

MU
J 80/2ac



Volume 563

25 June 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.[®]

Hydrogen storage properties and thermal stability of amorphous Mg ₇₀ (RE ₂₅ Ni ₇₅) ₃₀ alloys H.-x. Chen, Z.-m. Wang, H.-y. Zhou, C.-y. Ni, J.-q. Deng and Q.-r. Yao (Guilin, China)	1
Synthesis and characterization of NiFe ₂ O ₄ nanoparticles and nanorods P. Sivakumar (Chennai, India), R. Ramesh (Kancheepuram, India), A. Ramanand (Chennai, India), S. Ponnusamy and C. Muthamizhchelvan (Kancheepuram, India)	6
Adiabatic to non adiabatic change in conduction mechanism of Zn doped La _{0.67} Sr _{0.33} MnO ₃ perovskite H. Ahmed, S. Khan, W. Khan, R. Nongjai and I. Khan (Aligarh, India)	12
The electronic and optical properties of quaternary B _x Ga _{1-x} As _{1-y} Sb _y alloys with low boron concentration: A first-principles study Q. Wang, Y. Yan, X. Ren, W. Shu, Z. Jia, X. Zhang and Y. Huang (Beijing, China)	18
Er ³⁺ -doped strontium lithium bismuth borate glasses for broadband 1.5 μm emission – Structural and optical properties D. Rajesh, Y.C. Ratnakaram and A. Balakrishna (Tirupati, India)	22
Magnetocaloric effect in the vicinity of second order antiferromagnetic transition of Er ₂ Mn ₂ O ₇ compound at different applied magnetic field N. Ben Amor, M. Bejar, E. Dhahri (Université de Sfax, Tunisia), M.A. Valente (Aveiro, Portugal), J.L. Garden and E.K. Hlil (Grenoble Cedex, France)	28
Enhanced electrochemical performance of LiFePO ₄ /C cathode material modified with highly conductive TiN C. Liu, J. An, R. Guo, Y. Li and L. Liu (Tianjin, China)	33
Synthesis, characterization and performance of Cd _{1-x} In _x Te compound for solar cell applications A.Y. Shenouda, M.M. Rashad (Cairo, Egypt) and L. Chow (Orlando, USA)	39
The effect of post-deformation aging on superelastic properties of Ni _{50.5} Ti thin wires attaining micro and nano-substructure V. Abbasi-Chianeh (Urmia, Tabriz, Iran), J. Khalil-Allafi and K. Kazemi-choobi (Tabriz, Iran)	44
Giant converse magnetoelectric effect of AlN-(Fe ₉₀ Co ₁₀) ₇₈ Si ₁₂ B ₁₀ thin film composites B. Tong, X.F. Yang, J. Ouyang, G.Q. Lin and S. Chen (Hubei, China)	51
Effect of tension on corrosive and thermal properties of Cu ₆₀ Zr ₃₀ Ti ₁₀ metallic glass W.K. An (Yueyang, PR China), A.H. Cai (Yueyang, Changsha, PR China), X. Xiong, Y. Liu (Changsha, PR China), G.J. Zhou, Y. Luo, T.L. Li and X.S. Li (Yueyang, PR China)	55
Evolution of magnetism in LuFe _x Al _{12-x} (4 ≤ x ≤ 6) single crystals D.I. Gorbunov (Prague, Czech Republic, Ekaterinburg, Russia), A.V. Andreev, S. Daniš and J. Pospíšil (Prague, Czech Republic)	63
Morphology and growth mechanism of gallium nitride nanotowers synthesized by metal–organic chemical vapor deposition J. Cui, H. Xiao, J. Liu, C. Luan, Z. Ji and H. Pei (Jinan, China)	72
Synthesis and applications of phase-pure (Ba _{0.3} Sr _{0.7})(Zn _{1/3} Nb _{2/3})O ₃ nanoparticles via the sol-gel technique L. Yang and F. Shi (Jinan, PR China)	77
Low Fe-doped Bi ₂ O ₃ photocatalyst with long wavelength response: Crystalline transition and mechanisms by first-principles calculation Y. Dai and L. Yin (Beijing, PR China)	80
Pseudobinary eutectics in Cu–Ag–Ge alloy droplets under containerless condition Y. Ruan (Xi'an, People's Republic of China, Cambridge, USA), X.J. Wang and X.Y. Lu (Xi'an, People's Republic of China)	85
The effects of CNTs and/or Si additions on the structure and magnetic properties of SmCo ₇ -based alloys J.-B. Sun, S.-J. Bu, H.-W. Ding, C.-X. Cui, W. Yang and L. Zhang (Tianjin, People's Republic of China)	91
Deep ultraviolet detecting property of Al _x Zn _{1-x} O alloy thin film as photocathode layer X.-R. Deng, H. Deng and M. Wei (Chengdu, People's Republic of China)	99
Photocatalytic degradation of methyl orange using α-Bi ₂ O ₃ prepared without surfactant S. Iyyappushpam, S.T. Nishanthi and D. Pathinettam Padiyan (Tirunelveli, India)	104

Nanometer scale p-type Schottky barrier metal-oxide-semiconductor field-effect transistor using platinum silicidation through oxide technique combined with two-step annealing process	108
H.-J. Yun (Jeonju, Daejeon, Republic of Korea), M. Jang (Daejeon, Republic of Korea), S.-J. Choi (Berkeley, United States), Y.-B. Lee (Jeonju, Republic of Korea), K.-S. Ahn (Gyeongsan, Republic of Korea) and C.-J. Choi (Jeonju, Republic of Korea)	
Cathodoluminescence of In doped ZnS nanostructures grown by vapor-solid method	113
B. Sotillo, P. Fernández and J. Piqueras (Madrid, Spain)	
Metal-insulator transition in Na-doped post-spinel CdRh ₂ O ₄	119
X. Wang (Ibaraki, Hokkaido, Japan), Y. Guo, Y. Sun (Ibaraki, Japan) and K. Yamaura (Ibaraki, Hokkaido, Japan).	
Microstructure and electrical properties of XInZnO (X = Ti, Zr, Hf) films and device performance of their thin film transistors—The effects of employing Group IV-B elements in place of Ga	124
M.R. Moon, H. Jeon, S. Na, S. Kim, D. Jung, H. Kim and H.-J. Lee (Suwon, Republic of Korea).	
Predictable magnetocaloric effect in the Ce ₂ Fe _{17-x} Mn _x H _y hydrides	130
W. Jwasieczko (Wroclaw, Poland) and A.G. Kuchin (Ekaterinburg, Russia)	
Microstructure evolution and FEM analysis of a [011] oriented single crystal nickel-based superalloy during compressive creep	135
S.G. Tian, Z.G. Guo (Shenyang, China), H.C. Yu (Beijing, China), Y.C. Xue, S. Zhang, Y. Su and F.L. Meng (Shenyang, China).	
Solidification and solid state phenomena during TLP bonding of IN718 superalloy using Ni–Si–B ternary filler alloy	143
M. Pouranvari, A. Ekrami and A.H. Kokabi (Tehran, Iran)	
Influence of warm pre-stretching on microstructure and properties of AZ31 magnesium alloy	150
H. Zhang (Chongqing, China, Trondheim, Norway), G. Huang, J. Li, L. Wang (Chongqing, China) and H.J. Roven (Trondheim, Norway)	
Fabrication and influence of sintering temperature on material properties of Mn/Y codoped Ba _{0.67} Sr _{0.33} TiO ₃ ceramics via using citrate-nitrate combustion derived powder	155
D. Yan (Chengdu, Mianyang, China), Z. Xu, X. Chen, D. Xiao (Chengdu, China), X. Lai (Mianyang, China) and J. Zhu (Chengdu, China).	
Effects of alignment on the magnetic and mechanical properties of sintered Nd–Fe–B magnets	161
X.G. Cui, C.Y. Cui, X.N. Cheng, X.J. Xu (Zhenjiang, PR China), T.Y. Ma, M. Yan (Hangzhou, PR China) and C. Wang (Fuzhou, PR China).	
Synthesis of Mg–Al ₂ O ₃ nanocomposites by mechanical alloying	165
J. Liu, C. Suryanarayana (Orlando, USA), D. Ghosh, G. Subhash (Gainesville, USA) and L. An (Orlando, USA).	
Preparation of Cu–Ni–Fe alloy coating and its evaluation on corrosion behavior in 3.5% NaCl solution	171
Q. Zhou, J. Jiang, Q. Zhong, Y. Wang, K. Li and H. Liu (Shanghai, PR China).	
Preparation and characterization of TiO ₂ doped and MgO stabilized Na–β''-Al ₂ O ₃ electrolyte via a citrate sol-gel method	176
S.-J. Shan, L.-P. Yang, X.-M. Liu, X.-L. Wei, H. Yang and X.-D. Shen (Jiangsu, China)	
Electrochemical testing of laser treated bronze surface	180
B.S. Yilbas, I.-u. Toor, J. Malik, F. Patel (Dhahran, Saudi Arabia) and C. Karatas (Ankara, Turkey).	
Anode properties and morphology evolution of three-dimensional lithium-ion battery electrodes comprising Ni-coated Si microchannel plates	186
F. Wang, S. Zhu, M. Li, X. Lou, K. Hui, S. Xu, P. Yang, L. Wang, Y. Chen (Shanghai, China) and P.K. Chu (Hong Kong, China)	
Martensitic transformation in Pd doped FeRh exhibiting a metamagnetic transition	192
T. Fukuda and T. Kakeshita (Osaka, Japan)	
Study of structure, microstructure and giant magnetoresistance in nanogranular FeCuAg thin films with wide concentration range	197
S. Rout and M. Senthil Kumar (Mumbai, India).	
Designs for miniaturization of bending actuator utilizing hydrogen storage alloy	203
A. Kagawa, K. Taniguchi and M. Yamamoto (Nagasaki, Japan)	
Band gap engineering of tandem structured CIGS compound absorption layer fabricated by sputtering and selenization	207
S. Kang, R. Sharma, J.-K. Sim and C.-R. Lee (Jeonju, Republic of Korea)	
Fabrication of carbon nanotube reinforced Al composites with well-balanced strength and ductility	216
X. Yang, E. Liu, C. Shi, C. He, J. Li, N. Zhao (Tianjin, China) and K. Kondoh (Osaka, Japan)	
Evolution of lattice defects, disordered/ordered phase transformations and mechanical properties in Ni–Al–Ti intermetallics by high-pressure torsion	221
K. Edalati, T. Daio, Z. Horita (Fukuoka, Japan), K. Kishida and H. Inui (Kyoto, Japan)	
Synthesis and photovoltaic performance of reduced graphene oxide–TiO ₂ nanoparticles composites by solvothermal method	229
W. Shu, Y. Liu, Z. Peng, K. Chen, C. Zhang and W. Chen (Wuhan, PR China)	
X-ray diffraction studies on cold-rolled/solid-solution treated α+β Mg–10.2Li–1.2Al–0.4Zn alloy	234
S.K. Wu, Y.H. Li, K.T. Chien, C. Chien and C.S. Yang (Taipei, Taiwan)	
Theoretical investigations on the magnetocaloric and barocaloric effects in Tb _y Gd _(1-y) Al ₂ series	242
P.O. Ribeiro, B.P. Alho, T.S.T. Alvarenga, E.P. Nóbrega (Brazil), A.Magnus G. Carvalho (São José dos Campos, Duque de Caxias, Brazil), V.S.R. de Sousa, A. Caldas, N.A. de Oliveira and P.J. von Ranke (Rua São Francisco Xavier, Brazil)	
Low temperature performance of LiFePO ₄ cathode material for Li-ion batteries	249
W. Chang, S.-J. Kim (Seoul, Republic of Korea), I.-T. Park (Busan, Republic of Korea), B.-W. Cho, K.Y. Chung (Seoul, Republic of Korea) and H.-C. Shin (Busan, Republic of Korea)	
Influence of the indium concentration on microstructural and electrical properties of proton conducting NiO–BaCe _{0.9-x} In _x Y _{0.1} O _{3-δ} cermet anodes for IT-SOFC application	254
M. Zunic (Araraquara, Brazil, Belgrade, Serbia), G. Brankovic (Belgrade, Serbia), C.R. Foschini, M. Cilense, E. Longo and J.A. Varela (Araraquara, Brazil)	

Superconductivity and mechanical properties for LaFe _{1-x} Zn _x AsO _{0.85} F _{0.15}	261
Y. Pei (Beijing, China), D. Berardan, N. Dragoe, C. Barreteau (Orsay, France), J. Sui (Harbin, China) and L.-D. Zhao (Orsay, France).....	261
Superior electrode performance of LiFePO ₄ /C composite prepared by an <i>in situ</i> polymerization restriction method	264
J. Chen, Y.-C. Zou (Changchun, PR China), F. Zhang (Dalian, PR China), Y.-C. Zhang, F.-F. Guo and G.-D. Li (Changchun, PR China).....	264
In situ oxidation of Ag/ZnO by bromine water to prepare ternary Ag–AgBr/ZnO sunlight-derived photocatalyst	269
Q. Zhang, C. Tian, A. Wu, Y. Hong, M. Li and H. Fu (Harbin, PR China)	269
Optical constants and fitted transmittance spectra of varies thickness of polycrystalline ZnSe thin films in terms of spectroscopic ellipsometry	
E.R. Shaaban (Assiut, Egypt).....	274
Electron beam induced nanostructures and band gap tuning of ZnO thin films	
K. Siraj (Lahore, Pakistan), K. Javaid (Lahore, Faisalabad, Pakistan), J.D. Pedarnig, M.A. Bodea (Linz, Austria) and S. Naseem (Lahore, Pakistan)	280
Enhanced thermoelectric performance in <i>n</i> -type Bi ₂ Te _{2.994} Cl _{0.006} /In ₂ Te ₃ composite	285
Y. Zhai, T. Zhang, Y. Xiao, J. Jiang, S. Yang and G. Xu (Ningbo, China)	285
Structure, magnetic properties and magnetostriction in NdFe _{1.9} bulk nanocrystalline alloys	
Y.G. Shi, C.C. Hu, X.G. Zhou, J.Y. Fan, D.N. Shi, L.Y. Lv and S.L. Tang (Nanjing, China)	289
Crystalline α -Sm ₂ S ₃ nanowires: Structure and optical properties of an unusual intrinsically degenerate semiconductor	
C.M. Marin (Lincoln, United States), L Wang (Omaha, United States), J.R. Brewer (Lincoln, United States), W.-N. Mei (Omaha, United States) and C.L. Cheung (Lincoln, United States)	293
Nanocrystalline SnO ₂ thin films: Structural, morphological, electrical transport and optical studies	
R.D. Sakhare, G.D. Khuspe, S.T. Navale, R.N. Mulik, M.A. Chougule (Solapur, India), R.C. Pawar, C.S. Lee (Ansan, South Korea), S. Sen (Mumbai, India) and V.B. Patil (Solapur, India)	300
Keywords.....	I