



Volume 615

5 December 2014

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
L.P. COOK
D.G. ESKIN
H. FAN
J.-M. GRENECHE
V.G. HARRIS
M. HENINI
H. KLEINKE
H.G. PAN
V. PECHARSKY
M. RICHTER
H. SAKAGUCHI



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.®

Long-range magnetic ordering in TmAgSn D. Kaczorowski (Wrocław, Poland) and A. Szytuła (Kraków, Poland).....	1
Room-temperature ferromagnetism induced by Na co-doping and K co-doping in the rare earth Er doped ZnO nanocrystallites J. Sivasankari, S. Sankar (Chennai, India), S. Selvakumar (Ibaraki, Japan) and K. Sivaji (Chennai, India).....	4
Bi ₂ O ₃ with activated carbon composite as a supercapacitor electrode S.X. Wang, C.C. Jin and W.J. Qian (Suzhou, PR China).....	12
Microwave dielectric properties of lanthanum based complex perovskites M.A. Nath, S.L. Samal (Hauz Khas, India), K.R. Obulesu, K.C.J. Raju (Hyderabad, India) and A.K. Ganguli (Hauz Khas, India).....	18
Structural and dielectric properties, electron paramagnetic resonance, and defect chemistry of Pr-doped BaTiO ₃ ceramics D.-Y. Lu, X.-Y. Sun (Jilin, China), B. Liu (Jilin, Changchun, China), J.-L. Zhang (Jilin, China) and T. Ogata (Yonezawa, Japan).....	25
Plasma enhanced Mn incorporation in CdS nanostructures R. Yang, T. Fan, Z. Gao, D. Jiang, Q. Wang and X. Zhang (Beijing, China).....	35
Study of diffuse phase transition in Pb(Cd _{1/3} Nb _{2/3})O ₃ compound M. Pastor (Allahabad, Jhansi, India), N. Kumar (Kharagpur, India), B. Kumar, A. Panwar (New Delhi, India), K. Biswas (Kharagpur, India) and A.C. Pandey (Allahabad, Jhansi, India)	40
The addition of a surfactant at regular time intervals in the mechanical alloying process K.A. Nazari (Geelong, Australia), A. Nouri (Toronto, Canada) and T. Hilditch (Geelong, Australia).....	47
Magnetic properties assessment of laser welded ultra-thin Fe-Co-V foils H. Mostaan, M. Shamanian, S.M. Monirvaghefi, P. Behjati (Isfahan, Iran) and J.A. Szpunar (Saskatoon, Canada).....	56
Finite element modeling of magnetoelectric laminate composites in considering nonlinear and load effects for energy harvesting H. Talleb and Z. Ren (Paris, France)	65
Amorphous-crystalline state transformation induced by annealing in R ₂ Fe ₁₄ B (R = Nd, Er) compounds Yu.G. Chukalkin, A.E. Teplykh, N.V. Kudrevatykh (Ekaterinburg, Russia), K.N. Choo, S. Lee (Daejeon, Republic of Korea), A.V. Andreev (Prague, Czech Republic) and A.N. Pirogov (Ekaterinburg, Russia)	75
P-N co-doping induced structural recovery of TiO ₂ for overall water splitting under visible light irradiation P. Zheng (Taiyuan, Beijing, China), H. Wu (Xi'an, China), J. Guo (Shangluo, China), J. Dong (Taiyuan, China), S. Jia and Z. Zhu (Taiyuan, China)	79
Electromagnetic wave absorption properties of barium titanate/carbon nanotube hybrid nanocomposites G.J.H. Melvin (Ueda, Japan), Q.-Q. Ni (Ueda, Japan), (Hangzhou, China) and T. Natsuki (Ueda, Japan)	84
Facile synthesis of Mo-Ni particles and their effect on the electrochemical kinetic properties of La-Mg-Ni-based alloy electrodes Y. Li, Y. Tao, D. Ke, S. Yang and S. Han (Qinhuangdao, PR China)	91
The crystallography of carbide-free bainites in thermo-mechanically processed low Si transformation-induced plasticity steels E.V. Pereloma, F. Al-Harbi and A.A. Gazder (New South Wales, Australia).....	96
Optimization of sintering parameters for diamond-copper composites in conventional sintering and their thermal conductivity K. Raza and F.A. Khalid (Topi, Pakistan)	111
Structure and electrochemical hydrogen storage properties of Ti ₂ Ni alloy synthesized by ball milling B. Hosni (Tunis, Tunisia), X. Li (Belfort cedex, France), C. Khaldi (Tunis, Tunisia), O. ElKedim (Belfort cedex, France) and J. Lamloumi (Tunis, Tunisia)	119
Co-doping effects of Mg and Be on properties of ZnMgBeGaO UV-range transparent conductive oxide films prepared by RF magnetron sputtering J.-H. Park, H.B. Cuong, S.-H. Jeong and B.-T. Lee (Gwangju, Republic of Korea)	126
Magnetic-field-induced enhancement for synthesizing ferromagnetic MnBi phase by solid-state reaction sintering Y. Mitsui, R.Y. Umetsu (Sendai, Japan), K. Koyama (Kagoshima, Japan) and K. Watanabe (Sendai, Japan)	131

Multiferroicity in $\text{Ba}_{0.97}\text{La}_{0.03}\text{Ti}_{1-x}\text{Ni}_x\text{O}_3$ ($0.03 \leq x \leq 0.07$) ceramics N. Sharma, A. Gaur (Kurukshetra, India), U.K. Gaur (Roorkee, India) and R.K. Kotnala (New Delhi, India).....	135
Dielectric and thermal properties of isotactic polypropylene/hexagonal boron nitride composites for high-frequency applications S. Takahashi, Y. Imai, A. Kan, Y. Hotta and H. Ogawa (Nagoya, Japan).....	141
Corrosion and corrosive wear behavior of WC–MgO composites with and without grain-growth inhibitors C. Ouyang (Shanghai, PR China), (Edmonton, Canada), S. Zhu (Shanghai, PR China) and D.Y. Li (Edmonton, Canada)	146
Recrystallization and twinning in rapidly solidified nickel based alloys without man-made plastic deformation X.L. Xu and F. Liu (Xi'an, People's Republic of China)	156
Fe-based amorphous soft magnetic alloys with high saturation magnetization and good bending ductility F.L. Kong (Togane, Japan), C.T. Chang (Ningbo, China), A. Inoue (Togane, Japan), (Ningbo, China), (Jeddah, Saudi Arabia), E. Shalaan and F. Al-Marzouki (Jeddah, Saudi Arabia)	163
Synthesis of $\text{SiO}_x@\text{CdS}$ core–shell nanoparticles by simple thermal decomposition approach and studies on their optical properties S. Kandula and P. Jeevanandam (Roorkee, India).....	167
Synthesis of iodine filled CoSb_3 with extremely low thermal conductivity X. Li, B. Xu, L. Zhang, F. Duan (Qinhuangdao, China), X. Yan (Vienna, Austria), J. Yang and Y. Tian (Qinhuangdao, China)	177
Cation distribution and magnetic properties of nanocrystalline gallium substituted cobalt ferrite M.B. Mohamed and M. Yehia (Cairo, Egypt)	181
Structural and optical studies of Eu^{3+} /nanocrystallites doped titania–zirconia hybrids S. Karthika, M.S. Sajna, S. Thomas, K.P. Revathy, P.R. Biju and N.V. Unnikrishnan (Kottayam, India).....	188
Transport properties of pristine and alloyed free standing ultrathin nanowires of noble metals A. Kumar and P.K. Ahluwalia (Shimla, India)	194
Sintering behavior, microstructure and mechanical properties of vacuum sintered SiC /spinel nanocomposite G. Li and F. Tavangarian (Baton Rouge, United States)	204
Nano-ZnO particle addition to monolithic magnesium for enhanced tensile and compressive response S. Sankaranarayanan (Singapore, Singapore), U. Pranav Nayak (Mangalore, India), R.K. Sabat, S. Suwas (Bangalore, India), A. Almajid (Riyadh, Saudi Arabia) and M. Gupta (Singapore, Singapore).....	211
Bifunctional $\text{Li}_4\text{Ti}_5\text{O}_{12}$ coating layer for the enhanced kinetics and stability of carbon anode for lithium rechargeable batteries D. Song, M.R. Jo, G.-H. Lee (Seoul, Republic of Korea), J. Song, N.-S. Choi (Ulsan, Republic of Korea) and Y.-M. Kang (Seoul, Republic of Korea)	220
Enhancing photoresponsivity of ultra violet photodetectors based on Fe doped ZnO/ZnO shell/core nanorods R. Azimirad (Tehran, Iran), A. Khayatian (Kashan, Iran), S. Safa (Tehran, Iran) and M. Almasi Kashi (Kashan, Iran)	227
Structural, electronic, elastic and thermodynamic properties of Zr_2Fe and Zr_2FeH_5 : A comprehensive study using first principles approach D. Chattaraj, C. Majumder and S. Dash (Mumbai, India)	234
Synthesis and enhancement of visible light activities of nitrogen-doped BaTiO_3 J. Cao, Y. Ji (Maanshan, China), C. Tian and Z. Yi (Fuzhou, China)	243
Enhanced strength and electrical conductivity of Cu–Zr–B alloy by double deformation–aging process Y. Ye, X. Yang, J. Wang, X. Zhang, Z. Zhang (Changsha, China) and T. Sakai (Chofu, Japan)	249
Nanocrystallization and magnetocaloric effect in amorphous Fe–Mo–Cu–B alloy J. Świernczek (Częstochowa, Poland)	255
Optical and magnetic properties of $\text{Sn}_{1-x}\text{Mn}_x\text{O}_2$ dilute magnetic semiconductor nanoparticles T. Ahmad, S. Khatoon (New Delhi, India) and K. Coolahan (Glassboro, USA)	263
Luminescence and crystallographic sites for Eu^{3+} ions in $\text{Sr}_5(\text{PO}_4)_3\text{F}$ phosphor X. Qiao (Xuzhou, PR China) and H.J. Seo (Busan, Republic of Korea)	270
Effect of plasma activated sintering parameters on microstructure and mechanical properties of Al-7075/B ₄ C composites C. Wu, P. Fang, G. Luo, F. Chen, Q. Shen, L. Zhang (Wuhan, PR China) and E.J. Lavernia (Davis, United States)	276
Microwave and conventional preparation of Zinc borate glass: Eu^{3+} ion as luminescent probe A.K. Mandal, S. Balaji and R. Sen (Kolkata, India)	283
Giant magnetic entropy change in manganese perovskite $\text{La}_{0.67}\text{Sr}_{0.16}\text{Ca}_{0.17}\text{MnO}_3$ near room temperature Z. Mohamed, E. Tka, J. Dhahri (Monastir, Tunisia) and E.K. Hlil (Grenoble Cedex, France)	290
Length dependence of the resonant magnetoelectric effect in Ni/Pb(Zr,Ti)O ₃ /Ni long cylindrical composites D. Xie, Y.G. Wang and J.H. Cheng (Nanjing, People's Republic of China)	298
Deep drawability and drawing behaviour of AZ31 alloy sheets with different initial texture H. Zhang (Taiyuan, China), G. Huang (Chongqing, China), J. Fan (Taiyuan, China), H.J. Roven (Trondheim, Norway), (Doha, Qatar), B. Xu (Taiyuan, China) and H. Dong (Leicester, UK)	302
Enhancement of high temperature thermoelectric performance in Bi, Fe co-doped layered oxide-based material $\text{Ca}_3\text{Co}_4\text{O}_{9+\delta}$ R. Tian, T. Zhang, D. Chu (New South Wales, Australia), R. Donelson (Clayton South, Australia), L. Tao (Singapore, Singapore) and S. Li (New South Wales, Australia)	311
Structural and magnetic phase transition in quinary $\text{Ni}_{45}\text{Co}_{5}\text{(Mn, In, Sn)}_{50}$ Heusler alloy Z. Guo, L. Pan, H. Qiu, X. Zheng and Z. Liu (Beijing, China)	316
Controlled chemical synthesis and enhanced performance of micron-sized FeCo particles B. Yang, Y. Cao, L. Zhang, R.F. Li, X.Y. Yang and R.H. Yu (Beijing, China)	322

Effect of methanol ratio in mixed solvents on optical properties and wettability of ZnO films by cathodic electrodeposition M. Zhang, K. Xu, X. Jiang, L. Yang, G. He, X. Song, Z. Sun and J. Lv (Hefei, PR China)	327
Phase evolution and alloying mechanism of titanium aluminide nanoparticles J.S. Luo, K. Li, X.B. Li, Y.J. Shu and Y.J. Tang (Mianyang, People's Republic of China)	333
The influence of the laser scan strategy on grain structure and cracking behaviour in SLM powder-bed fabricated nickel superalloy L.N. Carter (Birmingham, UK), C. Martin, P.J. Withers (Manchester, UK) and M.M. Attallah (Birmingham, UK)	338
Single-step synthesis of graphene-carbon nanofiber hybrid material and its synergistic magnetic behaviour R.K. Sahoo (Kharagpur, India), P. Jeyapandiarajan (Roorkee, India), K. Devi Chandrasekhar (Kharagpur, India), B.S.S. Daniel (Roorkee, India), A. Venimadhav, S.B. Sant and C. Jacob (Kharagpur, India)	348
Effect of thickness on the structural and optical properties of sputtered ZnO and ZnO:Mn thin films R. Rajalakshmi and S. Angappane (Bangalore, India)	355
Excess conductivity analysis of Cr substituted $TlSr_2CaCu_2O_{7-\delta}$ superconductor at Tl and Ca sites A. Al-Sharabi and R. Abd-Shukor (Bangi, Malaysia)	363
The effect of MnO_2 -doping on the microstructure and microwave dielectric properties of BST/MgO composites Q. Xue, H. Du, X. Gao (Qingdao, China), Y. Wang (Harbin, China), Y. Zhang, J. Xu, G. Wang, Q. Ding, C. Tian (Qingdao, China), C. Liu (Beijing, China), Y. Lü (Harbin, China) and S. Li (Qingdao, China)	372
Probing of local electron states by laser terahertz radiation in PbTe(Ga) S.G. Egorova, V.I. Chernichkin, L.I. Ryabova (Moscow, Russia), S.N. Danilov (Regensburg, Germany), A.V. Nicorici (Kishinev, Republic of Moldova) and D.R. Khokhlov (Moscow, Russia)	375
Room temperature ferromagnetism with high magnetic moment and optical properties of Co doped ZnO nanorods synthesized by a solvothermal route B. Pal, S. Dhara, P.K. Giri and D. Sarkar (Guwahati, India)	378
High-throughput identification of higher- κ dielectrics from an amorphous N_2 -doped HfO_2 - TiO_2 library K.-S. Chang, W.-C. Lu, C.-Y. Wu and H.-C. Feng (Tainan, Taiwan)	386
Microwave-assisted synthesis of hollow CuO-Cu ₂ O nanosphere/graphene composite as anode for lithium-ion battery X. Zhou, J. Shi, Y. Liu, Q. Su, J. Zhang and G. Du (Jinhua, China)	390
Oxygen ion and electron conductivity in fluorite-like molybdates Nd ₅ Mo ₃ O ₁₆ and Pr ₅ Mo ₃ O ₁₆ V.I. Voronkova (Moscow, Russia), I.A. Leonidov (Ekaterinburg, Russia), E.P. Kharitonova, D.A. Belov (Moscow, Russia), M.V. Patrakeev, O.N. Leonidova and V.L. Kozhevnikov (Ekaterinburg, Russia)	395
Ferromagnetism induced by the charge transfer in Al-doped ZnO nanoparticles Y. Liu, W. Zhou and P. Wu (Tianjin, People's Republic of China)	401
Magnetic properties and magnetocaloric effect in Tb ₃ Al ₂ compound H. Zhang, L.H. Yang, J.Y. Li, Z. Wang, E. Niu, R.M. Liu, Z.B. Li, F.X. Hu, J.R. Sun and B.G. Shen (Beijing, PR China)	406
Nd-enriched particles prepared from NdFeB magnets: A potential separation route C. Fredericci (São Paulo, Brazil), M.F. de Campos (Volta Redonda, Brazil), A.P.V. Braga, D.J. Nazarre, R.V. Martin, F.J.G. Landgraf (São Paulo, Brazil) and E.A. Périgo (São Paulo, Brazil), (Luxembourg, Luxembourg)	410
Large-area synthesis of high-quality and uniform monolayer graphene without unexpected bilayer regions J. Liu, P. Li, Y. Chen, Z. Wang, J. He, H. Tian, F. Qi, B. Zheng, J. Zhou, W. Lin and W. Zhang (Chengdu, PR China)	415
Synthesis and leachability study of a new cesium immobilized langbeinite phosphate: KCsFeZrP ₃ O ₁₂ S.P. Kumar and B. Gopal (Vellore, India)	419
Influence of yttrium content on phase formation and strain hardening behavior of Mg-Zn-Mn magnesium alloy N. Tahreen (Toronto, Canada), D.F. Zhang, F.S. Pan, X.Q. Jiang, C. Li (Chongqing, China), D.Y. Li (Alberta, Canada) and D.L. Chen (Toronto, Canada)	424
Crystal structures, phase stability, and dielectric properties of $(1-x)Bi_{3/2}MgNb_{3/2}O_7-xBi_{2}Zn_{2/3}Nb_{4/3}O_7$ ceramics H.L. Dong, L.X. Li, Y.X. Jin, S.H. Yu and D. Xu (Tianjin, China)	433
Enlarged broad band photodetection using Indium doped TiO ₂ alloy thin film M.B. Sarkar, A. Mondal, B. Choudhuri, B.K. Mahajan, S. Chakrabarty (Tripura (West), India) and C. Ngangbam (Imphal, India)	440
Electronic structure of cage-like compound UB ₁₂ – Theory and XPS experiment M. Samsel-Czekała (Wrocław, Poland), E. Talik (Katowice, Poland), R. Troć (Wrocław, Poland) and N. Shitsevalova (Wrocław, Poland), (Kiev, Ukraine)	446
Composition optimization of p-type AgSn _m SbTe _{m+2} thermoelectric materials synthesized by mechanical alloying and spark plasma sintering Z.-B. Xing, Z.-Y. Li, Q. Tan, T.-R. Wei, C.-F. Wu and J.-F. Li (Beijing, China)	451
Characterization of Bi ₄ Pb ₂ Ti ₃ FeNbO ₁₈ nanoplates N. Kumar (Kharagpur, India), S.K. Patri (Kakinada, India) and R.N.P. Choudhary (Bhubaneswar, India)	456
Conventional and rapid thermal annealing of spray pyrolyzed copper indium gallium sulfide thin films E. Aydin, M. Sankir and N.D. Sankir (Ankara, Turkey)	461
Influence of aging on phase transformation and microstructure of Ni _{50.3} Ti _{29.7} Hf ₂₀ high temperature shape memory alloy M. Prasher and D. Sen (Mumbai, India)	469
Spectroscopic properties of 2.7 μ m emission in Er ³⁺ doped telluride glasses and fibers X. Fan (Shanghai, Beijing, PR China), K. Li (Shanghai, PR China), X. Li, P. Kuan, X. Wang (Shanghai, Beijing, PR China) and L. Hu (Shanghai, PR China)	475

Growth, thermal and spectral properties of Tm ³⁺ , Ho ³⁺ co-doped NaGd(MoO ₄) ₂ Crystal C. Wang (Guangzhou, China), H. Yin (Guangzhou, Fuzhou, China), A. Li, Y. Wu, S. Zhu, Z. Chen (Guangzhou, China), G. Zhang (Fuzhou, China) and K. Su (Guangzhou, China)	482
Fabrication and microwave absorbing properties of (Z-type barium ferrite/silica)@polypyrrole composites J. Shen, K. Chen, L. Li, W. Wang and Y. Jin (Jinhua, China)	488
Metallic alloy nanoparticle-based fabrication and optical properties of a Cu(In _{1-x} Ga _x)S ₂ absorber layer for solar cells Y.-M. Choi (Ansan, Republic of Korea), Y.-I. Lee (Seoul, Republic of Korea), S. Kim and Y.-H. Choa (Ansan, Republic of Korea)	496
Microstructure refinement and its effect on specific strength and bio-corrosion resistance in ultralight Mg–4Li–1Ca (LC41) alloy by hot rolling S.S. Nene (Mumbai, India) (Clayton, Australia), B.P. Kashyap, N. Prabhu (Mumbai, India), Y. Estrin (Mumbai, India), (Clayton, Australia), (Moscow, Russia) and T. Al-Sammam (Aachen, Germany)	501
Optoelectronic behavior of Quaternary Uranium Chalcogenides Rb ₂ Pd ₃ UM ₆ (M = S, Se): A first principle study H.U. Din (Mansehra, Pakistan), S. Azam, S.A. Khan (Pilsen, Czech Republic) and R. Khenata (Mascara, Algeria)	507
Spin reorientation and magnetoelastic coupling in Tb ₆ Fe _{1-x} Co _x Bi ₂ (x = 0, 0.125, 0.25, and 0.375) alloy system M.R. Koehler (Knoxville, USA), V.O. Garlea, M.A. McGuire (Oak Ridge, USA), L. Jia and V. Keppens (Knoxville, USA)	514
Effect of Al co-doping on the electrical and magnetic properties of Cu-doped ZnO nanorods Z.F. Wu, K. Cheng, F. Zhang, R.F. Guan (Yancheng, China), X.M. Wu and L.J. Zhuge (Suzhou, China)	521
Spectroscopic ellipsometry study of 0.5BaZr _{0.2} Ti _{0.8} O ₃ –0.5Ba _{0.7} Ca _{0.3} TiO ₃ ferroelectric thin films H. Wang (Urumqi, Beijing, PR China), J. Xu (Urumqi, PR China), C. Ma, F. Xu (Urumqi, Beijing, PR China), L. Wang, L. Bian and A. Chang (Urumqi, PR China)	526
Characterization of hot deformation microstructure of a near beta titanium alloy Ti-5553 K. Hua, X. Xue, H. Kou, J. Fan, B. Tang and J. Li (Xi'an, PR China)	531
Controlling growth of single-crystalline indium hydroxide nanocuboids with enhanced sharp cathodoluminescence peak Y.-C. Chang (Taichung, Taiwan)	538
Thermodynamic modeling of the UO ₂ –CaO phase diagram A.R. Kim (Tuscaloosa, United States) and S.S. Kim (Sejong, Republic of Korea)	542
Thermoelectric properties of nanostructured bismuth–telluride thin films grown using pulsed laser deposition P.H. Le, C.-N. Liao, C.W. Luo and J. Leu (Hsinchu, Taiwan, ROC)	546
Effect of Ni-doping on structural, magnetic and magnetocaloric properties of La _{0.6} Pr _{0.1} Ba _{0.3} Mn _{1-x} Ni _x O ₃ nanocrystalline manganites synthesized by Pechini sol-gel method E. Oumezzine, S. Hcini (Monastir, Tunisia), E.-K. Hlil (Gronoble, France), E. Dhahri (Sfax, Tunisia) and M. Oumezzine (Monastir, Tunisia)	553
Synthesis, crystal structure, and optical properties of a new lead barium borate, PbBa ₂ (B ₃ O ₆) ₂ H. Li (Urumqi, China), L. Dong (Urumqi, Beijing, China), Y. Lu, S. Pan (Urumqi, China), X. Lu (Beijing, China), H. Yu (Urumqi, Beijing, China), H. Wu, X. Su and Z. Yang (Urumqi, China)	561
Complementary switching on TiN/MgZnO/ZnO/Pt bipolar memory devices for nanocrossbar arrays X. Chen, W. Hu, S. Wu and D. Bao (Guangzhou, China)	566
Magnetic properties and domain structures in Nd–Fe–B sintered magnets with Tb additive reacted and diffused from the sample surface K. Kobayashi, K. Urushibata, T. Matsushita, S. Sakamoto and S. Suzuki (Fukuroi, Japan)	569
Combined effect of high-intensity ultrasonic treatment and Ca addition on modification of primary Mg ₂ Si and wear resistance in hypereutectic Mg–Si alloys M.E. Moussa, M.A. Waly (Halwan, Egypt) and A.M. El-Sheikh (Giza, Egypt)	576
Effects of calcination on the preparation of carbon-coated SnO ₂ /graphene as anode material for lithium-ion batteries G. Wu, Z. Li, W. Wu and M. Wu (Qingdao, China)	582
Improvement of photoluminescence properties and thermal stability of Y _{2.9} Ce _{0.1} Al _{5-x} Si _x O ₁₂ phosphors with Si ₃ N ₄ addition F. Zhang, K. Song (Hangzhou, China), J. Jiang (Ningbo, China), S. Wu, P. Zheng (Hangzhou, China), Q. Huang (Fuzhou, China), J. Xu and H. Qin (Hangzhou, China)	588
Efficient use of iron impurity in Al–Si alloys Y. Zhang, H. Zheng, Y. Liu, L. Shi, Q. Zhao and X. Tian (Jinan, PR China)	594
Diffusion of helium in the perfect and non perfect uranium dioxide crystals and their local structures L. Dabrowski and M. Szuta (Otwock/Swierk, Poland)	598
Structural and electrical characteristics of n-InSb/p-GaAs heterojunction prepared by liquid phase epitaxy A.A.M. Farag (Egypt), F.S. Terra, A. Ashery and A.M. Mansour (Giza, Egypt)	604
Tailoring of magnetic properties and GMI effect of Co-rich amorphous microwires by heat treatment A. Zhukov (San Sebastian, Bilbao, Spain), A. Talaat, M. Ipatov, J.M. Blanco and V. Zhukova (San Sebastian, Spain)	610
Nanowire (nanorod) arrays-constructed tungsten oxide hierarchical structure and its unique NO ₂ -sensing performances Y. Qin, C. Liu, M. Liu and Y. Liu (Tianjin, China)	616
The spectroscopic properties of Dy ³⁺ and Eu ³⁺ co-doped ZnWO ₄ phosphors Y. Zhou, J. Xu, Z. Zhang and M. You (Shanghai, PR China)	624
Enhancement in threshold voltage with thickness in memory switch fabricated using GeSe _{1.5} S _{0.5} thin films R.T. Ananth Kumar (Tirunelveli, India), C. Das (Bangalore, India), P. Chithra Lekha (Puducherry, India), S. Asokan (Bangalore, India), C. Sanjeeviraja (Karaikudi, India) and D. Pathinettam Padiyan (Tirunelveli, India)	629

Modulation of optical and electrical properties of sputtering-derived amorphous InGaZnO thin films by oxygen partial pressure X.F. Chen, G. He, M. Liu, J.W. Zhang, B. Deng, P.H. Wang, M. Zhang, J.G. Lv and Z.Q. Sun (Hefei, PR China)	636
Superior photocatalytic performance of reduced graphene oxide wrapped electrospun anatase mesoporous TiO ₂ nanofibers T. Lavanya (Tsukuba, Japan), (Chennai, India), K. Satheesh (Chennai, India), M. Dutta (Tsukuba, Japan), N. Victor Jaya (Chennai, India) and N. Fukata (Tsukuba, Japan)	643
Texture analysis of a friction stir welded ultrafine grained Al-Al ₂ O ₃ composite produced by accumulative roll-bonding M. Shamanian, M. Mohammadnezhad (Isfahan, Iran) and J. Szpunar (Saskatoon, Canada)	651
Microstructural characterization and corrosion resistance evaluation of nanostructured Al and Al/AlCr coated Mg-Zn-Ce-La alloy M. Daroonparvar, M.A.M. Yajid, N.M. Yusof, H.R. Baksheshi-Rad, E. Hamzah (Johor Bahru, Malaysia) and H.A. Kamali (Sydney NSW, Australia)	657
Interface optimization and modification of band offsets of ALD-derived Al ₂ O ₃ /HfO ₂ /Al ₂ O ₃ /Ge gate stacks by annealing temperature H.H. Wei (Hefei, China), G. He (Hefei, Shanghai, China), J. Gao (Huainan, China), M. Liu (Hefei, China), X.S. Chen (Shanghai, China) and Z.Q. Sun (Hefei, China)	672
MnO ₂ doped PSN-PZN-PZT piezoelectric ceramics for resonant actuator application Y. Yu, J. Wu, T. Zhao, S. Dong (Beijing, China), H. Gu and Y. Hu (Wuhan, China)	676
Postgrowth intermixing of strain engineered InAs/GaAs quantum dots O. Nasr, M.H. Hadj Alouane (Monastir, Tunisia), B. Ilahi (Monastir, Tunisia), (Riyadh, Saudi Arabia), B. Salem (Grenoble, France), L. Sfaxi and H. Maaref (Monastir, Tunisia)	683
Microstructure evolution and mechanical properties of twinned AZ31 alloy plates at lower elevated temperature H. Zhang, Y. Liu, J. Fan (Taiyuan, China), H.J. Roven (Trondheim, Norway), (Doha, Qatar), W. Cheng, B. Xu (Taiyuan, China) and H. Dong (Leicester, UK)	687
Thermodynamic description of the Mn-Si system: An experimental and theoretical work A. Berche, E. Ruiz-Théron, J.-C. Tedenac, R.-M. Ayral, F. Rouessac and P. Jund (Montpellier, France)	693
Microstructure evolution and mechanical properties of an ultra-high strength casting Mg-15.6Gd-1.8Ag-0.4Zr alloy Y. Zhang, Y. Wu, L. Peng, P. Fu, F. Huang and W. Ding (Shanghai, PR China)	703
Characterization of new Sb ₂ O ₃ -based multicomponent heavy metal oxide glasses A.E. Ersundu, M. Çelikbilek (Istanbul, Turkey), M. Baazouzi, M.T. Soltani (Biskra, Algeria), J. Troles (Rennes Cedex, France) and S. Aydin (Istanbul, Turkey)	712
X-ray analysis and optical studies of Dy ³⁺ doped NaSrB ₅ O ₉ microstructures for white light generation G.R. Dillip (Gyeongsan, South Korea), B. Ramesh, C. Madhukar Reddy, K. Mallikarjuna, O. Ravi (Tirupati, India), S.J. Dhoble (Nagpur, India), S.W. Joo (Gyeongsan, South Korea) and B.D.P. Raju (Tirupati, India)	719
Al-doped ZnO/Ag grid hybrid transparent conductive electrodes fabricated using a low-temperature process H.-R. An, S.-T. Oh, C.Y. Kim (Seoul, Republic of Korea), S.-H. Baek (Daegu, Republic of Korea), I.-K. Park (Gyeongbuk, Republic of Korea) and H.-J. Ahn (Seoul, Republic of Korea)	728
Preparation of TaB/TaB ₂ /mullite composites by combustion synthesis involving aluminothermic reduction of oxide precursors C.L. Yeh and W.C. Kao (Taichung, Taiwan)	734
Role of oxygen defects in magnetic property of Cu doped ZnO W. Liu, X. Tang, Z. Tang, F. Chu, T. Zeng and N. Tang (Shanghai, PR China)	740
Isothermal formation kinetics of nanocrystals in LiNb _{0.5} Ta _{0.5} O ₃ glass C.G. Baek, H.W. Choi and Y.S. Yang (Busan, Republic of Korea)	745
Improvement of microwave-absorbing properties of Co ₂ Z barium ferrite composite by coating Ag nanoparticles Y. Zhang, F. Xu, G. Tan, J. Zhang, T. Wang and F. Li (Lanzhou, People's Republic of China)	749
Resistive memory devices with high switching endurance through single filaments in Bi-crystal CuO nanowires C.-H. Tu, C.-C. Chang, C.-H. Wang, H.-C. Fang, M.R.S. Huang, Y.-C. Li, H.-J. Chang, C.-H. Lu, Y.-C. Chen (Tainan, Taiwan), R.-C. Wang (Kaohsiung, Taiwan), Y. Tzeng and C.-P. Liu (Tainan, Taiwan)	754
Magnetic and structural transitions in CaMn _{0.96} Mo _{0.04} O ₃ E.V. Mostovshchikova, R.I. Zainullina, N.G. Bebenin, T.I. Arbuzova, N.I. Solin and S.V. Naumov (Ekaterinburg, Russia)	761
Effect of preparation technique on the selected characteristics of Zn _{1-x} Co _x O nanocrystalline thin films deposited by sol-gel and magnetron sputtering A. Goktas (Sanliurfa, Turkey), (Matsue, Japan), F. Aslan and I.H. Mutlu (Sanliurfa, Turkey)	765
Deposition of nanocrystalline coatings by modified LVOF thermal spray method N. Rana, M.M. Mahapatra, R. Jayaganthan and S. Prakash (Roorkee, India)	779
Mo and MoO ₃ powders: Structure and resistance to CO L.Yu. Novoselova (Tomsk, Russia)	784
Standard molar enthalpy of formation of Ce ₂ Zr ₂ O ₈ S. Phapale, R. Shukla, R. Mishra and A.K. Tyagi (Mumbai, India)	792
Studies on Y ₂ SiO ₅ :Ce phosphors prepared by gel combustion using new fuels L.E. Muresan, B.F. Oprea, A.I. Cadis, I. Perhaita and O. Ponta (Cluj-Napoca, Romania)	795
Abnormal martensitic transformation of high Zr-containing Ti alloys S.X. Liang, L.X. Yin (Handan, China), Y.K. Zhou (Qinhuangdao, China), X.J. Feng (Handan, China), M.Z. Ma, R.P. Liu (Qinhuangdao, China) and C.L. Tan (Beijing, China)	804

Subsolidus phase relations in CoO–In ₂ O ₃ –B ₂ O ₃ system and crystal structure of Co _{3-x} In _x BO ₅ solid solution for 0 < X ≤ 1 G.M. Cai, L. Wang, L.M. Su, H.S. Liu and Z.P. Jin (Changsha, PR China).....	809
Investigation of various synthetic conditions for large-scale synthesis and electrochemical properties of Li _{3.98} Al _{0.06} Ti _{4.96} O ₁₂ /C as anode material G.-H. Dong, H.-J. Liu, L. Zhou, L. Chong, J. Yang (Shanghai, PR China), Y.-M. Qiao and D.-H. Zhang (Shanghai, PR China).....	817
Microstructure and corrosion behavior of electrodeposited nano-crystalline nickel coating on AZ91 Mg alloy A. Zarebidaki, H. Mahmoudikohani and M.-R. Aboutalebi (Yazd, Iran).....	825
Microstructure and magnetic properties of NiZn nanowires with controlled Zn ion concentration and off-time between pulses A. Ramazani, M. Almasi-Kashi and A. Salati (Kashan, Iran).....	831
Synthesis of titanium nitride nanopowder at low temperature from the combustion synthesized precursor and the thermal stability X. Hou, P. Qiu, T. Yang and K.-C. Chou (Beijing, China).....	838
Photochemical decoration of silver nanoparticles on graphene oxide nanosheets and their optical characterization N.T. Lan, D.T. Chi, N.X. Dinh, N.D. Hung, H. Lan, P.A. Tuan, L.H. Thang, N.N. Trung, N.Q. Hoa, T.Q. Huy, N.V. Quy (Hanoi, Viet Nam), T.-T. Duong (Daejeon, Republic of Korea), V.N. Phan and A.-T. Le (Hanoi, Viet Nam).....	843
Effect of electropulse on solid solution treatment of 6061 aluminum alloy Y.S. Zheng, G.Y. Tang, J. Kuang and X.P. Zheng (Shenzhen, Beijing, PR China).....	849
Stability and properties of alloyed ε-(Fe _{1-x} M _x) ₃ N nitrides (M = Cr, Ni, Mo, V, Co, Nb, Mn, Ti and Cu): A first-principles calculations C.S. Zhang, M.F. Yan, Y. You, H.T. Chen, F.Y. Zhang (Harbin, PR China), B. Bai, L. Chen, Z. Long and R.W. Li (Mianyang, PR China).....	854
An <i>ab initio</i> study on the electronic structures of the solid/liquid interface between TiB ₂ (0 0 0 1) surface and Al melts H.L. Zhang, Y.F. Han, Y.B. Dai, S.S. Lu, J. Wang, J. Zhang, D. Shu and B.D. Sun (Shanghai, People's Republic of China)	863
Effects of dodecyl sulfate and nitrate anions on the supercapacitive properties of α-Co(OH) ₂ L. Liu, J.P. Cheng, J. Zhang, F. Liu and X.B. Zhang (Hangzhou, PR China)	868
Correlation between site preference and magnetic properties of Co-Zr doped BaCo _x Zr _x Fe _(12-2x) O ₁₉ prepared under sol-gel and citrate precursor sol-gel conditions R.K. Mudsinaiyan, S.K. Chawla (Amritsar, India) and S.S. Meena (Mumbai, India).....	875
Experimental study of the liquid-solid phase equilibria of the V-Cr-Si system N. Chaia, N. David (Vandœuvre-lès-Nancy, France), G.C. Coelho (Lorena, Volta Redonda, Brazil), C.A. Nunes (Lorena, Brazil), S. Mathieu and M. Vilasi (Vandœuvre-lès-Nancy, France)	882
The crystal structures of the Mn ₉ T(=Fe, Co, Ni) ₃ Ge ₅ and Mn ₁₂ Ge ₅ germanides: New examples of partially filled Ni ₂ In-type derivatives G. Venturini and B. Malaman (Vandoeuvre-les-Nancy Cedex, France).....	886
Thermal stability of grain structure and material properties in an annealing twinned Ag–4Pd alloy wire T.-H. Chuang, H.-J. Lin, C.-H. Chuang, Y.-Y. Shieh (Taipei, Taiwan), F.-S. Shieh, Y.-L. Huang, P.-C. Hsu (Taichung, Taiwan), J.-D. Lee and H.-H. Tsai (Taichung, Taiwan)	891
Dielectric relaxation and conduction mechanism of cobalt ferrite nanoparticles R.K. Panda, R. Muduli, S.K. Kar and D. Behera (Odisha, India)	899
Preparation of a novel Al–3B–5Sr master alloy and its modification and refinement performance on A356 alloy X.L. Cui, Y.Y. Wu, T. Gao and X.F. Liu (Ji'an, PR China)	906
Synthesis of ternary Ni _{1-x} Fe _x S single crystalline nanorods X. Chang (Urumqi, PR China), Z. Zhang (Dalian, PR China), R. Wu, J. Li and J. Jian (Urumqi, PR China).....	912
Hole conduction and nonlinear current-voltage behavior in multiferroic lanthanum-substituted bismuth ferrite G. Dong, H. Fan, P. Ren and X. Liu (Xi'an, China).....	916
Crystal electric field and the ground state properties of heavy fermion Ce ₃ Ru ₄ Sn ₁₃ A. Ślebarski, M. Fijałkowski, J. Goraus, L. Kalinowski and P. Witas (Katowice, Poland).....	921
Novel photocatalysts of fly ash cenospheres supported BiOBr hierarchical microspheres with high photocatalytic performance L. Lin (Shanghai, Yiyang, China), M. Huang (Shanghai, China), L. Long (Yiyang, China) and D. Chen (Shanghai, China)	929
Thermoelectric properties of Se-deficient and Pb-/Sn-codoped In ₄ Pb _{0.01} Sn _{0.03} Se _{3-x} polycrystalline compounds J.H. Kim, M.J. Kim, S. Oh and J.-S. Rhyee (Yongin, Republic of Korea)	933
Critical behavior of Y-doped Nd _{0.7} Sr _{0.3} MnO ₃ manganites exhibiting the tricritical point and large magnetocaloric effect T.-L. Phan, T.A. Ho (Cheongju, South Korea), P.D. Thang, Q.T. Tran, T.D. Thanh, N.X. Phuc (Hanoi, Viet Nam), M.H. Phan (Tampa, USA), B.T. Huy (Changwon, South Korea) and S.C. Yu (Cheongju, South Korea)	937
The optical, magnetic, and electrical characteristics of Fe ₂ Si thin films Y.-T. Chen and Y.C. Tan (Kaohsiung, Taiwan, ROC)	946
Annealing textures of severely cold and warm-rolled Al–2.5 wt.%Mg alloy J.R. Gatti and P.P. Bhattacharjee (Yeddu-mailaram, India)	950
Structural and dynamical heterogeneity of undercooled Fe ₇₅ Cu ₂₅ melts with miscibility gap Y. Qi, L. Wang, S. Wang, X. Li and W. Cui (PR China)	962
Phase transition, microstructure, and electrical properties of Ca, Zr, and Sn-modified BaTiO ₃ lead-free ceramics H. Wang and J. Wu (Chengdu, PR China)	969
The elastic and thermodynamic properties of ZrMo ₂ from first principles calculations X.-K. Liu, W. Zhou, Z. Zheng and S.-M. Peng (Mianyang, China).....	975

The effect of modified interfaces on the mechanical property of β -silicon nitride whiskers reinforced Cu matrix composites J. Yin, D. Yao, Y. Xia, K. Zuo and Y. Zeng (Shanghai, China)	983
Response of MoS ₂ nanosheet field effect transistor under different gas environments and its long wavelength photoresponse characteristics X. Wang (Jinhua, China), S. Yang (Beijing, China), Q. Yue (Changsha, China), F. Wu (Jinhua, China) and J. Li (Jinhua, Beijing, China)	989
Field-cooled and zero-field cooled magnetoresistance behavior of Ni ₂ Mn _{1+x} In _{1-x} alloys S. Singh (Kolkata, India), I. Glavatskyy (Berlin, Germany) and C. Biswas (Kolkata, India)	994
New cobalt-based intermetallic compound Co ₂ VMn with B2 structure and phase equilibria in the Co–V–Mn ternary system J.J. Ruan, C.P. Wang, S.Y. Yang (Xiamen, PR China), R. Kainuma (Sendai, Japan) and X.J. Liu (Xiamen, PR China)	998
Structural, optical band gap, microwave dielectric properties and dielectric resonant antenna studies of Ba _(1-x) La _(2x/3) ZrO ₃ (0 ≤ x ≤ 0.1) ceramics A. Bisen, A. Satapathy (Ranchi, India), S. Parida (Bhubaneswar, India), E. Sinha, S.K. Rout (Ranchi, India) and M. Kar (Patna, India)	1006
Influence of Zr and nano-Y ₂ O ₃ additions on thermal stability and improved hardness in mechanically alloyed Fe base ferritic alloys H. Kotan (Meram, Turkey), K.A. Darling (USA), R.O. Scattergood and C.C. Koch (Raleigh, USA)	1013
Effect of Zr, V and Ti on hot compression behavior of the Al–Si cast alloy for powertrain applications S.K. Shaha (Toronto, Canada), F. Czerwinski, W. Kasprzak (Hamilton, Canada), J. Friedman and D.L. Chen (Toronto, Canada)	1019
Two-step optical annealing effects on spin-coated InAl-doped ZnO thin films S.-U. Park and J.-H. Koh (Seoul, Republic of Korea)	1032
Hexagonal-cone like of Fe ₅₀ Co ₅₀ with broad frequency microwave absorption: Effect of ultrasonic irradiation time H. Lv, G. Ji, M. Wang, C. Shang, H. Zhang and Y. Du (Nanjing, PR China)	1037
Growth, structural and magnetic characterization of Al-substituted barium hexaferrite single crystals D.A. Vinnik, D.A. Zherebtsov, L.S. Mashkovtseva (Chelyabinsk, Russia), S. Nemrava, M. Bischoff (Stuttgart, Germany), N.S. Perov (Moscow, Kaliningrad, Russia), A.S. Semisalova (Moscow, Russia), I.V. Krivtsov (Chelyabinsk, Russia), L.I. Isaenko (Novosibirsk, Russia), G.G. Mikhailov (Chelyabinsk, Russia) and R. Niewa (Stuttgart, Germany)	1043
Temperature dependence of diffuse satellites in Ti–(50 – x)Pd–xFe (14 ≤ x ≤ 20 (at. %)) alloys M. Todai, T. Fukuda and T. Kakeshita (Suita, Japan)	1047
Large scale synthesis of TiO ₂ –carbon nanocomposites using cheap raw materials as anode for lithium ion batteries T. Tao, L. He, J. Li (Yinchuan, China) and Y. Zhang (Yongchuan, China)	1052
Impacts of both high pressure and Te–Se double-substituted skutterudite on the thermoelectric properties prepared by HTHP H. Sun, X. Jia, L. Deng, P. Lv, X. Guo, B. Sun, Y. Zhang, B. Liu and H. Ma (Changchun, China)	1056
Keywords	I