



Volume 268 1 March 2013

ISSN 0169-4332

applied surface science

A journal devoted to applied physics
and chemistry of surfaces and interfaces

Editor in Chief:

Henrik Rudolph, Breda, The Netherlands

Editors:

Frederico Rosei, Varennes (QC), Canada

Hikaru Kobayashi, Osaka, Japan

Jingguang Chen, New York, NY, USA

Peter Schaaf, Ilmenau, Germany

Robert L. Opila, Newark, DE, USA

Sefik Suzer, Ankara, Turkey

Tadahiro Komeda, Sendai-Shi, Japan

Thomas K. Lippert, Villigen, Switzerland

Weixin Huang, Hefei, China

Fátima Montemor, Lisboa, Portugal

Peter Kingshott, Hawthorn, Australia

Volume 268, pp. 1–600

1 March 2013

Available online at www.sciencedirect.com

SciVerse ScienceDirect

applied surface science

Contents

Volume 268 (2013)

Regular Papers

- Thermal stability of InN epilayers grown by high pressure chemical vapor deposition
A.R. Acharya, S. Gamage, M.K.I. Senevirathna, M. Alevli, K. Bahadır, A.G. Melton, I. Ferguson, N. Dietz and B.D. Thoms 1
- Etching of long fiber polymeric composite materials by nanosecond laser induced water breakdown plasma
Y. Cao, Y.C. Shin and R.B. Pipes 6
- Growth of carbon structured over Pd, Pt and Ni: A comparative DFT study
M.A. Quiroga 11
- Initial stages of the adsorption of Sc and ScN thin films on GaN(0 0 1): First principles calculations
J. Guerrero-Sánchez, G.H. Cocoletzi, J.F. Rivas-Silva and N. Takeuchi 16
- Effects of selenization parameters on growth characteristics of the Cu(In,Ga)Se₂ films deposited by sputtering with a Cu-In-Ga, Cu-In-Ga₂Se₃, or Cu-Ga-In₂Se₃ target and a subsequent selenization procedure at 550–700°C
D.-H. Kuo, Y.-C. Tu and M. Monsefi 22
- Enhancement of polycarbonate membrane permeability due to plasma polymerization precursors
D. Çökeliler 28
- Comparative study of ZnO nanorods and thin films for chemical and biosensing applications and the development of ZnO nanorods based potentiometric strontium ion sensor
K. Khun, Z.H. Ibupoto, C.O. Chey, Jun. Lu, O. Nur and M. Willander 37
- Effect of nanotube diameters on bioactivity of a multifunctional titanium alloy
Y.Q. Hao, S.J. Li, Y.L. Hao, Y.K. Zhao and H.J. Ai 44
- Measurement and modelling of the wettability of graphite by a silver–tin (Ag–Sn) liquid alloy
Z. Weltsch, A. Lovas, J. Takács, Á. Cziráki, A. Toth and G. Kaptay 52
- Stability of carbon fiber surface functionality at elevated temperatures and its influence on interfacial adhesion
F. Vautard, H. Grappe and S. Ozcan 61
- Improving endothelialization on 316L stainless steel through wettability controllable coating by sol–gel technology
M. Wang, Y. Wang, Y. Chen and H. Gu 73
- Influence of surface wettability on the tribological properties of laser textured Co–Cr–Mo alloy in aqueous bovine serum albumin solution
L. Qin, P. Lin, Y. Zhang, G. Dong and Q. Zeng 79
- Stability and electronic properties of polar and non-polar surfaces of CuI
J. Zhu, M. Gu and R. Pandey 87
- Structure and properties of silk grafted with acrylate fluoride monomers by ATRP
S. Li, T. Xing, Z. Li and G. Chen 92
- Helium atom diffraction study of low coverage phases of decanethiol self-assembled monolayers prepared by supersonic molecular beam deposition
E. Albayrak, S. Duman, G. Bracco and M.F. Danişman 98
- Hot corrosion behaviour of a Ni + CrAlYSiN composite coating in Na₂SO₄-25 wt.% NaCl melt
L. Zhu, S. Zhu and F. Wang 103
- Observation on the Interface of α -Al₂O₃/Cr₂O₃: Prepared by oxidation of Al₄₅Cr₇
J. Cai, B. Xu and G. Ling 111
- High-resolution photoelectron spectroscopy study of degradation of rubber-to-brass adhesion by thermal aging
K. Ozawa, T. Kakubo, K. Shimizu, N. Amino, K. Mase, Y. Izumi, T. Muro and T. Komatsu 117
- Capture of carbon dioxide from flue gases by amine-functionalized TiO₂ nanotubes
F. Song, Y. Zhao, Y. Cao, J. Ding, Y. Bu and Q. Zhong 124
- Enhanced visible light photocatalytic activity of Bi₂WO₆ via modification with polypyrrole
F. Duan, Q. Zhang, D. Shi and M. Chen 129
- Isothermal oxidation study on NiMnGa ferromagnetic shape memory alloy at 600–1000°C
M. Kök, G. Pirge and Y. Aydoğdu 136
- Solid phase growth of NiSi in polycrystalline Si on SiO₂ with Cl plasma containing NiCl
K. Kanomata, K. Momiyama, S. Kubota, T. Suzuki and F. Hirose 141
- Influence of Co doping on structural, optical and magnetic properties of BiFeO₃ films deposited on quartz substrates by sol–gel method
L. Peng, H. Deng, J. Tian, Q. Ren, C. Peng, Z. Huang, P. Yang and J. Chu 146
- Influence of GaAs(0 0 1) pregrowth surface morphology and reconstruction on the growth of InGaAs layers
Q. Zhou, Z. Luo, K. Liu, X. Guo, B. Zhang, X. Zhou, J. Wang and Z. Ding 151
- Improvement of the power conversion efficiency of organic photovoltaic cells with a P3HT layer fabricated by using a sonication process and having a vertically modulated nanoscale morphology
Y.H. Lee, D.H. Kim, N.S. Arul and T.W. Kim 156
- Competitive adsorption of Pb²⁺ and Cd²⁺ on magnetic modified sugarcane bagasse prepared by two simple steps
J.-X. Yu, L.-Y. Wang, R.-A. Chi, Y.-F. Zhang, Z.-G. Xu and J. Guo 163
- Surface study of films formed on copper and brass at open circuit potential
R. Procaccini, W.H. Schreiner, M. Vázquez and S. Céré 171
- Quaternary ammonium salts intercalated α -ZrP compounds for adsorption of phenolic compounds
H. Wang, W. Liu, W. Yao, K. Zhang, J. Zhong and R. Chen 179

(Contents continued on BM I)



(Continued from outside back cover)

Microstructure characterization and NO ₂ -sensing properties of porous silicon with intermediate pore size M. Li, M. Hu, Q. Liu, S. Ma and P. Sun	188	Effects of different polypyrrole/TiO ₂ nanocomposite morphologies in polyvinyl butyral coatings for preventing the corrosion of mild steel M.R. Mahmoudian, Y. Alias, W.J. Basirun and M. Ebadi	302
The plasma nitriding treatment of TiN/TiCN multilayer films J. Zheng, J. Hao, X. Liu, Q. Gong and W. Liu	195	High response solar-blind ultraviolet photodetector based on Zr _{0.5} Ti _{0.5} O ₂ film M. Zhang, X. Gu, K. Lv, W. Dong, S. Ruan, Y. Chen and H. Zhang	312
Enhanced photoelectric property and visible activity of nitrogen doped TiO ₂ synthesized from different nitrogen dopants X. Cheng, X. Yu and Z. Xing	204	Impact of chemical treatment on the surface, structure, optical and electrical properties of SnS thin films N.K. Reddy, M. Devika, Y.-B. Hahn and K.R. Gunasekhar	317
Correlation between ZnO nanorod growth and the dislocations in AlN-based substrates Q.-M. Fu, J.-P. Wu, Z.-B. Ma, Y.-B. Han and Y.-F. Tu	209	Surface defects impeded excitons in Alq ₃ based hetero junction OLEDs P.J. Jesuraj and K. Jegannathan	323
Synthesis and adsorption/photocatalysis performance of pyrite FeS ₂ S. Liu, M. Li, S. Li, H. Li and L. Yan	213	Structure and electrical properties of Mn doped Bi(Mg _{1/2} Ti _{1/2})O ₃ -PbTiO ₃ ferroelectric thin films L. Liu, R. Zuo, Q. Sun and Q. Liang	327
Optimizing structural and compositional properties of electrodeposited ceria coatings for enhanced oxidation resistance of a nickel-based superalloy B. Bouchaud, J. Balmain, G. Bonnet and F. Pedraza	218	Low temperature plasma vapor treatment of thermo-sensitive poly(N-isopropylacrylamide) and its application Y. Chen, X.L. Tang, B.T. Chen and G. Qiu	332
The effect of oxidation treatment by KClO ₃ /H ₂ SO ₄ system on intersurface performance of carbon fibers L. Meng, D. Fan, C. Zhang, Z. Jiang and Y. Huang	225	Effect of surface pre-treatment on the hydrophilicity and adhesive properties of multilayered laminate used for lithium battery packaging F. Xia and S.A. Xu	337
Aqueous solution-chemical derived Ni-Al ₂ O ₃ solar selective absorbing coatings. 2. Wetting agents and spreading of aqueous solutions on aluminum substrate Z. Li and J. Zhao	231	Morphological modifications of electrodeposited calcium phosphate coatings under amino acids effect R. Drevet, A. Lemelle, V. Untereiner, M. Manfait, G.D. Sockalingum and H. Benhayoune	343
Fabrication and photocatalytic properties of spheres-in-spheres ZnO/ZnAl ₂ O ₄ composite hollow microspheres L. Zhang, J. Yan, M. Zhou, Y. Yang and Y.-N. Liu	237	Improvement on the storage performance of LiMn ₂ O ₄ with the mixed additives of ethanolamine and heptamethyldisilazane X. Wu, X. Li, Z. Wang, H. Guo, P. Yue and Y. Zhang	349
Structure and redox properties of perovskite Y _{0.9} Sr _{0.1} Cr _{1-x} Fe _x O _{3-δ} D. Xu, Y. Bu, W. Tan and Q. Zhong	246	Adsorption of pH-responsive amphiphilic copolymer micelles and gel on membrane surface as an approach for antifouling coating R. Muppalla, H.H. Rana, S. Devi and S.K. Jewrajka	355
Enhancement of visible-light-induced photodegradation over hierarchical porous TiO ₂ by nonmetal doping and water-mediated dye sensitization L. Pan, J.-J. Zou, S. Wang, Z.-F. Huang, X. Zhang and L. Wang	252	Low-temperature solid state bonding method based on surface Cu-Ni alloying microcones Q. Lu, Z. Chen, W. Zhang, A. Hu and M. Li	368
Adsorption of chitosan on BN nanotubes: A DFT investigation A.R. Juárez, E.C. Anota, H.H. Cocoletzi and A.F. Riveros	259	Synthesis and characterization of self-crosslinking fluorinated polyacrylate soap-free latices with core-shell structure W. Xu, Q. An, L. Hao, D. Zhang and M. Zhang	373
Synthesis of well-adhered SiO ₂ -Al ₂ O ₃ glass-ceramic coating on NiCrFe alloy supports X. Niu, H. Zhang, X. Hu and W. Han	265	Effect of Ti-OH groups on microstructure and bioactivity of TiO ₂ coating prepared by micro-arc oxidation P. Zhang, Z. Zhang, W. Li and M. Zhu	381
Roughness scaling in titanium thin films: A three-dimensional molecular dynamics study of rotational and static glancing angle deposition M. Backholm, M. Foss and K. Nordlund	270	The evolution of Cu ₃ N films irradiated by femtosecond laser pulses S.Y. Wang, J.H. Qiu, X.Q. Wang, N.Y. Yuan, J.N. Ding and W.H. Huang	387
Fabrication, characterization and photocatalytic activity of cubic-like ZnMn ₂ O ₄ L. Zhao, X. Li and J. Zhao	274	Effects of duty cycle on properties of CIGS thin films fabricated by pulse-reverse electrodeposition technique H.S. Jadhav, R.S. Kalubarme, S. Ahn, J.H. Yun and C.-J. Park	391
Identification of surface composition and chemical states in composites comprised of phases with fluorite and perovskite structures by X-ray photoelectron spectroscopy E.Y. Konyshva and S.M. Francis	278	Time dependent statistics of plasma discharge parameters during bulk AC plasma electrolytic oxidation of aluminium C.S. Dunleavy, J.A. Curran and T.W. Clyne	397
Effect of gas composition on corrosion behavior and growth of apatite on plasma nitrided titanium alloy Beta-21S L. Mohan and C. Anandan	288	Surface modification of nanosheet oxide photocatalysts V.L. Blair, E.J. Nichols, J. Liu and S.T. Misture	410
Fabrication of Ketjen black-polybenzoxazine superhydrophobic conductive composite coatings L. Shen, H. Ding, W. Wang and Q. Guo	297	Defect analysis and mechanical performance of plasma-deposited thin films on flexible polycarbonate substrates R.P. Patel and C.A. Wolden	416

Preparation of Pt nanoparticles on different carbonaceous structure and their applications to methanol electro-oxidation J.-M. Jehng, W.-J. Liu, T.-C. Pan and Y.-M. Dai	425	Ion irradiation induced solid-state amorphous reaction in Ni/Ti multilayers M. Milosavljević, D. Toprek, M. Obradović, A. Grce, D. Peruško, G. Dražić, J. Kovač and K.P. Homewood	516
Supramolecular interactions of anthraquinone networks on Au(1 1 1): Hydrogen bonds and van der Waals interactions J.Y. Kim, W.J. Jang, H. Kim, J.K. Yoon, J. Park, S.-J. Kahng, J. Lee and S. Han	432	Size dependence of plasmon absorption of Ni nanoparticles embedded in BaTiO ₃ /SrTiO ₃ superlattices Z. Xiong, X. Chen, X. Wang, L. Peng, D. Yan, H. Lei, Y. Fu, J. Wu, Z. Li, X. An and W. Wu	524
A DFT study on the functionalization of a BN nanosheet with PC-X, (PC = phenyl carbamate, X = OCH ₃ , CH ₃ , NH ₂ , NO ₂ and CN) J. Beheshtian, H. Soleymanabadi, A.A. Peyghan and Z. Bagheri	436	Mold-free fabrication of 3D microfeatures using laser-induced shock pressure B. Nagarajan, S. Castagne and Z. Wang	529
The impact of rubbing fabric type on surface roughness and tribological properties of some semi-alicyclic polyimides evaluated from atomic force measurements I. Stoica, A.I. Barzic and C. Hulubei	442	The characterization of CrCe-doped on TiO ₂ -pillared clay nanocomposites for NO oxidation and the promotion effect of CeO _x J. Zhang, S. Zhang, W. Cai and Q. Zhong	535
Tuning the resistance of polycarbonate membranes by plasma-induced graft surface modification L. Baumann, D. Hegemann, D. de Courten, M. Wolf, R.M. Rossi, W.P. Meier and L.J. Scherer	450	A green and efficient method to produce graphene for electrochemical capacitors from graphene oxide using sodium carbonate as a reducing agent Y. Jin, S. Huang, M. Zhang, M. Jia and D. Hu	541
Synthesis and magnetic property of Fe doped LaPO ₄ nanorods D. Guo, C. Hu and Y. Xi	458	Surface modification of hydroturbine steel using friction stir processing H.S. Grewal, H.S. Arora, H. Singh and A. Agrawal	547
Superhydrophobic nanostructured Kapton® surfaces fabricated through Ar + O ₂ plasma treatment: Effects of different environments on wetting behaviour H.C. Barshilia, A. Ananth, N. Gupta and C. Anandan	464	Effect of annealing temperature on thermochromic properties of vanadium dioxide thin films deposited by organic sol-gel method J. Wu, W. Huang, Q. Shi, J. Cai, D. Zhao, Y. Zhang and J. Yan	556
Temperature and size effects on electrical properties and thermoelectric power of Bismuth Telluride thin films deposited by co-sputtering Z. Zeng, P. Yang and Z. Hu	472	Synthesis of rod-cluster ZnO nanostructures and their application to dye-sensitized solar cells Y. Meng, Y. Lin and J. Yang	561
Improved functionalization of electrospun PLLA/gelatin scaffold by alternate soaking method for bone tissue engineering A.K. Jaiswal, S.S. Kadam, V.P. Soni and J.R. Bellare	477	Adsorption properties of biomass-based activated carbon prepared with spent coffee grounds and pomelo skin by phosphoric acid activation X. Ma and F. Ouyang	566
The facile preparation for temperature sensitive silica/PNIPAAm composite microspheres X. Tai, J.h. Ma, Z. Du and W. Wang	489	Rutile microtubes assembly from nanostructures obtained by ultra-short laser ablation of titanium in liquid A. De Bonis, A. Galasso, N. Ibris, A. Laurita, A. Santagata and R. Teghil	571
Characterization of surface oxides on water-atomized steel powder by XPS/AES depth profiling and nano-scale lateral surface analysis D. Chasoglou, E. Hryha, M. Norell and L. Nyborg	496	Microstructure and water-lubricated friction and wear properties of CrN(C) coatings with different carbon contents Q. Wang, F. Zhou, X. Ding, Z. Zhou, C. Wang, W. Zhang, L.K.-Y. Li and S.-T. Lee	579
Growth of silver on ZnO and SnO ₂ thin films intended for low emissivity applications R. Alvarez, J.C. González, J.P. Espinós, A.R. González-Elípe, A. Cueva and F. Villuendas	507	Synthesis of metal-incorporated graphitic microporous carbon terminated with highly-ordered graphene walls—Controlling the number of graphene layers by ambient-temperature metal sputtering A.N. Banerjee, B.-K. Min and S.W. Joo	588