combination of Positron Annihilation and Scanning Tunneling Microscopy: A Unique Approach to Characterize Defects		
J. Gebauer, R. Krause-Rehberg, C. Domke, P. Ebert and K. Urban		494
Deformation Induced Defects in GaAs - The Role of Dislocations		
C.G. Hübner, H.S. Leipner and R. Krause-Rehberg		497
Defect Profiling with Low Energy Positrons of Nitrogen Implanted Silicon		
D.P. van der Werf, A.S. Saleh, A. Towner, M. Nathwani, J.A. Taylor, P.C. Rice-Evans and S.J. Bull		500
Vacancy-Type Defects in Electron and Proton Irradiated ZnS and ZnTe		
S. Brunner, W. Puff, P. Mascher, A.G. Balogh and H. Baumann		503
The Microscopic Structure of DX Centers in Cd_{0.8}Zn_{0.2}Te:Cl		
Y.Y. Shan, K.G. Lynn, C. Szeles, P. Asoka-Kumar, T. Thio, J.W. Bennett, C.B. Beling, S. Fung and P. Becla		506
A Positron Lifetime Study of the Chalcopyrite Semiconductor CuInSe₂		
M.S. Al-Kotb, W. Puff and M. Mohsen		509
Positron Lifetime Studies in the Kondo Insulator, FeSi		
A. Bharathi, Y. Hariharan, A. Mani and C.S. Sundar		512
Positron Annihilation Study of the Electronic Structure of Fe₃O₄		
M. Biasini, T. Chiba, A.A. Manuel, T. Akahane and A. Yanese		515
Positron Annihilation Study of Defects in High Energy Heavy Ion Implanted III-V Compound Semiconductors		
Z.Q. Chen, L. Ma, Z. Wang, J. Zhu, X.W. Hu and S.J. Wang		518
Positron 2D-ACAR Study on Diamonds: Perfect Crystals and Defects		
T. Chiba, M. Hasegawa, Z. Tang, T. Akahane, A.A. Manuel, M. Saito, H. Sumiya, E. Kuramoto and M. Takenaka		521
Temperature Dependence of the Positron Diffusion Constant in the Matrix of an Al-Ca-Zn Alloy		
N. de Diego, J. del Río, A. Dupasquier, P. Folegati, A. Somoza and M. Valli		524
Microstructural Evolution in a Commercial Cu-Be-Co Alloy Induced by Isochronal Annealing Heat Treatments		
J. del Río, N. de Diego, R. Romero and A. Somoza		527
Crystallization and Thermal Vacancy Formation in Fe_{73.5}Si_{13.5}B₉Nb₃Cu₁ and Zr₆₅Cu_{17.5}Ni₁₀Al_{7.5}		
R. Dittmar, R. Würschum, W. Ulfer and H.E. Schaefer		530
Migration of Vacancies in Deformed Silver Studied by Positron Annihilation		
J. Dryzek		533
In-Situ Positron Annihilation During Plastic Deformation of Copper		
S. Hansen, U. Holzwarth, C. Hugenschmidt, U. Männig, K. Maier and T. Wider		536

An Analytical Approach for Studying Diffusion and Drift Effects of Positrons at the Metal/Semi-Insulating GaAs Interface	
Y.F. Hu, S. Fung and C.D. Beling	539
Calculation of Positron ACAR Spectra on C₆₀	
S. Ishibashi	542
Positron Lifetime in Floating-Zone-Grown Silicon Wafer	
Y. Itoh, H. Murakami, H. Takeno, S. Ushio and T. Takenaka	545
Vacancy-Hydrogen Interaction in Proton-Implanted Si Studied by Positron Lifetime and Infrared Absorption Measurements	
A. Kawasuso, H. Arai and S. Okada	548
Positron Experiments in δ-Doped GaAs(Si) Superlattices: Defect Properties and Positron Diffusion	
T. Laine, K. Saarinen, R. Hautajarvi, C. Corbel, M.J. Ashwin and R.C. Newman	551
Positron Annihilation Studies of Order-Disorder in Cd₃Mg	
H.P. Leighly, P.G. Coleman and A. Belaidi	554
Space Charge Transient at the Au/InP:Fe Interface Investigated by the Doppler Shift of Annihilation Radiation Technique	
C.C. Ling, S. Fung and C.D. Beling	557
Structural and Radiation Induced Defects in NiAl	
B. Logar, W. Puff, A.G. Balogh and H. Baumann	560
Application of Wavelets in Positron Annihilation Fermiology	
A.G. Major, H.M. Fretwell, S.B. Dugdale, A. Rodríguez-González and M.A. Alam	563
Positron Trapping at H⁻ and D⁻ Ions in MgO Crystals	
M.A. Monge, R. Pareja, R. González and Y. Chen	566
Study of Delocalized Positronium in Alkali Halides by 2D-ACAR	
Y. Nagai, H. Saito, Y. Nagashima, N. Kobayashi and T. Hyodo	569
Positron Annihilation Spectroscopy, Electrical Resistivity, and Microstructural Transmission Electron Microscopy Studies of the Cu-Mn System	
E.-. Nicht, G.H. Bauer, M. Cieslar and P. Vostrý	572
Positron Lifetime in Si and GaAs Treated Using the Density-Gradient-Correction Methods	
B.K. Panda, S. Fung and C.D. Beling	575
Effect of Thermal Vacancies on Anomalous Helium Bubble Growth in Palladium: A Positron Annihilation Study	
R. Rajaraman, G. Amarendra, B. Viswanathan and K.P. Gopinathan	578
Quenching Investigations on DO₃ Cu-Al-Be	
R. Romero, A. Somoza, A. Planes and L. Mañosa	581
Positron Lifetime Spectroscopy on Laser-Hardened Carbon Steels	
B. Somieski, N. Meyendorf, M. Arloth and R. Krause-Rehberg	584
Thermal Generation of Point Defects in β Cu-Zn-Al Alloys	
A. Somoza, C.E. Macchi and R. Romero	587
Lattice and Relativistic Effects on the Electron-Positron Momentum Density of 4d and 5d Metals	
H. Sormann and A. Fenkart	590
Defect Analysis in Intermetallic Alloys with Positron Annihilation	
J. Wolff, A. Broska, M. Franz, B. Köhler and T. Hehenkamp	593
Analysis of Momentum Distribution of Bloch-Positronium in Solids	
Y. Nagai, M. Kakimoto, H. Ikari and T. Hyodo	596
Positron Diffusion Trapping Model for Spherical Domains with a Size Distribution	
P. Folegati and C. Oleari	599
Study of Irradiation-Induced Vacancy Defects and Shallow Positron Traps in Silicon	
A. Polity, S. Huth and R. Krause-Rehberg	602
Study of Point Defects in Silicon by Means of Positron Annihilation with Core Electrons	
J. Kuriplach, T. van Hoecke, B. van Waeyenberge, C. Dauwe, D. Segers, N. Balcaen, A.L. Morales, M.-. Trauwaert, J.R. Richardson and M. Šob	605
Fermi Surface Topology and Helical Magnetic Ordering in Gd-Y Alloys	
A. Rodríguez-González, H.M. Fretwell, S.B. Dugdale, A.G. Major, M.A. Alam and S.B. Palmer	608
Positron Annihilation Studies in CeNiInH_{1.60}	
R.K. Ray, S. Giri, P.M.G. Nambissan, K. Ghoshray, A. Ghoshray and P. Sen	611

Spatial Distribution of Vacancy Defects in GaAs:Te Wafers Studied by Positron Annihilation	
A. Cavallini, A. Dupasquier, G. Ferro, J. Piqueras and M. Valli	614
Doppler Broadening of Positron Annihilation Lineshape in Sulphate Crystals	
T.D. Troev, J. Serna and I. Mincov	617
Positron Lifetime Study of Gamma Irradiated Rochelle Salt	
L. Kalev, K. Berovsky and T.D. Troev	620
S-Parameter Measurements and Residual Gas Analysis of Rock Samples as a Function of Temperature	
J.M. Urban and C.A. Quarles	623
The Study of the Thin Magnetic Film Fe and Multilayer Fe/Hf with the Slow Positron Beam	
T. Koizumi, A. Iwamoto, H. Ohtaki, Y. Murashige, M. Tashiro, I. Kanazawa, F. Komori and Y. Ito	626
Performance Report of a Newly Developed Slow Positron Pulsing Apparatus	
N. Oshima, E. Hamada, T. Suzuki, I. Kanazawa and Y. Ito	629
Depolarization of Polarized Slow Positrons in Solids	
J. Yang, M. Chiba, R. Hamatsu, M. Hirose, T. Hirose, H. Iijima, M. Irako, T. Kumita, N.C. Mazumdar, H. Nakabushi and M. Washio	632
Positron Depth-Profiling of Polymer Interfaces	
D.W. Gidley, G.B. DeMaggio, W.E. Frieze, M. Zhu, H.A. Hristov and A.F. Yee	635
Measurement of Positron Work Function, Positronium Fraction and PAES Intensities from GaAs(100)	
J.H. Kim, A. Nangia, E. Jung and A.H. Weiss	638
A Combined Positron Microprobe - Scanning Electron Microscope for Positron-Annihilation Spectroscopy with a Spatial Resolution in the Micron Range	
H. Greif, M. Haaks, U. Holzwarth, U. Männig, M. Tongbhoyai and K. Maier	641
High Current Pulsed Positron Microprobe	
R.H. Howell, W. Stoeffl, A. Kumar, P.A. Sterne, T.E. Cowan and J. Hartley	644
Positron Transmission Remoderation Using Bi-Layered Rectifying Foils	
L.V. Jørgensen, A. van Veen, H. Schut and J. Chevallier	647
Depth Profiling of Defects in Argon Irradiated Silicon Using Positron Beam Facility at Kalpakkam	
G. Amarendra, G. Venugopal Rao, K.G.M. Nair and B. Viswanathan	650
Diamond Field-Assisted Moderator	
G.R. Brandes, K. Canter, A. Krupyshev, R. Xie and A.P. Mills	653
Polarization Measurement of a Slow Positron Beam Generated with a Compact Cyclotron	
T. Kumita, M. Chiba, R. Hamatsu, M. Hirose, T. Hirose, H. Iijima, M. Irako, M. Washio and J. Yang	656
An Electrostatic Positron Beam System for Surface Studies	
T. Akahane	659
Positron Lifetimes and Positron Moderation of 4H-SiC Subjected to Various Treatments	
W. Bauer-Kugelmann, G. Kögel, P. Sperr and W. Triftshäuser	662
Evolution of Defect Profiles in He-Implanted Silicon Studied by Slow Positrons	
R.S. Brusa, G.P. Karwasz, N. Tiengo, A. Zecca, F. Corni, C. Nobili, G. Ottaviani and R. Tonini	665
Slow Positron Implantation Spectroscopy of Insulators: Charging Effects	
P.G. Coleman, S. Kuna and R.I. Grynszpan	668
Positron DBS Studies of the Corrosive Breakdown of the Passive Film on Titanium	
T.L. Dull, W.E. Frieze, D.W. Gidley, B.G. Scherer, D.J. Ellerbrock and D. Macdonald	671
A New Positron Pulsing System with a Compact Cyclotron Based Slow Positron Beam	
M. Hirose, T. Nakajyo and M. Washio	674
Slow Positron Beam with Small Energy Spread in the Magnetic Field Using Reflection Type Remoderator	
Y. Honda, M. Maekawa, N. Kimura, T. Kozawa, S. Nishijima, G. Isoyama and S. Tagawa	677
Preparation of Intense Positron Sources for Beam Applications	
A. Kauffmann, P. Sperr, G. Kögel and W. Triftshäuser	680
Direct Evidence of Fluorine-Related Defects in F^+, BF^+ and BF_2^+ Implanted Silicon by Positron Annihilation	
L. Liszkay, E. Kótai, Z. Kajcsos and T. Laine	683

Study on Feasibility of Variable Energy Slow-Positron Beams in Characerization of Arachidate Langmuir-Blodgett Films	686
T. Marek, C. Szeles, É. Kiss, A. Vértes and K.G. Lynn	
Time-of-Flight Spectroscopy of Positronium Emission from SiO₂ Surface	689
Y. Morinaka, Y. Nagashima, Y. Nagai, T. Hyodo, T. Kurihara, T. Shidara and K. Nakahara	
Interfacial Mixing in Al-Ge Thin Film Junction Studied by Variable Low Energy Positron Beam	692
G. Venugopal Rao, G. Raghavan, G. Amarendra, A.K. Tyagi and B. Viswanathan	
Intense Positron Source at the Munich Research Reactor	695
M. Springer, G. Kögel, B. Strasser, W. Triftshäuser and K. Schreckenbach	
"Hydraulic" Slow-Positron Gun	698
R.I. Grynszpan, M. Bréart, A. Buisson and J.C. Jauréguy	
Defect Study of Heavily n-Type Doped III-V Compound Semiconductors by Means of Pulsed Positron Beam Measurement	701
Y.K. Cho, J.Y. Leem, C. Lee, S.K. Noh, R. Suzuki, T. Odaira and T. Mikado	
Surface Properties of Polymers Studied by Slow Positron Annihilation Spectroscopy	704
R. Zhang, H. Cao, J.P. Yuan, C.M. Huang, Q.Y. Zhang, T.C. Sandreczki, B. Nielsen, P. Asoka-Kumar, R. Suzuki, T. Ohdaira and Y.C. Jean	
The Study of Secondary Electrons and Redistributed Primaries (Electrons and Positrons) from Ge(100) Surface Utilizing the Electron and the Positron Beams	708
E. Jung, R. Venkataraman, S. Starnes and A.H. Weiss	
Experimental Determination of Positron Related Surface Characteristics of 6H-SiC	711
A. Nangia, J.H. Kim, A.H. Weiss and G. Brauer	
Positron Lifetime Study on Semiconductor Thin Films	714
R. Suzuki, T. Ohdaira, A. Uedono, S. Ishibashi, A. Matsuda, S. Yoshida, Y. Ishida, S. Niki, P.J. Fons, T. Mikado, T. Yamazaki, S. Tanigawa and Y.K. Cho	
Characterization of Defects at the Si/SiO₂ Interface of a Polysilicon Gated MOS System by Monoenergetic Positrons	718
M. Clement, J.M.M. de Nijs, H. Schut, A. van Veen and P. Balk	
Positrons at the (100) Surface of Alkali Metals	721
J.L. Fry, N.G. Fazleev and A.H. Weiss	
Ortho-Positronium Formation in Anodic Layers on Aluminium Studied by Slow Positrons	724
T. van Hoecke, D. Segers, H. Schut, C. Dauwe, A. van Veen, B. van Waeyenberge and L. Palffy	
A Discrete-Source Design for DBAR Measurements	727
I.K. Mackenzie	
The ELBE Radiation Source Project at the Forschungszentrum Rossendorf	732
G. Brauer, W. Wendler, H. Büttig, F. Gabriel, P. Gippner, W. Gläser, E. Grosse, H. Guratzsch, F. Döbau, G. Höhnel, D. Janssen, U. Nething, F. Pobell, H. Prade, D. Pröhl, K.D. Schilling, R. Schlenk, W. Seidel, J. Stephan, P. vom Stein, M. Wenzel, B. Wustmann and R. Zahn	
Monte Carlo Simulation of Antihydrogen Formation in Antiproton-Positronium Collisions	735
D.B. Cassidy, J.P. Merrison and M. Charlton	
Investigation into the Use of POSITRONFIT in the Recovery of Lifetime Parameters Using Monte-Carlo Simulated Lifetime Spectra	738
S.H. Cheung, C.D. Beling, S. Fung and P.K. Mackeown	
Progress Report from the Munich Scanning Positron Microscope	741
A. David, G. Kögel, P. Sperr and W. Triftshäuser	
Positron Lifetime Analysis Using the Matrix Inversion Laplace Transformation Method	744
A.H. Deng, B.K. Panda, S. Fung and C.D. Beling	
Towards Sub-100psec Timing Trough Sonoluminescence Light	747
S. Fan, C.D. Beling and S. Fung	
Construction of a Bunched Beam of Polarized Slow-Positron	750
M. Irako, M. Chiba, M. Fukushima, R. Hamatsu, M. Hirose, T. Hirose, H. Iijima, T. Kumita, N.C. Mazumdar and M. Washio	
Image Reconstruction of Electronic Densities from Line Projections	754
G. Kontrym-Sznajd and E. Józefczuk	
Beam Switch System for Multi-Port Slow Positron Experiments	757
K. Kurihara, A. Enomoto, H. Kobayashi, T. Shidara, A. Shirakawa and K. Nakahara	
Fermi Surface Smearing Studied by 2D-ACAR and CP	760
A.A. Manuel, D. Vasumathi, B. Barbiellini, A. Shukla, P. Suortti and T. Chiba	

The Effect of Resolution Function on Apparent Positronium Intensities J.D. McGervey, B.G. Olson, Z.L. Peng, A.M. Jamieson and R. Simha	763
Development of High Performance Composites for Cryogenic Use - Application of Positron Annihilation Method - S. Nishijima, Y. Honda, S. Ueno, S. Tagawa and T. Okada	766
Auger Line Shape Analysis by Time-of-Flight Positron-Annihilation Induced Auger-Electron Spectroscopy T. Ohdaira, R. Suzuki, T. Mikado and T. Yamazaki	769
Application of Maximum-Likelihood Method to Decomposition of Positron-Lifetime Spectra to Finite Number of Components I. Procházka, I. Novotný and F. Bečvář	772
Cyclotron Production of ^{207}Bi for the Calibration of Positron Lifetime Spectrometers D. Segers, K. Strijckmans, T. van Hoecke, B. van Waeyenberge and C. Dauwe	775
Slow Positron Target Concepts for the Advanced Photon Source (APS) Linear Accelerator M. White and E. Lessner	778
Development of Position Sensitive γ-Ray Detectors for 2D-ACAR Apparatus Y. Nagai, H. Saito, T. Iwata, Y. Nagashima, T. Hyodo, H. Uchida and T. Omura	781
Two-Detector Doppler Broadening Profiles in Al P.E. Mijnarends, A.C. Kruseman, A. van Veen, V.J. Ghosh, P. Asoka-Kumar, A. Bansil, S. Kaprzyk and K.G. Lynn	784
The Positron-Induced Ion-Desorption Spectroscopy I. Kanazawa, T. Koizumi, A. Iwamoto, M. Tashiro, F. Komori, Y. Murata, K. Fukutani and Y. Ito	787
Position Sensitive Detectors of Positrons - Imaging Plates - M. Doyama, J. Takano, M. Inoue, T. Yoshiie, Y. Hayashi, M. Kiritani and T. Oikawa	790
Decomposition of Doppler Broadened Annihilation Spectra A.C. Kruseman, H. Schut, M. Fujinami and A. van Veen	793
Compton Profiles Data Analysis G. Kontrym-Sznajd, R.N. West and S.B. Dugdale	796
Preparation of Positron Source for Slow Positron Beam by Ion Bombardement on Liquid and Gas Targets T. Nozaki, Y. Itoh, Z.L. Peng, Y. Ito, N. Nakanishi, H. Yoshida and A. Goto	799
Using Recoil Ion Momentum Spectroscopic Techniques to Study Positron Impact Ionization of Atoms R.D. DuBois	802
Summary of Conference W. Triftshäuser	805