

## Metals and Alloys

### **1. Positron simulations of defects in tungsten containing hydrogen and helium**

T. Troev, E. Popov, P. Staikov, N. Nankov, T. Yoshiie  
Nucl. Instrum. and Meth. B **In Press, Corrected Proof**, December 2008

### **2. Positron annihilation in vacancies at grain boundaries in metals**

J. Kuriplach, O. Melikhova, M. Hou, S. Van Petegem, E. Zhurkin, M. Šob  
Appl. Surf. Sci. **255**, 128 (2008).

### **3. Study of the surface contamination of copper with the improved positron annihilation-induced Auger electron spectrometer at NEPOMUC**

J. Mayer, C. Hugenschmidt, K. Schreckenbach  
Appl. Surf. Sci. **255**, 220 (2008).

### **4. Secondary electron spectra of gold under bombardment by very low-energy positrons**

S. Mukherjee, M.P. Nadesalingam, Paul Guagliardo, A.D. Sergeant, J.F. Williams, A.H. Weiss  
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### **5. Behavior of adsorbed hydrogen on Ni(1 1 1) surface with reemitted slow-positron spectroscopy**

S. Komagata, K. Hirota, H. Suzuki, M. Osawa, S. Aarii, I. Kanazawa, K. Fukutani, K. Nozawa, F. Komori  
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### **6. Hydrogen-induced buckling of Pd films studied by positron annihilation**

J. Čížek, I. Procházka, M. Vlach, N. Žaludová, S. Daniš, P. Dobroň, F. Chmelík, G. Brauer, W. Anwand, A. Mücklich, E. Nikitin, R. Gemma, R. Kirchheim, A. Pundt  
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### **7. Behavior of the reemitted slow positron on hydrogen-adsorbed Ni (1 1 1) surface**

K. Hirota, S. Komagata, S. Aarii, I. Kanazawa, K. Fukutani, K. Nozawa, F. Komori  
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### **8. Room-temperature microstructural evolution of electroplated Cu studied by focused ion beam and positron annihilation lifetime spectroscopy**

K. B. Yin *et al.*  
J. Appl. Phys. **103** 066103 (2008).

### **9. Size-dependent momentum smearing effect of positron annihilation radiation in embedded nano Cu clusters**

Z Tang, T Toyama, Y Nagai, K Inoue, Z Q Zhu and M Hasegawa  
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### **10. Positron lifetime calculations of defects in fusion irradiated beryllium**

N. Nankov, T. Troev, L. Petrov, E. Popov  
Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms **266**, 3392 (2008).

### **11. Characterization of defect accumulation in neutron-irradiated Mo by positron annihilation spectroscopy**

M. Eldrup, Meimei Li, L.L. Snead, S.J. Zinkle  
Nucl. Instrum. and Meth. B **266**, 3602 (2008).

### **12. Depth resolved Doppler broadening measurement of layered Al-Sn samples**

Philip Pikart, Christoph Hugenschmidt, Jakob Mayer, Martin Stadlbauer, Klaus Schreckenbach  
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### **13. High elemental selectivity to Sn submonolayers embedded in Al using positron annihilation spectroscopy**

C. Hugenschmidt, P. Pikart, M. Stadlbauer, and K. Schreckenbach  
Phys. Rev. B **77** 092105 (2008).

**14. Study of Au-Pd core-shell nanoparticles by using slow positron beam**

N. Taguchi, F. Hori, T. Iwai, A. Iwase, T. Akita, S. Tanaka  
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**15. Mechanical strain characteristics of cold worked Fe<sub>72</sub>Al<sub>28</sub> and Fe<sub>75</sub>Ni<sub>25</sub> alloys: A positron annihilation coincidence Doppler broadening view**

Brajesh Pandey, H.C. Verma  
Intermetallics **16**, 440 (2008).

**16. Simulation of positron annihilation response to mechanical deformation of nanostructured Ni<sub>3</sub>Al**

O. Melikhova, J. Kuriplach, I. Prochazka, J. Cizek, M. Hou, E. Zhurkin, S. Pisov  
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**17. 3D-AP and Positron Annihilation Study of Precipitation Behavior in Cu-Cr-Zr Alloy**

M. Hatakeyama, T. Toyama, J. Yang, Y. Nagai, M. Hasegawa, M. Eldrup, B.N. Singh  
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**18. The precipitation process in Mg-Ca-(Zn) alloys investigated by positron annihilation spectroscopy**

Yanicet Ortega, Miguel Angel Monge, Ramiro Pareja  
Journal of Alloys and Compounds **463**, 62 (2008).

**19. Identification of lattice vacancies in the B2-phase region of Ni-Al system by positron annihilation**

Lan-Zhi Zhang, Dan-Ni Wang, Bao-Yi Wang, Run-Sheng Yu, Long Wei  
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**20. Experimental and theoretical positron annihilation studies on bulk nickel silicides**

S. Abhaya, R. Rajaraman, G. Amarendra  
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**21. Positron beam studies of cobalt silicides**

S. Abhaya, G. Amarendra  
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**22. A study of defects in deformed FeSi alloys using positron annihilation techniques**

Khaled M. Mostafa, J. De Baerdemaeker, Pablo R. Calvillo, Y. Houbaert, D. Segers  
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**23. Atomic transfer through interfacial free volumes in Sn<sub>65.4</sub>Bi<sub>34.6</sub> eutectic systems**

K Sato, H Murakami, K Fujimoto, M Nakata, T Oka and Y Kobayashi  
J. Phys.: Condens. Matter **20**, 395234 (2008).

## Reactor materials

**1. Positron annihilation study of neutron irradiated model alloys and of a reactor pressure vessel steel**

M. Lambrecht, A. Almazouzi  
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**2. Defect recovery in proton irradiated Ti-modified stainless steel probed by positron annihilation**

J. Arunkumar, S. Abhaya, R. Rajaraman, G. Amarendra, K.G.M. Nair, C.S. Sundar, Baldev Raj  
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**3. Positron beam studies of void swelling in ion irradiated Ti-modified stainless steel**

G. Amarendra, B.K. Panigrahi, S. Abhaya, Christopher David, R. Rajaraman, K.G.M. Nair, C.S. Sundar, Baldev Raj  
Appl. Surf. Sci. **255**, 139 (2008).

**4. Study of the effect of annealing on defects in Fe–Mn–Si–Cr–Ni–C alloy by slow positron beam**

Khaled. M. Mostafa, J. De Baerdemaeker, N. Van Caenegem, D. Segers, Y. Houbaert  
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**5. Application of positron annihilation spectroscopy on the ion implantation damaged Fe–Cr alloys**

Vladimír Kršjak, Vladimír Slugeň, Marek Mikloš, Martin Petriska, Peter Ballo  
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**6. Positron annihilation study of the micro-defects induced by cavitation in mild steel**

Ming Zhao, Jiadao Wang, Darong Chen, Xiaopeng Hao, Baoyi Wang  
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**7. Positron annihilation characteristics of ODS and non-ODS EUROFER isochronally annealed**

Y. Ortega, V. de Castro, M.A. Monge, A. Muñoz, T. Leguey, R. Pareja  
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**8. Positron Annihilation Lifetime Measurements of Vanadium Alloy and F82H Irradiated with Fission and Fusion Neutrons**

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**9. Identification of ultra-fine Ti-rich precipitates in V–Cr–Ti alloys irradiated below 300 °C by using positron CDB technique**

Ken-ichi Fukumoto, Hideki Matsui, Hideaki Ohkubo, Zheng Tang, Yasuyoshi Nagai and, Masayuki Hasegawa  
J. Nucl. Mater. **373**, 289 (2008).

## Semiconductors

**1. Useful vacancies: Positron beam interrogation of fluorine-vacancy complexes in semiconductor device structures**

P.G. Coleman, D.A. Abdulmalik  
Appl. Surf. Sci. **255**, 71 (2008).

**2. Temperature-dependent growth and transient state of hydrogen-induced nanocavities in silicon**

A. Kinomura, R. Suzuki, T. Ohdaira, M. Muramatsu, C. He, N. Oshima, T. Matsumoto, H. Tanoue, and Y. Horino  
J. Appl. Phys. **104** 034301 (2008).

**3. Activation Energies for the Formation and Evaporation of Vacancy Clusters in Silicon**

D. A. Abdulmalik and P. G. Coleman  
Phys. Rev. Lett. **100** 095503 (2008).

**4. He implantation to control B diffusion in crystalline and preamorphized Si**

E. Bruno, S. Mirabella, F. Priolo, K. Kuitunen, F. Tuomisto, J. Slotte, F. Giannazzo, C. Bongiorno, V. Raineri, and E. Napolitani  
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**5. Observation of vacancy defects at silicon grain boundaries formed via suppressed solid phase epitaxy**

K J Dudeck, W D Walters, A P Knights and P G Coleman  
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**6. Implantation-caused open volume defects in Ge after flash lamp annealing (FLA) probed by slow positron implantation spectroscopy (SPIS)**

W. Anwand, W. Skorupa, Th. Schumann, M. Posselt, B. Schmidt, R. Grötzschel, G. Brauer  
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**7. Divacancy clustering in neutron-irradiated and annealed *n*-type germanium**

K. Kuitunen, F. Tuomisto, J. Slotte, and I. Capan  
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**8. Evolution of vacancy-related defects upon annealing of ion-implanted germanium**

J. Slotte, M. Rummukainen, F. Tuomisto, V. P. Markevich, A. R. Peaker, C. Jeynes, and R. M. Gwilliam  
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## Compound Semiconductors

**1. Characterization of bulk AlN crystals with positron annihilation spectroscopy**

F. Tuomisto, J.-M. Mäki, T.Yu. Chemekova, Yu.N. Makarov, O.V. Avdeev, E.N. Mokhov, A.S. Segal, M.G. Ramm, S. Davis, G. Huminic, H. Helava, M. Bickermann, B.M. Epelbaum  
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**2. Investigation of vacancy defect in InP crystal by positron lifetime measurement**

Niefeng Sun, Luhong Mao, Weidong Mao, Hezou Wang, Xiang Wu, Keyun Bi, Zhengping Zhao, Weilian Guo, Xiawan Wu, Xiaolong Zhou, Bingke Chen, Yanjun Zhao, Kewu Yang, Tongnian Sun  
Journal of Physics and Chemistry of Solids **69**, 372 (2008).

**3. Investigation on the structural origin of *n*-type conductivity in InN films**

H Wang, D S Jiang, L L Wang, X Sun, W B Liu, D G Zhao, J J Zhu, Z S Liu, Y T Wang, S M Zhang and H Yang  
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**4. Positron Trapping Sites Originating from Oxide Interfaces on 4H-SiC C(0001)- and Si(0001)-Faces**

Atsushi Kinomura, Ryoichi Suzuki, Nagayasu Oshima, Toshiyuki Ohdaira, Shinsuke Harada, Makoto Kato, Yasunori Tanaka, Akimasa Kinoshita, and Kenji Fukuda  
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**5. Vacancy-type defects in 6H-silicon carbide induced by He-implantation: a positron annihilation spectroscopy approach**

C Y Zhu, C C Ling, G Brauer, W Anwand and W Skorupa  
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**6. The effect of the positron distribution and electron-positron correlations on the electron-positron momentum density for SiC**

Anna Rubaszek  
J. Phys.: Condens. Matter **20**, 335226 (2008).

**7. Vacancy generation during Cu diffusion in GaAs**

M. Elsayed, V. Bondarenko, K. Petters, J. Gebauer, and R. Krause-Rehberg  
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**8. Microstructural evolution in H ion induced splitting of freestanding GaN**

O. Moutanabbir, R. Scholz, S. Senz, U. Gösele, M. Chicoine, F. Schiettekatte, F. Süßkraut, and R. Krause-Rehberg  
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**9. Vacancy-type defects in Er-doped GaN studied by a monoenergetic positron beam**

A. Uedono, C. Shaoqiang, S. Jongwon, K. Ito, H. Nakamori, N. Honda, S. Tomita, K. Akimoto, H.

Kudo, and S. Ishibashi  
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**10. Defect and emission distributions in bulk GaN grown in polar and nonpolar directions: a comparative analysis**

T. Paskova *et al.*  
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**11. Mn<sup>2+</sup>-induced substitutional structural changes in ZnS nanoparticles as observed from positron annihilation studies**

Subhajit Biswas, Soumitra Kar, Subhadra Chaudhuri and P M G Nambissan  
J. Phys.: Condens. Matter **20**, 235226 (2008).

**12. Structural, optical, electrical and positron annihilation studies of CdS:Fe system**

Balram Tripathi, F. Singh, D.K. Avasthi, A.K. Bhati, D. Das, Y.K. Vijay  
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**13. Defect studies of ZnSe nanowires**

U Philipose, Ankur Saxena, Harry E Ruda, P J Simpson, Y Q Wang and K L Kavanagh  
Nanotechnology **19**, 215715 (2008).

**14. Mechanisms of electrical isolation in O<sup>+</sup>-irradiated ZnO**

A. Zubiaga, F. Tuomisto, V. A. Coleman, H. H. Tan, C. Jagadish, K. Koike, S. Sasa, M. Inoue, and M. Yano  
Phys. Rev. B **78** 035125 (2008).

**15. Defect studies of ZnO single crystals electrochemically doped with hydrogen**

J. Čížek *et al.*  
J. Appl. Phys. **103** 053508 (2008).

**16. Vacancy clustering and acceptor activation in nitrogen-implanted ZnO**

Thomas Moe Børseth, Filip Tuomisto, Jens S. Christensen, Edouard V. Monakhov, Bengt G. Svensson, and Andrej Yu. Kuznetsov  
Phys. Rev. B **77** 045204 (2008).

**17. Positron annihilation spectroscopic studies of solvothermally synthesized ZnO nanobipyramids and nanoparticles**

Tandra Ghoshal, Subhajit Biswas, Soumitra Kar, Subhadra Chaudhuri, and P. M. G. Nambissan  
J. Chem. Phys. **128** 074702 (2008).

**18. Defect studies in annealed ZnO by positron annihilation spectroscopy**

D Sanyal, Tapatee Kundu Roy, Mahuya Chakrabarti, Siddhartha Dechoudhury, Debasis Bhowmick and Alok Chakrabarti  
J. Phys.: Condens. Matter **20**, 045217 (2008).

**19. Influence of Dopants in ZnO Films on Defects**

Peng Cheng-Xiao, Weng Hui-Min, Zhang Yang, Ma Xing-Ping and Ye Bang-Jiao  
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## Insulators & Glasses

**1. Application of spectroscopy and positron annihilation methods in studies of the gel-glasses materials**

J. Legendziewicz, M. Guzik, J. Gliński, K. Jerie, A. Baranowski, A. Kochel  
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**2. Positron annihilation response and viscosity of a glass-forming system within the two-order parameter model of liquids**

J Bartoś  
J. Phys.: Condens. Matter **20**, 285101 (2008).

**3. Defects in electron irradiated boron-doped diamonds investigated by positron annihilation and optical absorption**

S Dannefaer and K Iakoubovskii  
J. Phys.: Condens. Matter **20**, 235225 (2008).

**4. A positron annihilation study on the defect properties of doped diamond films**

X.J. Hu, J.S. Ye, H.J. Liu, S. Mariazzi, R.S. Brusa  
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## Oxides

**1. Interlaboratory comparison of positron annihilation lifetime measurements for synthetic fused silica and polycarbonate**

Kenji Ito *et al.*  
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**2. Positronium reemission yield from mesostructured silica films**

L. Liskay *et al.*  
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**3. Evolution of Structural Defects in SiO<sub>x</sub> Films Fabricated by Electron Cyclotron Resonance Plasma Chemical Vapour Deposition upon Annealing Treatment**

Hao Xiao-Peng, Wang Bao-Yi, Yu Run-Sheng, Wei Long, Wang Hui, Zhao De-Gang and Hao Wei-Chang  
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**4. A study of positronium formation in anodic alumina**

N Djourelov, C A Palacio, J De Baerdemaeker, C Bas, N Charvin, K Delendik, G Drobychev, D Sillou, O Voitik and S Gninenko  
J. Phys.: Condens. Matter **20**, 095206 (2008).

**5. Capillary condensation in porous alumina observed by positronium lifetime spectroscopy**

Eugeniu Ivanov, Ion Vata, Stefan Toderian, Dorin Dudu, Ion Rusen, Nitoris Stefan  
Appl. Surf. Sci. **255**, 194 (2008).

## Polymers

**1. Effect of oxygen on gamma irradiation of polypropylenes studied by positron annihilation spectroscopy**

Z. Chen, W. Huang, P.F. Fang, H.M. Wang, S.J. Wang, J. Xiong, Y.S. Xu  
Nucl. Instrum. and Meth. B **266**, 117 (2008).

**2. Positron lifetime studies of the dose dependence of nanohole free volumes in ion-irradiated conducting poly-(ethylene-oxide)-salt polymers**

Rajesh Kumar, Udayan De, P.M.G. Nambissan, M. Maitra, S. Asad Ali, T.R. Middy, S. Tarafdar, F. Singh, D.K. Avasthi, Rajendra Prasad  
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**3. Annihilation characteristics of positrons in free-standing thin metal and polymer films**

A. Uedono, K. Ito, H. Nakamori, S. Ata, T. Ougizawa, K. Ito, Y. Kobayashi, X. Cao, T. Kurihara, N. Oshima, T. Ohdaira, R. Suzuki, T. Akahane, M. Doyama, K. Matsuya, S. Jinno, M. Fujinami  
Nucl. Instrum. and Meth. B **266**, 750 (2008).

**4. Investigation of free volume and the interfacial, and toughening behavior for epoxy resin/rubber composites by positron annihilation**

Zeng Minfeng, Sun Xudong, Xiao Huiquan, Ji Genzhong, Jiang Xuewen, Wang Baoyi, Qi Chenze  
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**5. Detection of free volumes in polyaniline complexes with various acids by using positron lifetime spectroscopy**

L. Terlemezyan, P. Mokreva, D. Tsocheva, S. Peneva, K. Berovsky, T. Troev  
Radiation Physics and Chemistry **77**, 591 (2008).

**6. Positron beam studies on polyaniline and Ag-coated polyaniline**

J.B.M. Krishna, S. Abhaya, G. Amarendra, C.S. Sundar, Abhijit Saha, B. Ghosh  
Appl. Surf. Sci. **255**, 248 (2008).

**7. Electron irradiation induced microstructural modifications in BaCl<sub>2</sub> doped PVA: A positron annihilation study**

A. Harisha, V. Ravindrachary, R.F. Bhajantri, Ismayil, Ganesh Sanjeev, Boja Poojary, Dhanadeep Dutta, P.K. Pujari  
Polymer Degradation and Stability **93**, 1554 (2008).

**8. Applications of positron annihilation spectroscopy to polymeric membranes**

Y.C. Jean, Wei-Song Hung, Chia-Hao Lo, Hongmin Chen, Guang Liu, Lakshmi Chakka, Mei-Ling Cheng, D. Nanda, Kuo-Lun Tung, Shu-Hsien Huang, Kueir-Rarn Lee, Juin-Yih Lai, Yi-Ming Sun, Chien-Chieh Hu, Chang-Cheng Yu  
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Wei-Song Hung, Chia-Hao Lo, Mei-Ling Cheng, Hongmin Chen, Guang Liu, Lakshmi Chakka, D. Nanda, Kuo-Lun Tung, Shu-Hsien Huang, Kueir-Rarn Lee, Juin-Yih Lai, Yi-Ming Sun, Chang-Cheng Yu, Renwu Zhang, Y.C. Jean  
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**10. Positron annihilation study of pore size in ordered SBA-15**

A. Sousa, K.C. Souza, S.C. Reis, R.G. Sousa, D. Windmüller, J.C. Machado, E.M.B. Sousa  
Journal of Non-Crystalline Solids **354**, 4800 (2008).

**11. Studies of the o-Ps lifetime and free volume in ion irradiated Makrofol-KG polycarbonate by positron annihilation**

Rajesh Kumar, S.A. Ali, Udayan De, A.H. Naqvi, S.K. Chaudhary, D. Das, Rajendra Prasad  
Radiation Measurements **43**, S578 (2008).

**12. Novel method for stratum corneum pore size determination using positron annihilation lifetime spectroscopy**

Yoshiaki Itoh, Akira Shimazu, Yasuyuki Sadzuka, Takashi Sonobe, Shigeru Itai  
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**13. Emission of positronium in a nanometric PMMA film**

C.A. Palacio, J. De Baerdemaeker, D. Van Thourhout, C. Dauwe  
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**14. Depth-dependent positronium formation in  $\gamma$ -irradiated polymers after 30-month aging**

R.S. Yu, X.P. Hao, Y.Y. Ma, P. Wang, X.B. Qin, Z. Zhang, B.Y. Wang, L. Wei, T. Suzuki, Y. Ito, V.P. Shantarovich  
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**15. Investigations of epoxy-based adhesives with PLEPS**

W. Egger, P. Sperr, G. Kögel, M. Wetzel, H.-J. Gudladt  
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**16. Determination of the positron diffusion length in Kapton by analysing the positronium emission**

C.A. Palacio, J. De Baerdemaeker, C. Dauwe  
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## Superconductors

**1. Positron annihilation spectroscopy and specific heat study of Neon ion irradiated MgB<sub>2</sub>**

A. Talapatra, S.K. Bandyopadhyay, P.M.G. Nambissan, Pintu Sen, V. Ganesan

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**2. Direct observation of a Fermi surface and superconducting gap in LuNi<sub>2</sub>B<sub>2</sub>C**

P. Starowicz *et al.*

Phys. Rev. B **77** 134520 (2008).

**3. Ionic cluster effect in suppression of superconductivity in Ni- and Co-doped YBCO systems**

A. Wang, X. Wang, Y. Cao, X. Li, Y. Wang, L. Gao, H. Lu, J. Zhang, and P. Li

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## Theoretical studies

**1. Energetics of positron states trapped at vacancies in solids**

I. Makkonen and M. J. Puska

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**2. Positron potential and wave function in LaFeAsO**

H. Takenaka and D. J. Singh

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**3. Full-potential all-electron positron lifetime calculations: Assessment of local enhancement factors**

H. Takenaka and D. J. Singh

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## Techniques/Developmental works

**1. GEANT4 simulation of slow positron beam implantation profiles**

Jerzy Dryzek, Paweł Horodek

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**2. Progress of the intense positron beam project EPOS**

R. Krause-Rehberg, G. Brauer, M. Jungmann, A. Krille, A. Rogov, K. Noack

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**3. Surface and bulk investigations at the high intensity positron beam facility NEPOMUC**

C. Hugenschmidt, G. Dollinger, W. Egger, G. Kögel, B. Löwe, J. Mayer, P. Pikart, C. Piochacz, R. Repper, K. Schreckenbach, P. Sperr, M. Stadlbauer

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**4. Construction of a positron microbeam in JAEA**

Masaki Maekawa, Atsuo Kawasuso

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**5. Status of an R&D project of a positron gun at “Horia Hulubei” NIPNE Bucharest**

Angela Vasilescu, L. Craciun, Ionica A. Ghita, O. Constantinescu, F. Constantin, Catalina Chiojdeanu, C.N. Zoita, A. Kiss, D. Bojin, P.M. Racolta

Appl. Surf. Sci. **255**, 46 (2008).

**6. Transmission positron images using imaging plates**

Masao Doyama, A. Kogure, M. Inoue, T. Kurihara, X. Cao, M. Matsuya, T. Yoshiie, Y. Hayashi, Q. Xu, M. Fujinami

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**7. Spin-polarization of an electro-static positron beam**

A. Kawasuso, M. Maekawa

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**8. High-resolution positron lifetime measurement using ultra fast digitizers Acqiris DC211**

F. Bečvář, J. Čížek, I. Procházka  
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**9. Performance of the Beijing pulsed variable-energy positron beam**

B.Y. Wang, Y.Y. Ma, Z. Zhang, R.S. Yu, P. Wang  
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**10. A novel design for a variable energy positron lifetime spectrometer**

D. Chen, J.D. Zhang, C.C. Cheng, C.D. Beling, S. Fung  
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I.Y. Al-Qaradawi, D.T. Britton, R. Rajaraman, D. Abdulmalik  
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**12. Design concept and modeling of a new Positron Identification by Coincident Annihilation Photons (PICAP) system**

J.J. Connell, J.R. Kalainoff, C. Lopate  
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**13. Unprecedented intensity of a low-energy positron beam**

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