



Volume 578

25 November 2013
ISSN 0925-8388

Journal of ALLOYS AND COMPOUNDS

**An Interdisciplinary Journal
of Materials Science and
Solid-State Chemistry and Physics**

EDITOR-IN-CHIEF

L. SCHULTZ

EDITORS

K.H.J. BUSCHOW

J. CHAN

D.G. ESKIN

H. FAN

J.-M. GRENECHE

V.G. HARRIS

H. KLEINKE

C. KOCH

H.G. PAN

V. PECHARSKY

H. SAKAGUCHI

H. ZUR LOYE



Contents

Abstracting Services Abstracted/indexed in: Cambridge Scientific Abstracts, Ceramics Abstracts, Chemical Abstracts, Current Contents, Engineering Index, FIZ Karlsruhe, Metals Abstracts, PASCAL/CNRS, Physics Abstracts, Physikalische Berichte, Research Alert, Science Citation Index. Also covered in the abstract and citation database SCOPUS.[®] Full text available on ScienceDirect.[®]

Experimental study of X-ray emission properties of laser produced plasmas with Au and Au foam layer targets W. Shang, W. Zhang, Y. Dong, C. Huang, T. Zhu, T. Song and J. Yang (Mianyang, China)	1
Raman spectra, photoluminescence, magnetism and magnetoelectric coupling in pure and Fe doped BaTiO ₃ nanostructures K.C. Verma (Sirmour, India), V. Gupta (Delhi, India), J. Kaur (Sirmour, India) and R.K. Kotnala (New Delhi, India)	5
Fabrication of electrospun Bi ₂ WO ₆ microbelts with enhanced visible photocatalytic degradation activity G. Zhao, S. Liu, Q. Lu, F. Xu and H. Sun (Jinan, PR China)	12
The effect of cobalt on the electrochemical performances of Ni–Al layered double hydroxides used in Ni–M(H) battery M. Hu, X. Ji, L. Lei and X. Lu (Nanjing, China)	17
Thermal stability of Ce _{1-x} Bi _x O _{2-δ} (x = 0.1–0.5) solid solution M. Prekajski (Belgrade, Serbia), V. Fruth, C. Andronescu (Bucharest, Romania), L.V. Trandafilović, J. Pantić, A. Kremenović and B. Matović (Belgrade, Serbia)	26
Thermal characteristics of Mg–Zn–Mn alloys with high specific strength and high thermal conductivity J. Yuan, K. Zhang, X. Zhang, X. Li, T. Li, Y. Li, M. Ma and G. Shi (Beijing, China)	32
A stability study of impregnated LSCF–GDC composite cathodes of solid oxide fuel cells Y. Liu (Wuhan, PR China), (Perth, Australia), F. Wang, B. Chi, J. Pu, L. Jian (Wuhan, PR China) and S.P. Jiang (Perth, Australia)	37
Reactive sputter deposition of Al doped TiO _x thin films using titanium targets with aluminium inserts B.R. Braeckman, F. Boydens, D. Depla and D. Poelman (Gent, Belgium)	44
Multiple magnetic phase transitions in CePd ₂ In ₄ D. Kaczorowski, P. Wiśniewski (Wrocław, Poland), A. Tursina and S. Nesterenko (Moscow, Russia)	50
Preparation and characterization of Ce _{1-x} Gd _x O _{2-δ} (x = 0.1–0.3) as solid electrolyte for intermediate temperature SOFC K.C. Anjaneya, G.P. Nayaka, J. Manjanna (Shankarghatta, India), G. Govindaraj and K.N. Ganesha (Pondicherry, India)	53
Redox stability and sulfur resistance of Sm _{0.9} Sr _{0.1} Cr _x Fe _{1-x} O _{3-δ} perovskite materials Y. Bu, Q. Zhong, D. Xu and W. Tan (Jiangsu, China)	60
Microstructure and mechanical properties of high-pressure sintered Al ₂ O ₃ /SiC nanocomposites Y. Teng (Sichuan, China), Z. Sun (Anhui, China), K. Zhang and W. Lu (Sichuan, China)	67
Investigation of energy transfer and concentration quenching of Dy ³⁺ luminescence in Gd(BO ₂) ₃ by means of fluorescence dynamics X. Zhang, F. Meng, W. Li (Changsha, China), S.I. Kim, Y.M. Yu and H.J. Seo (Busan, Republic of Korea)	72
Theoretical investigation of electronic, magnetic and optical properties of Fe doped GaN thin films E. Salmani (Rabat, Morocco), O. Mounkachi (Rabat, Morocco), (Grenoble Cedex, France), H. Ez-Zahraouy, A. Benyoussef, M. Hamedoun (Rabat, Morocco) and E.K. Hilil (Grenoble Cedex, France)	77
Characterisation of Zn–Mo alloy layers electrodeposited from aqueous citrate solution H. Kazimierzak, P. Ozga, Z. Świątek and E. Bielańska (Krakow, Poland)	82
RC circuit and conductivity properties of Mn _{0.6} Co _{0.4} Fe ₂ O ₄ nanocomposite synthesized by hydrothermal method E. Şentürk (Sakarya, Turkey), Y. Köseoğlu (Istanbul, Turkey), T. Şaşmaz (Sakarya, Turkey), F. Alan and M. Tan (Istanbul, Turkey)	90
Instability of the O-phase in Ti–22Al–25Nb alloy during elevated-temperature deformation P. Lin, Z. He, S. Yuan, J. Shen, Y. Huang (Harbin, China) and X. Liang (Beijing, China)	96
Structural and magnetic studies of Mg _(1-x) Zn _x Fe ₂ O ₄ nanoparticles prepared by a solution combustion method C. Choodamani, G.P. Nagabhushana (Bangalore, India), S. Ashoka (Warsaw, Poland), B. Daruka Prasad (Ananthapur, India), B. Rudraswamy and G.T. Chandrappa (Bangalore, India)	103
Damage behavior of SnAgCu/Cu solder joints subjected to thermomechanical cycling H. Xiao, X.Y. Li, Y. Hu, F. Guo and Y.W. Shi (Beijing, PR China)	110
A novel yellow luminescent material Ba ₃ Y(PO ₄) ₃ :Eu ²⁺ Z. Yang, P. Liu, J. Li (Baoding, China), Q. Yang (Germany), L. Lv and Y. Zhao (Baoding, China)	118

Effective dye removal and water purification using the electric and magnetic Zn _{0.5} Co _{0.5} Al _{0.5} Fe _{1.46} La _{0.04} O ₄ /polymer core-shell nanocomposites M.A. Ahmed (Giza, Egypt), R.M. Khafagy, S.T. Bishay (Cairo, Egypt) and N.M. Saleh (Libya)	121
Major effects on electrical properties of ZnO–V ₂ O ₅ –MnO ₂ –Nb ₂ O ₅ ceramics with small Gd ₂ O ₃ doping changes C.-W. Nahm (Busan, Republic of Korea)	132
Characterization of Ni–Ti shape memory alloys prepared by powder metallurgy A.S. Jabur (Kerbala, Iraq), J.T. Al-Haidary and E.S. Al-Hasani (Baghdad, Iraq)	136
Asymmetric interface band alignments of Cu ₂ O/ZnO and ZnO/Cu ₂ O heterojunctions M. Yang, L. Zhu, Y. Li, L. Cao and Y. Guo (Hangzhou, China)	143
Synthesis of tungsten oxide, silver, and gold nanoparticles by radio frequency plasma in water Y. Hattori, S. Nomura, S. Mukasa, H. Toyota, T. Inoue and T. Usui (Matsuyama, Japan)	148
Synthesis and microwave dielectric properties of B ₂ O ₃ -doped Mg ₂ GeO ₄ ceramics C.X. Chen, S.P. Wu (Guangzhou, China) and Y.X. Fan (Shenzhen, China)	153
Multiple magneto-functional properties of Ni ₄₆ Mn ₄₁ In ₁₃ shape memory alloy S. Pramanick, S. Chatterjee, S. Giri, S. Majumdar (Kolkata, India), V.V. Koledov, A. Mashirov (Moscow, Russia), A.M. Aliev, A.B. Batdalov (Makhachkala, Russia), B. Hernando, W.O. Rosa and L. González-Legarreta (Oviedo, Spain)	157
Characterization of surface hardened layers on Q235 low-carbon steel treated by plasma electrolytic borocarburing B. Wang, W. Xue, J. Wu, X. Jin, M. Hua and Z. Wu (Beijing, China)	162
Irradiation effect on the structure change for Sr ₂ Fe _{1.5} Mo _{0.5} O _{6-δ} perovskite ceramic S. Wang (Columbia, Los Alamos, USA), M. Tang (Los Alamos, USA), L. Zhang, G. Xiao (Columbia, USA), K.S. Brinkman (Aiken, USA) and F. Chen (Columbia, USA)	170
Low temperature carbothermal and boron carbide reduction synthesis of LaB ₆ M. Hasan, H. Sugo and E. Kisi (Callaghan, Australia)	176
On the evolution of heterogeneous microstructure and microtexture in impacted aluminum–lithium alloy N.P. Gurao, A.O. Adesola, A.G. Odeshi and J.A. Szpunar (Saskatoon, Canada)	183
Luminescence properties of Eu ³⁺ -doped Ca ₄ Gd(BO ₃) ₃ O phosphors X. Qiao and H.J. Seo (Busan, Republic of Korea)	188
The effect of a small addition of nickel on the sintering, sintered microstructure, and mechanical properties of Ti–45Al–5Nb–0.2C–0.2B alloy Y. Xia, G.B. Schaffer and M. Qian (Brisbane, Australia)	195
High-pressure structural behaviour of Cu _{0.5} Fe _{0.5} Cr ₂ S ₄ : An experimental and theoretical study A. Waśkowska (Wrocław, Poland), L. Gerward (Lyngby, Denmark), J. Staun Olsen (Copenhagen, Denmark), A. Svane (Aarhus, Denmark), G. Vaitheeswaran (Hyderabad, India) and V. Kanchana (Yeddumailaram, India)	202
Microstructure and tensile properties of large-size 7055 aluminum billets fabricated by spray forming rapid solidification technology H. Yu, M. Wang, X. Sheng, Z. Li, L. Chen, Q. Lei, C. Chen, Y. Jia, Z. Xiao, W. Chen, H. Wei (Hunan, PR China), H. Zhang, X. Fan (Jiangsu, PR China) and Y. Wang (Hunan, PR China)	208
Shape-controlled synthesis of MnWO ₄ nanocrystals via a simple hydrothermal method L. Yang, Y. Wang, Y. Wang, X. Wang, L. Wang (Luoyang, PR China) and G. Han (Hangzhou, PR China)	215
Microstructure and magnetic properties of as-quenched cubic and tetragonal La(Fe _{1-x} Si _x) ₁₃ compounds K. Niitsu, S. Fujieda, A. Fujita and R. Kainuma (Sendai, Japan)	220
Solution growth of vertical aligned ZnO nanorod arrays on ZnO seed layers fabricated by Langmuir–Blodgett method Q. Feng, D. Tang, E. Jiang (Harbin, China), S. Gu (Washington, USA) and S. Han (Harbin, China)	228
Synthesis and characterization of novel Fe@ZnO nanosystem P. Dhiman, J. Chand, A. Kumar (Shimla, India), R.K. Kotnala (New Delhi, India), K.M. Batoo (Riyadh, Saudi Arabia) and M. Singh (Shimla, India)	235
TiO ₂ nanotube arrays co-loaded with Au nanoparticles and reduced graphene oxide: Facile synthesis and promising photocatalytic application Y. Chen, Y. Tang, S. Luo, C. Liu and Y. Li (Changsha, PR China)	242
A novel nanocomposite of polyaniline and Fe _{0.01} Ni _{0.01} Zn _{0.98} O: Photocatalytic, electrical and antibacterial properties S. Kant (Shimla, India), S. Kalia (Bologna, Italy) and A. Kumar (Shimla, India)	249
Improved photovoltaic performance of dye sensitized solar cell using ZnO–graphene nano-composites G. Khurana, S. Sahoo, S.K. Barik and R.S. Katiyar (San Juan, USA)	257
Isothermal sections at 1400, 1100 and 900 °C of the Ti–Dy–Sn system below 40 at.% Sn M. Bulanova, Yu. Fartushna, K. Meleshevich and A. Samelyuk (Kiev, Ukraine)	261
Diamond reinforced Al-based bulk metallic glassy composites with improved plasticity fabricated by cold hydro-mechanical pressing D.J. Wang (Harbin, China), X.S. Wei (Harbin, China), (Victoria, Australia) and J. Shen (Harbin, China)	267
A comparative study of porous ZnO nanostructures synthesized from different zinc salts as gas sensor materials H. Song, H. Yang and X. Ma (Jinan, PR China)	272
Electrical conductivity of M ²⁺ -doped (M = Mg, Ca, Sr, Ba) cerium pyrophosphate-based composite electrolytes for low-temperature proton conducting electrolyte fuel cells B. Singh, S.-Y. Jeon, H.-N. Im (Gwang-Ju, Republic of Korea), J.-Y. Park (Seoul, Republic of Korea) and S.-J. Song (Gwang-Ju, Republic of Korea)	279

Growth mechanism and magnetism of CoFe_2O_4 thin films; Role of the substrate A.-K. Axelsson (London, UK), F. Aguesse (London, UK), (Miñano, Spain), V. Tileli (London, UK), M. Valant (Nova Gorica, Slovenia) and N.M. Alford (London, UK)	286
A study of microstructures responsible for the emergence of the invar and permalloy effects in Fe–Ni alloys Y. Ustinovshikov and I. Shabanova (Izhevsk, Russia)	292
Characterization of the shape memory properties of a $\text{Ni}_{45.3}\text{Ti}_{39.7}\text{Hf}_{10}\text{Pd}_5$ alloy E. Acar, H.E. Karaca, H. Tobe (Lexington, USA), R.D. Noebe (Cleveland, USA) and Y.I. Chumlyakov (Tomsk, Russia)	297
Structural, electric and magnetoelectric properties of $\text{Ni}_{0.85}\text{Cu}_{0.15}\text{Fe}_2\text{O}_4/\text{BiFe}_{0.7}\text{Mn}_{0.3}\text{O}_3$ multiferroic nanocomposites M.A. Ahmed, S.F. Mansour and M. Afifi (Giza, Egypt)	303
The different electron transport of two nanotubes incorporated in working electrode of dye-sensitized solar cells X. Zhang (Anhui, Nanjing, China), H. Tian, X. Wang, G. Xue, Z. Tian, J. Zhang, S. Yuan, T. Yu and Z. Zou (Nanjing, China)	309
Effect of Tb^{3+} substitution on structural, electrical and magnetic properties of sol–gel synthesized nanocrystalline nickel ferrite B.P. Jacob (Kannur, India), S. Thankachan, S. Xavier and E.M. Mohammed (Ernakulam, India)	314
Effect of heating rate on ferrite recrystallization and austenite formation of cold-roll dual phase steel P. Li, J. Li, Q. Meng, W. Hu (Shanghai, PR China) and D. Xu (Shenyang, PR China)	320
Influence of Co doping on the structural, optical and magnetic properties of ZnO nanocrystals A. Kaushik (Banasthali Vidyapith, India), B. Dalela (Jaipur, India), R. Rathore (Kota, India), V.S. Vats (Dhaliara, India), B.L. Choudhary (Jaipur, India), P.A. Alvi (Banasthali Vidyapith, India), S. Kumar (Udaipur, India) and S. Dalela (Kota, India)	328
Wear failure behaviour of titanium-based oxide coatings on a titanium alloy under impact and sliding forces Y. Chen, T. Cheng and X. Nie (Windsor, Canada)	336
Morphology-control synthesis and electrochemical performance of titanate and anatase TiO_2 G. Liu (Chifeng, China), J. Qu (Changzhou, China) and H. Wang (Luoyang, China)	345
A facile microwave-assisted route to $\text{Co}(\text{OH})_2$ and Co_3O_4 nanosheet for Li-ion battery G. Chen (Las Cruces, United States), E. Fu (Beijing, China), M. Zhou, Y. Xu, L. Fei, S. Deng, V. Chaitanya (Las Cruces, United States), Y. Wang (Los Alamos, United States) and H. Luo (Las Cruces, United States)	349
Compositionally modulated CGDS + MAO duplex coatings for corrosion protection of AZ91 magnesium alloy L. Rama Krishna, G. Poshal, A. Jyothirmayi and G. Sundararajan (Hyderabad, India)	355
Near-edge X-ray absorption fine structure studies of $\text{Cr}_{1-x}\text{M}_x\text{N}$ coatings M. Mahbubur Rahman (Murdoch, Australia), (Dhaka, Bangladesh), A. Duan (Parkville, Australia), Z.-T. Jiang (Murdoch, Australia), Z. Xie (Australia), A. Wu (Parkville, Australia), A. Amri (Pekanbaru, Indonesia), B. Cowie (Clayton, Australia) and C.-Y. Yin (Murdoch, Australia)	362
Microstructure and texture evolutions and mechanical properties in pure copper by equal-channel angular pressing M.Z. Bian (Victoria, Australia), Y.L. Li (Seoul, Republic of Korea), M. Mathesh, D. Abreu and N.D. Nam (Victoria, Australia)	369
Effect of sintering temperature on the microstructure and mechanical properties of $\text{Ti}_{50}\text{Ni}_{50}$ and $\text{Ti}_{47}\text{Ni}_{47}\text{Al}_6$ intermetallic alloys B. Liu, Z. Liu, X. Liu, W. Wang and L. Wang (Nanjing, PR China)	373
Hydrogen production by hydrolysis of aluminum H. Zou, S. Chen, Z. Zhao and W. Lin (Guangzhou, China)	380
Intense upconversion in novel transparent $\text{NaLuF}_4:\text{Tb}^{3+}, \text{Yb}^{3+}$ glass–ceramics Y. Wei (Zhejiang, China), X. Liu (Zhejiang, Guangdong, China), X. Chi, R. Wei and H. Guo (Zhejiang, China)	385
Structural and luminescence characteristics of $\text{Sr}_3\text{Al}_8\text{SiO}_{17}:\text{Eu}^{2+}$ nanophosphor A. Kumar, S.J. Dhoble, D.R. Peshwe and J. Bhatt (Nagpur, India)	389
Microstructure and mechanical properties of an Al–Mg alloy solidified under high pressures J.C. Jie (Dalian, Harbin, China), C.M. Zou (Harbin, China), E. Brosh (Beer-Sheva, Israel), H.W. Wang, Z.J. Wei (Harbin, China) and T.J. Li (Dalian, China)	394
Optical and electro-catalytic studies of nanostructured thulium oxide for vitamin C detection J. Singh (Jeonbuk, Republic of Korea), M. Srivastava (Greater Noida, India), A. Roychoudhury (Delhi, India), D.W. Lee, S.H. Lee (Jeonbuk, Republic of Korea) and B.D. Malhotra (Delhi, New Delhi, India), (Daejeon, Republic of Korea)	405
Magnetic and magnetocaloric properties of $\text{Gd}_{6-x}\text{R}_x\text{Mn}_{23}$ (R = Y, Sm, Tb, Dy, Ho and Er) compounds P. Lemoine, A. Vernière, T. Mazet and B. Malaman (Vandœuvre-lès-Nancy Cedex, France)	413
Phase-controlled preparation of TiO_2 films and micro(nano)spheres by low-temperature chemical bath deposition M. Wang, Q. Li, H. Yu (Zhenjiang, China), S.H. Hur and E.J. Kim (Ulsan, South Korea)	419
Ceramics used as intermetallic diffusion barriers in Pd-based composite membranes sputtered on porous nickel supports C.-B. Lee, S.-W. Lee (Daejeon, Seoul, South Korea), J.-S. Park, S.-K. Ryi, D.-W. Lee, K.-R. Hwang (Daejeon, South Korea) and S.-H. Kim (Seoul, South Korea)	425
Mo, Mn and La doped TiO_2 : Synthesis, characterization and photocatalytic activity for the decolourization of three different chromophoric dyes K. Umar, M.M. Haque, M. Muneer (Aligarh, India), T. Harada and M. Matsumura (Toyonaka, Japan)	431
Experimental investigation of phase equilibria in the Cu–Ni–Si ternary system X. Liu, S. Xiang, S. Yang, R. Shi and C. Wang (Fujian, PR China)	439
Enhanced photoluminescence emission of 3-aminobenzoic acid by complexation with M cations [M = cobalt, zinc] Y.L. Min (ShangHai, Anqing, PR China), G.Q. He (Anqing, PR China), Q.J. Xu (ShangHai, PR China) and Y.C. Chen (Anqing, PR China)	448

Influence of heat treatment on microstructure and tensile behavior of a hot isostatically pressed nickel-based superalloy C. Qiu, X. Wu, J. Mei (Birmingham, UK), P. Andrews and W. Voice (Derby, UK)	454
Standard enthalpies of formation of some Lanthanide–Cobalt binary alloys by high temperature direct synthesis calorimetry S.V. Meschel, P. Nash (Chicago, United States), Q.N. Gao, J.C. Wang and Y. Du (Hunan, PR China)	465
Microstructural characteristics of spray formed and heat treated Al–(Y, La)–Ni–Co system V.C. Srivastava (Jamshedpur, India), K.B. Surreddi, S. Scudino (Dresden, Germany), M. Schowalter, V. Uhlenwinkel, A. Schulz (Bremen, Germany), J. Eckert (Dresden, Germany), A. Rosenauer and H.-W. Zoch (Bremen, Germany)	471
In situ synthesis of Ti ₂ AlC–Al ₂ O ₃ /TiAl composite by vacuum sintering mechanically alloyed TiAl powder coated with CNTs J. Wang, N. Zhao (Tianjin, China), P. Nash (USA), E. Liu, C. He, C. Shi and J. Li (Tianjin, China)	481
Controlled magnetic behavior of [Co/Pt] <i>n</i> multilayer by tuning the topography of 2D nanobowl arrays Y.X. Wang, X.Y. Zhao, W. Li, Y. Liu, Y.J. Zhang, X.L. Zhang, Y.H. Jiang, S.S. Liu and J.H. Yang (Siping, Jilin, People's Republic of China)	488
High-conductivity binary Mg–Zn sheet processed by cold rolling and subsequent aging H. Pan, F. Pan, J. Peng, J. Gou, A. Tang, L. Wu and H. Dong (Chongqing, China)	493
Synthesis and photocatalytic property of Fe ₃ O ₄ @TiO ₂ core/shell nanoparticles supported by reduced graphene oxide sheets P. Ma, W. Jiang, F. Wang, F. Li, P. Shen, M. Chen, Y. Wang, J. Liu and P. Li (Nanjing, PR China)	501
Dye-sensitized solar cells with a tri-layer ZnO photo-electrode H. Li, J. Bai, F. Feng, X. Lu, J. Weng, C. Jiang and J. Wang (Chengdu, People's Republic of China)	507
Absorption and luminescence properties of terbium ions in heavy metal glasses L. Zur, M. Softys, J. Pisarska and W.A. Pisarski (Katowice, Poland)	512
Hot corrosion behavior of neodymium magnesium hexaaluminate by vanadium pentoxide in air Z.-G. Liu, J.-H. Ouyang, Y. Zhou and R.-X. Zhu (Harbin, China)	517
Enhancement of ferromagnetic properties in Zn _{0.98} Cu _{0.02} O by additional Co doping H. Liu, X. Zhang, H. Liu, J. Yang, Y. Liu, X. Liu, M. Gao, M. Wei, X. Cheng and J. Wang (Siping, People's Republic of China)	522
Beginning point of metal to insulator transition for Bi-2223 superconducting matrix doped with Eu nanoparticles G. Yildirim (Bolu, Turkey)	526
Twin characteristics and flow stress evolution in extruded magnesium alloy AZ31 subjected to multiple loads J. He, T. Liu, Y. Zhang (Chongqing, PR China) and J. Tan (Kunming, PR China)	536
Single crystal growth, transport, and electronic band structure of YCoGa ₅ X. Zhu, W. Lu, W. Ning, Z. Qu (Hefei, China), L. Li, T.F. Qi, G. Cao (Lexington, USA), C. Petrovic (Upton, USA) and Y. Zhang (Hefei, China)	543
Effect of shock-induced martensite transformation on the postshock mechanical response of metastable β titanium alloys Y. Ren, F. Wang, C. Tan, S. Wang, X. Yu, J. Jiang and H. Cai (Beijing, PR China)	547
Zirconium alloys produced by recycling zircaloy tunings N.S. Gamba (Santa Fe, Argentina), I.A. Carbajal-Ramos (Bariloche, Argentina), M.A. Ulla, B.T. Pierini (Santa Fe, Argentina) and F.C. Gennari (Bariloche, Argentina)	553
Ground state properties of filled skutterudite EuRu ₄ P ₁₂ : A first principles study A. Shankar, D.P. Rai, Sandeep and R.K. Thapa (Aizawl, India)	559
Molecular orbital interactions in glass-forming Zr ₇₀ Cu ₃₀ liquid quasicrystals G.S.E. Antipas (Athens, Greece)	565
Hierarchical assemblies of Cd _x Zn _{1-x} S complex architectures and their enhanced visible-light photocatalytic activities for H ₂ -production J. Wang (Shanxi, Beijing, People's Republic of China), B. Li (Shanxi, Lanzhou, People's Republic of China), J. Chen (Shanxi, Beijing, People's Republic of China), L. Li, J. Zhao and Z. Zhu (Shanxi, People's Republic of China)	571
Competitive grain growth mechanism in three dimensions during directional solidification of a nickel-based superalloy C. Yang, L. Liu, X. Zhao, N. Wang, J. Zhang and H. Fu (Xi'an, China)	577
Alloying of Fe ₃ O ₄ and Co ₃ O ₄ to develop Co _{3x} Fe _{3(1-x)} O ₄ ferrite with high magnetic squareness, tunable ferromagnetic parameters, and exchange bias R.N. Bhowmik, V. Vasanthi (Kalapet, India) and A. Poddar (Kolkata, India)	585
Effect of ultrasound on combustion synthesis of composite material "TiC–metal binder" B.B. Khina (Minsk, Belarus) and M.M. Kulak (Vitebsk, Belarus)	595
Hybrid functional study of structural, electronic and magnetic properties of S-doped ZnO with and without neutral vacancy M. Debbichi, T. Sakhraoui (Monastir, Tunisia), L. Debbichi (Dijon, France) and M. Said (Monastir, Tunisia)	602
Transparent conducting oxide free dye sensitized solar cell using flexible stainless steel mesh T.-Y. Cho (Kyunggi-Do, Republic of Korea), C.-W. Han and S.-G. Yoon (Daejeon, Republic of Korea)	609
Properties of ZnO:Bi thin films prepared by spray pyrolysis technique N. Sadananda kumar, K.V. Bangera (Surathkal, India), C. Anandan (Bangalore, India) and G.K. Shivakumar (Surathkal, India)	613
Corrigendum to "Influence of thermal treatment on the resistance switching of SrTiO ₃ :Nb single crystal" [J. Alloys Compd. 569 (2013) 62–66] Q.Q. Gao, B. Chen, Q.X. Yu, X.T. Zhang and H. Zhu (Hefei, China)	620
Keywords	I