



applied surface science

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

Editor in Chief:

Henrik Rudolph, Breda, The Netherlands

Editors:

T.J. Bandosz, New York, NY, USA
S. Barcikowski, Germany
Frederico Rosei, Varennes (QC), Canada
Hikaru Kobayashi, Osaka, Japan
Jingguang Chen, New York, NY, USA
D. Gu, Nanjing, China
Peter Schaaf, Ilmenau, Germany
Robert L. Opila, Newark, DE, USA
Sefik Suzer, Ankara, Turkey
Tadahiro Komeda, Sendai-Shi, Japan
J. Lian, Changchun, China
Thomas K. Lippert, Villigen, Switzerland
Weixin Huang, Hefei, China
Fátima Montemor, Lisboa, Portugal
Peter Kingshott, Hawthorn, Australia
C.F. McConville, Coventry, UK
A. Miotello, Trento Italy
X.W. Sun, Singapore, Singapore
S.J. Pearton, Gainesville, USA

Volume 290, pp. 1–516

30 January 2014

Available online at www.sciencedirect.com

ScienceDirect

applied surface science

Contents

Volume 290 (2014)

Regular papers

- Laser-assisted implantation of gold nanoparticles, formed under surface plasmon-polariton resonant conditions in polymer layer
L. Fedorenko, I. Matyash, Z. Kazantseva, S. Rudenko and Ya. Kolomyichenko
- Production of Sn/MWCNT nanocomposite anodes by pulse electrodeposition for Li-ion batteries
M. Uysal, T. Cetinkaya, A. Alp and H. Akbulut
- Reversible hydrogen evolution and oxidation on Pt electrode mediated by molecular ion
K. Juodkazis, J. Juodkazytė, B. Šebeka and S. Juodkazis
- Nanosecond laser irradiation synthesis of CdS nanoparticles in a PVA system
D.C. Onwudiwe, T.P.J. Krüger, O.S. Oluwatobi and C.A. Strydom
- Surface investigations of ZnBeMnSe mixed crystals by means of the piezoelectric spectroscopy and the AFM technique
K. Strzałkowski, S. Kulesza, J. Zakrzewski and M. Maliński
- Initial adsorption of water molecule on HfC and TaC (0 0 1) surfaces from density-functional study
D. Liu, J. Deng and Y. Jin
- Almen intensity effect on microstructure and mechanical properties of low carbon steel subjected to severe shot peening
O. Unal and R. Varol
- Preparation and characterization of TiO₂ and Si-doped octacalcium phosphate composite coatings on zirconia ceramics (Y-TZP) for dental implant applications
L. Bao, J. Liu, F. Shi, Y. Jiang and G. Liu
- The formation of nanodimensional structures on the surface of Tin exposed to femtosecond laser pulses in the ambient environment of ethanol
S. Bashir, M.S. Rafique, C.S. Nathala and W. Husinsky
- Wetting behavior on hybrid surfaces with hydrophobic and hydrophilic properties
C.-W. Yao, J.L. Alvarado, C.P. Marsh, B.G. Jones and M.K. Collins
- Rear passivation of commercial multi-crystalline PERC solar cell by PECVD Al₂O₃
S. Zhao, Q. Qiao, S. Zhang, J. Ji, Z. Shi and G. Li
- Interface characteristics of peeling-off damages of laser coatings
Y. Cui, K. Yi, H. Guohang and J. Shao
- Titanium dioxide-coated fluorine-doped tin oxide thin films for improving overall photoelectric property
B.-j. Li, L.-j. Huang, N.-f. Ren and M. Zhou
- Doping of carbon nanotubes with aluminum atom to improve Pt adsorption
M.D. Ganji, M.G. Ahangari and A. Khosravi
- Preparation of functionalized and metal-impregnated activated carbon by a single-step activation method
S.A. Dastgheib, J. Ren, M. Rostam-Abadi and R. Chang
- A facile solution approach for the synthesis of akaganéite (β -FeOOH) nanorods and their ion-exchange mechanism toward As(V) ions
Y.-X. Zhang and Y. Jia 102
- Bis-pyridinium dibromides modified organo-bentonite for the removal of aniline from wastewater: A positive role of π - π polar interaction
Z. Gu, M. Gao, Z. Luo, L. Lu, Y. Ye and Y. Liu 107
- Kinetics and thermodynamics of adsorption of methylene blue by a magnetic graphene-carbon nanotube composite
P. Wang, M. Cao, C. Wang, Y. Ao, J. Hou and J. Qian 116
- Hydrogenation temperature related inner structures and visible-light-driven photocatalysis of N-F co-doped TiO₂ nanosheets
W. Wang, Y. Ni, C. Lu and Z. Xu 125
- Nucleation control and growth mechanism of pure α -Bi₂O₃ nanowires
L.-C. Tien and Y.-C. Lai 131
- Surface modification of polypropylene battery separator by direct fluorination with different gas components
B. Li, J. Gao, X. Wang, C. Fan, H. Wang and X. Liu 137
- The adsorption of Cs and residual gases on Ga_{0.5}Al_{0.5}As (0 0 1) β_2 (2 \times 4) surface: A first principles research
X. Yu, Y. Du, B. Chang, H. Wang and M. Wang 142
- Enhanced tunability of the composition in silicon oxynitride thin films by the reactive gas pulsing process
E. Aubry, S. Weber, A. Billard and N. Martin 148
- H₂ dissociation on γ -Al₂O₃ supported Cu/Pd atoms: A DFT investigation
H. Wang, L. Chen, Y. Lv and R. Ren 154
- Characterization of crednerite-Cu_{1.1}Mn_{0.9}O₂ films prepared using sol-gel processing
H.-Y. Chen and D.-J. Hsu 161
- In-situ* fabrication and characterization of ordered Ge QDs in Si₃N₄ matrix without barrier layers by rf-magnetron sputtering
S. Lee, S. Huang, G. Conibeer and M. Green 167
- Mass transport in low T_g azo-polymers: Effect on the surface relief grating induction and stability of additional side chain groups able to generate physical interactions
A.R. Luca, I.-A. Moleavin, N. Hurduc, M. Hamel and L. Rocha 172
- Ultrathin (0 0 1) and (1 0 0) TiO₂(B) sheets: Surface reactivity and structural properties
L. Fernández-Werner, R. Faccio, A. Juan, H. Pardo, B. Montenegro and Á.W. Mombrú 180
- Structural and mechanical modifications induced on Cu_{47.5}Zr_{47.5}Al₅ metallic glass by surface laser treatments
J. Fornell, E. Pellicer, E. Garcia-Lecina, D. Nieto, S. Suriñach, M.D. Baró and J. Sort 188
- Laser-assisted atom probe tomography of ¹⁸O-enriched oxide thin film for quantitative analysis of oxygen
T. Kinno, M. Tomita, T. Ohkubo, S. Takeno and K. Hono 194

(Contents continued on BM III)



(Continued from outside back cover)

Immobilization of oligonucleotide probes on silicon surfaces using biotin-streptavidin system examined with microscopic and spectroscopic techniques K. Awsiuk, J. Rysz, P. Petrou, A. Budkowski, A. Bernasik, S. Kakabakos, M.M. Marzec and I. Raptis	199	Morphology of nanotube arrays grown on Ti-35Nb-2Ta-3Zr alloys with different deformations P. Wang, H. Li, Y. Zhang, H. Liu, Y. Guo, Z. Liu, S. Zhao, J. Yin and Y. Guo	308
Toward a microscopic understanding of the calcium-silicate-hydrates/water interface C. Ebbert, G. Grundmeier, N. Buitkamp, A. Kröger, F. Messerschmidt and P. Thissen	207	In situ synthesis of hierarchical flower-like $\text{Bi}_2\text{S}_3/\text{BiOCl}$ composite with enhanced visible light photocatalytic activity S. Jiang, K. Zhou, Y. Shi, S. Lo, H. Xu, Y. Hu and Z. Gui	313
Integrated biomechanical and topographical surface characterization (IBTSC) J. Löberg, I. Mattisson and E. Ahlberg	215	Cu surfaces with controlled structures: From intrinsically hydrophilic to apparently superhydrophobic K. Meng, Y. Jiang, Z. Jiang, J. Lian and Q. Jiang	320
Friction and wear behavior of shot peened surfaces of 36CrNiMo4 and 36NiCrMo16 alloyed steels under dry and lubricated contact conditions S. Mitrovic, D. Adamovic, F. Zivic, D. Dzunic and M. Pantic	223	Hydroxyapatite-phosphonoformic acid hybrid compounds prepared by hydrothermal method T. Turki, M. Othmani, J.-L. Bantignies and K. Bouzouita	327
Photocatalytic activities of $\text{Bi}_2\text{S}_3/\text{BiOBr}$ nanocomposites synthesized by a facile hydrothermal process Y. Cui, Q. Jia, H. Li, J. Han, L. Zhu, S. Li, Y. Zou and J. Yang	233	Microemulsion mediated synthesis of triangular shape SnO_2 nanoparticles: Luminescence application M.N. Luwang	332
Synthesis of stable ultra-small Cu nanoparticles for direct writing flexible electronics W. Li and M. Chen	240	Quasi-epitaxial barium hexaferrite thin films prepared by a topotactic reactive diffusion process S. Meng, Z. Yue, X. Zhang and L. Li	340
Anode electrode with carbon buffer layer for improving methanol oxidation reaction in direct methanol fuel cell Y.S. Kang, N. Jung, K.-H. Choi, M.J. Lee, M. Ahn, Y.-H. Cho and Y.-E. Sung	246	Synthesis of fluorine substituted hydroxyapatite nanopowders and application of the central composite design for determination of its antimicrobial effects V. Stanić, S. Dimitrijević, D.G. Antonović, B.M. Jokić, S.P. Zec, S.T. Tanasković and S. Raičević	346
Sol-gel derived Al and Ga co-doped ZnO thin films: An optoelectronic study R. Ebrahimifard, M.R. Golobostanfard and H. Abdizadeh	252	Corrosion resistance and biocompatibility of SrHAp/ZnO composite implant coating on titanium Y. Huang, H. Zeng, X. Wang and D. Wang	353
Synthesis of SBA-15/polyaniline mesoporous composite for removal of resorcinol from aqueous solution Q. Li, H. Yu, J. Song, X. Pan, J. Liu, Y. Wang and L. Tang	260	Study of the machining process of nano-electrical discharge machining based on combined atomistic-continuum modeling method G. Zhang, J. Guo, W. Ming, Y. Huang, X. Shao and Z. Zhang	359
Catalytic oxidation of VOCs over CNT-supported platinum nanoparticles H.-J. Joung, J.-H. Kim, J.-S. Oh, D.-W. You, H.-O. Park and K.-W. Jung	267	Ultrafast pump-probe microscopy reveals the mechanism of selective fs laser structuring of transparent thin films for maskless micropatterning S. Rapp, J. Rosenberger, M. Domke, G. Heise, H.P. Huber and M. Schmidt	368
Photocatalytic TiO_2 nanoparticles enhanced polymer antimicrobial coating X. Wei, Z. Yang, S.L. Tay and W. Gao	274	Influence of current density on surface morphology and properties of pulse plated tin films from citrate electrolyte A. Sharma, S. Bhattacharya, S. Das and K. Das	373
Structural transformation and multiferroic properties of single-phase $\text{Bi}_{0.89}\text{Tb}_{0.11}\text{Fe}_{1-x}\text{Mn}_x\text{O}_3$ thin films G. Dong, G. Tan, Y. Luo, W. Liu, H. Ren and A. Xia	280	Surface modification of polycarbonate and polyethylene naphthalate foils by UV-ozone treatment and μPlasma printing R.O.F. Verkuijlen, M.H.A. van Dongen, A.A.E. Stevens, J. van Geldrop and J.P.C. Bernards	381
Crystal structure and nanotopographical features on the surface of heat-treated and anodized porous titanium biomaterials produced using selective laser melting S. Amin Yavari, R. Wauthle, A.J. Böttger, J. Schrooten, H. Weinans and A.A. Zadpoor	287	Synthesis, characterization and microwave absorption properties of dendrite-like Fe_3O_4 embedded within amorphous sugar carbon matrix H. Wu, L. Wang and H. Wu	388
Quantum dots as mediators in gas sensing: A case study of CdS sensitized WO_3 sensing composites I. Concina, E. Comini, S. Kaciulis and G. Sberveglieri	295	Methanol synthesis by CO and CO_2 hydrogenation on Cu/ $\gamma\text{-Al}_2\text{O}_3$ surface in liquid paraffin solution Z.-J. Zuo, L. Wang, P.-D. Han and W. Huang	398
Direct nanoimprinting of single crystalline gold: Experiments and dislocation dynamics simulations J. Zhang, Y. Zhang, N.A. Mara, J. Lou and L. Nicola	301	Manipulating a Co adatom on a stepped Cu surface by an STM tip: A theoretical study L. Liu, R.Z. Huang, Y.S.N. Sun, C.C. Du, R.J. Zhang, Y.X. Zheng and Y.X. Wu	405

Improved cycling and rate performance of Sm-doped $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ cathode materials for 5 V lithium ion batteries M. Mo, K.S. Hui, X. Hong, J. Guo, C. Ye, A. Li, N. Hu, Z. Huang, J. Jiang, J. Liang and H. Chen	412	Microstructural stability of ultrafine grained cold sprayed 6061 aluminum alloy M.R. Rokni, C.A. Widener and V.R. Champagne	482
Solution plasma synthesis of ZnO flowers and their photoluminescence properties G. Saito, Y. Nakasugi, T. Yamashita and T. Akiyama	419	Annealing temperature effect on the optical properties of thermally oxidized nano-crystalline ZrO_2 thin films grown on glass substrates M.M. Larijani, E. Hasani and S. Safa	490
Structure of benzenethiol monolayer on Pt(1 0 0) T. Wu, X. Wang, H. Zhou, H. Luo, Z. Jiao and P. Zhu	425	Formation and magnetic properties of metastable phases observed in the $\text{Fe}_{50}(\text{Hf}_x\text{Ta}_{1-x})_{50}$ films by ion beam mixing N. Li, J. Li, J. Liu and B. Liu	495
Compressive elastic moduli and polishing performance of non-rigid core/shell structured PS/ SiO_2 composite abrasives evaluated by AFM A. Chen, W. Mu and Y. Chen	433	A novel green synthesis and characterization of Ag NPs with its ultra-rapid catalytic reduction of methyl green dye Y. Junejo, Sirajuddin, A. Baykal, M. Safdar and A. Balouch	499
Enhancement of visible light photocatalytic activity of ZnS and CdS nanoparticles based on organic and inorganic coating N. Soltani, E. Saion, W.M.M. Yunus, M. Erfani, M. Navasery, G. Bahmanrokh and K. Rezaee	440	Correspondence Temporal evolution of oxygen chemisorption on TiAlN C. Kunze, D. Music, M.t. Baben, J.M. Schneider and G. Grundmeier	504
Biomimetic novel nanoporous niobium oxide coating for orthopaedic applications S.A. Pauline and N. Rajendran	448	Tailoring of optical and wetting properties of sputter deposited silica thin films by glancing angle deposition S. Sarkar and S.K. Pradhan	509
An atomistic investigation on the mechanism of machining nanostructures when using single tip and multi-tip diamond tools Z. Tong, Y. Liang, X. Jiang and X. Luo	458	Erratum Corrigendum to "Imparting super hydro/oleophobic properties to cotton fabric by means of molecular and nanoparticles vapor deposition methods" [Appl. Surf. Sci. 287 (2013) 223-231] P. Aminayi and N. Abidi	514
Electrophoretic deposition of PTFE particles on porous anodic aluminum oxide film and its tribological properties D. Zhang, G. Dong, Y. Chen and Q. Zeng	466	Corrigendum to "Enhancing coating of brushite/hydroxyapatite layer on titanium alloy implant surface with additives" [Appl. Surf. Sci. 285P (2013) 136-143] E.A. Abdel-Aal, D. El-Sayed, M. Shoeib, A.T. Kandil and A.T. Kandil	516
Processing parameter optimization for the laser dressing of bronze-bonded diamond wheels H. Deng, G.Y. Chen, C. Zhou, S.C. Li and M.J. Zhang	475		