Table of contents

Preface xv

Metallic material

Microstructure and mechanical properties of AZ61 alloy with Sm
H.X. Zhu, Q.A. Li, Q. Zhang & J. Chen 3

Effect of TiC addition on microstructure and mechanical properties of Ti(C, N)-based cermets

Thermal simulation of a net-like microstructure in weld joint of high-strength steel thick plate by Double-Sided Arc Welding
D.Y. Li, X.D. Yi, Y.Z. Li, D.Q. Yang & G.J. Zhang 11

Weld formation on overhead position for thick plate of high-strength low-alloy steel by Double-Sided Arc Welding
D.Y. Li, X.D. Yi, D.Q. Yang & G.J. Zhang 19

Approaches for predicting the temper embrittlement tendency
S.H. Zhang, Y.L. Lv & Y. Tan 25

Numerical simulating of plate cold rolling with higher mismatch of work roller velocities
J.B. Zhang 31

Structure transition of Metal-Organic Framework-5 induced by copper doping

Simulation about mold polishing pattern and test research

Effect of inclusions on the corrosion resistance of low carbon steel in acid solution with high chloride concentration
S. Chen & G.M. Li 47

The site preference of 4d elements in ω-Ti: The computer simulation research
J.Q. Niu & Z.R. Liu 53

Research progress of laser cladding on surface of titanium alloy
T.G. Zhang & R.L. Sun 57

Process control of 7075 Al alloy semi-solid slurry by thixoforming
S.D. Gan, G.S. Gan, H.S. Wang & G.Q. Meng 63

Ni-Cu alloy anode material prepared with hard template method
H.X. You, C. Zhao, B. Qu, Y.J. Guan, J.W. Xu, G.Q. Guan & A. Abudula 67

Texture and mechanical behavior of Mg-12Gd-3Y-0.5Zr alloy processed by ECAP

Effect of Sn on thermal stability and Glass Forming Ability of Fe-based amorphous alloy
Q. Fu, M.X. Fu, C. Hu, C. Wang & T. Li 79

Effect of laser processing parameters on the quality of Ni60+Ni/MoS2 laser clad layer on titanium alloy surface
M. Fan & R.L. Sun 85
The optimization of the fake porthole die design for aluminum extrusion process
C.T. Sun
Comparisons of aluminum extrusion process with fake porthole die structure and ordinary
die structure
X.M. Sun
Effect on the micro-structure and properties of AM60B co-doped with rare earth
Y.Q. Yu, Y. Li & J.J. Yang

Chemical material

Research on efficient chlorine removing agents
T. Zhang, S.Z. Wang, C.H. Dong & L. Han
Synthesis, structure characterization and magnetic property of \( (Mg_{1-x}Fe_x)(Al_{0.5Cr_{1.6}Fe_{1.5}})O_3 \)
spinel solid solution
X.R. Wu, C. Chen, H.H. Lü & L.S. Li
Removal of BPA through a goethite-photocatalyzed fenton-like reaction with
the enhancement of oxalic acid
T. Li, G.S. Zhang & P. Wang
Investigation on the phase stability and thermal conductivity of Sc2O3, Y2O3 co-doped
ZrO2 coatings
H.F. Liu, X. Xiong, Y.L. Wang & X. Chen
Investigation of the effectiveness of a chemical dispersant under different mixing conditions
J. Sun, C.C. Zhao, Z.J. Xie & G.B. Xu
Absorption of NO into aqueous coal slurry with added FeII(EDTA) in the presence of SO2
W.S. Sun, J. Y. Chen, J.M. Zhou & F. Pan
Overview and analysis of partial-nitrification control technology and its application
R.M. Liu, J.C. Chen & L.H. Zang
Solvent extraction of iron (III) from acid chloride solutions by Triocylamine and Decanol
X.H. Mao
Preparation of porous bismuth oxide by sol-gel method using citric acid
Z.S. Jiang & Y.J. Wang
Synthesis of spherical SrCO3 powders by hydrothermal method
S.X. Wang & X.W. Zou
The adsorption performance of sodium nitrate for vermiculite, perlite and ceramsite
Performance of Flame Retardant Hexakis (4-Aminophenoxy) Cyclotriphazene on wool fabrics
L.L. Liu, W. Wang & D. Yu
The application of eco-friendly formaldehyde-free fixing agent on cotton fabric
X.P. Pei, J.X. He, J.L. Yao & X. Dong

Composite material

Progressive failure simulation of composite snowboard bolted joints based
on the energy damage evolution
R.K. Zhang
The preparation and electrical properties of CB/UHMWPE composites
H.J. Wang & H.L. Hu

Preparation and performance of ceramifying EPDM rubber composite
Y. Pei, Y. Qin, X. Zhang & Z.X. Huang

X. Wang, J.Y. Huang, J. Zhang, X.J. Wang & J.F. Zhao

Adsorption behavior of ACF/CNT composites for Cr (VI) from aqueous solution
L.P. Wang, M.Y. Zhang, Q.Z. Huang, Z.C. Huang & X.P. Long

Metal organic framework-derived ZnO/C composite for photocatalytic oxidative degradation
Y.R. Guo, W. Chang & W. Zhang

Study on the microstructure and properties of PTFE particles/Ni-based alloy composite coatings
Y.X. Shang & X.M. Zhang

Effect of Ope-POSS on glass transition temperature of PU hybrid composites
R. Pan, L.L. Wang & Y. Liu

Synthesis and structural characterization of a new Ca (II) complex with 2-Formyl-benzenesulfonate-thiosemicarbazide ligand
H. Zou

Construction material and technology

Experimental study on mechanical behavior of concretes with sea sand and sea water
L. Xing

Research on civil construction technology in architectural engineering
F.F. Yang

Coal mining on the analysis of the impact of building damage
C.L. Huang

Post-earthquake dynamic stability reanalysis of Shapai arch dam abutment

Constructing healthy building's outside environment base on CPTED theories
K.Q. Wang & J.Y. Wang

Technical feasibility study of unfired brick with coal gangue at the Wulanmulun site, Inner Mongolia, China
Z.B. Yu, H.T. Peng, Y.D. Zhu, J. Li, Q. Zhao, M.H. You & X.P. Zhang

Life cycle assessment of the concrete prepared by pulverized fly ash
C. Song & H. Shi

Influence of subway tunnel lining concrete after sodium nitrate corrosion by strength curve
C.Z. Sun, J.K. Zhang & T.T. Sang

Degradation model and security analysis of hangers of suspension bridge
J.H. Li & J.Z. Wang

Research on the dam deformation forecast model based on material properties
F.M. Lu & T.Y. Jiang

Research on the slaking deformation of earth-rock dam based on the Duncan-Chang’s Eb Model
X.C. Jiang & Y.Q. Li

Measurement and analysis of the performance of the main ventilators of east one shaft in the Yaoqiao coal mine
G.Y. Cheng, J. Cao, S. Feng, Y. Cheng & H. Wang
Temperature crack control of the linear accelerator mass concrete
G.C. Yan & Z.X. Ma

Nanomaterial and nanotechnology

Immobilization of GOD on fluorescent SiO$_2$ nanoparticles
K. Li, H.C. Liu, J. Huang & L.Y. Ding

Adsorption of oil contamination on water surface with nanoscale MoS$_2$ powder and MoS$_2$ self-reclamation and reutilization
X.H. Li, P. Wang, B.S. Lv, J. He & S. Xiao

A facile method for the preparation of hollow mesoporous organic silica nanospheres
J. Li, Z.H. Liu, L.X. Chen, X. Li, C.C. Zhang & J. Zhang

Chitosan coated magnetic nanoparticles for extraction and analysis trace-level perfluorinated compounds in water solution coupled with UPLC-MS/MS
Y.H. Wang, L.F. Hu, W. Jiang, Y. Nie, C. Hong & G.H. Lu

Crystallization and mechanical properties of Multi-Walled Carbon Nanotubes modified polyamide 6
X.T. Chen, H.J. Liu & X.Y. Zheng

Fabrication and photocatalytic performance of Fe$_3$O$_4$@SiO$_2$@BiOCl magnetic nanocomposite
D.H. Cui, Y.Y. Li, X.D. Ruan, X.C. Song & Y. Zhang

Synthesis of nanosilver conductive ink for flexible circuit on cotton fabric substrate

Ecological toxicity of engineered nano materials to the organisms in the environment
X.F. Cao & L.P. Liu

Research on the preparation and activity of BiOBr-TiO$_2$ nanobelt heterostructured photocatalyst with high visible light responsive activity
Y.H. Ao, J.L. Xu, P.F. Wang & C. Wang

Biosynthesis of cadmium sulfide nanoparticles using Desulfovibrio desulfuricans
J. Gong, X.M. Song, Y. Gao, S.Y. Gong, Y.F. Wang & J.X. Han

Material behavior

Structural dynamic analysis on idealized joint model in portal crane
D.Q. Zhou, X.H. Cao & P. Yu

Stress concentration factors for the multi-planar tubular Y-joints subjected to axial loadings
B. Wang, N. Li, X. Li & Y. Li

Effect of dry friction structures on stator blade
J.H. Xie, H. Wu, R.S. Yuan & Z.Y. Zhang

Microstructure and shear strength of low-silver SAC/Cu solder joints during the thermal cycle
H.S. Wang, G.S. Gan, D.H. Yang, G.Q. Meng & H. Luo

Stress Concentration Factors for the multi-planar tubular Y-joints subjected to in-plane bending loadings
B. Wang, N. Li, X. Li, J.Q. Xu & J.W. Zhang

Influence of bearing materials on elastohydrodynamic lubrication of angular contact ball bearing
B.M. Wang, X.Y. Liao, Z.X. Wu & X.S. Mei

Electronics material and electrical engineering

Electrochemical reduction of CO$_2$ by a Cu/graphene electrode
X. Liu, L.S. Zhu, H. Wang & Z.Y. Bian
First principle study on the electronic structure of NbB and ZrB under pressure
Y.Q. Chai

Facial synthesis hollow hemisphere LiFePO₄ cathode for lithium-ion batteries
Y.H. Luo, N. He, Y.C. Wang, W.G. Cao & F. Pan

Synthesis of Ce-doped zircon ceramics designed to immobilize tetravalent actinides
X.N. Liu, Y. Ding & X.R. Lu

A light and broadband absorber utilizing resistive FSS and metamaterial layer
Y. Shen, Z.B. Pei, H.Y. Yuan, S.B. Qu & Y.Q. Pang

Effect of irradiation on the microstructures, ferroelectric and dielectric properties of P(VDF-TrFE) copolymer films
L. Tian, Y.P. Li, J. Sun & X.H. Zhang

Analysis of stop-band FSS with all dielectric metamaterial

Properties of fly ash used in ceramsite which from the power plant in Luanping county, Hebei province, China

Effect of anionic surfactants with different carbon chain lengths on CO₂ hydrate formation

First-principles calculation of thermoelectric NaCoO₂ bulk
P.X. Lu & X.M. Wang

A new fault-distance algorithm using single-ended quantity for distance relaying
Z.Y. Xu, J.W. Meng, S.P. Li, Y. Wang, Y.C. Qiao & T.B. Zong

Ten meters S-band antenna gain measurement based on sun method

A circular polarization conversion based on multilayer split square ring Frequency Selective Surface
Y. Fan, Y.F. Li, D.Y. Feng, S.B. Qu, J.B. Yu & M.D. Feng

Materials in mechanical process
Research on the large gear detecting system based on LabVIEW
L.M. Hao, X.J. Zhang, B.X. Li, S.F. Li, Y.H. He & R.J. Jia

Analyzing the improved model of the Bourdon tube using a uniform strength cantilever beam FBG pressure sensor
J. Shao, Z.A. Jia, J.H. Liu & X.X. Bai

Chaos synchronization of two Light-Emitting Diode systems with complex dynamics via adaptive H-infinity control
Y. Che, X. Cui, B. Liu, C. Han & M. Lu

Evaluation of low measurement uncertainty for efficiency of three-phase induction motor
F. Li, X.B. Yang, M.J. Shi, Y.X. Zhang & J. Li

Study on multi-cylindrical Magneto-Rheological Fluid Clutch
D.M. Chen, H. Zhang & Q.G. Cai

Pressure-driven flow considering contact angle effect
C. Yang

Error analysis of cam mechanism of translating roller follower
H.W. Zhou

Error analysis and precision estimation of the locating device of welding fixture of rear axle bracket
H.W. Zhou

ix
Study on welding repair process of turbine blade
W.J. Gou, D.J. Meng, L.H. Wang & W. Hu

Requirement analysis research of a new type armored anti-riot vehicle based on QFD and AHP
C.Z. Ma, Y.X. Ling & W.X. Zhang

Experimental study of flow boiling heat transfer deterioration in helical-coiled tube
C.L. Ji, J.T. Han, X.P. Liu & Y.M. Feng

Performance study on a novel design of a jet-inspired horizontal axis tidal stream turbine by a CFD numerical tool
M. Orji, S.Q. Hu, Z. Liang & J. Yan

Hydrolysis of BNPP catalyzed by the copper (II) complex
W. Hu, S.X. Li, W. Ying & J. He

Environmental chemistry and biology

Research of removing nitrate by sulfur-based autotrophic denitrification technology
W.W. Ma, H. Wang, D.Y. Jiao & M.L. Chen

Transmission model of Ebola in the dynamic small-world network
C.C. Liao

Enhanced removal of nutrient by Bio-Film floating bed

Studies on the diversity of Sulfate-Reducing Bacteria in sediments from Baihua Lake with molecular biological techniques

The inhibitory factors of the anammox process
Z.J. Yin, L.H. Zhang & D.D. Ji

Effects of geophagous earthworms Eisenia fetida on sorption of Phthalate Acid Esters to soils
L.L. Ji & L.P. Deng

Inhibitory effects of nisin on Staphylococcus aureus and Xanthomonas
B.G. Zhang, Y.E. Qing, X.T. Wang, G.Q. Zhao & G.H. Hu

Toxicological effects of perfluorooctanoic acid (PFOA) on Daphnia magna
G.H. Lu, B.N. Ma, S. Li & L.S. Sun

Adsorption of rhodamine B onto TiO2-loaded Activated Carbon Fibers

Pollution control

A complete solution of the optimal pollution path
X.X. Yan, J.S. Zhang & S.H. Zou

Pollution characterization of water-soluble anions in TSP and PM_{10} in Wuhan Economic and Technological Development Zone, China
A.H. Li, J.T. Jiang & Q.G. Liu

Heavy metal distribution features and pollution assessment in different grain-size surface sediments at the Yellow River Estuary
S. Lin, M. Cong & X.X. Luo

Assessment of heavy metal pollution and ecological risks for sediments from Baihua Lake, China
M.Y. Fan, H. Yang, Y.M. Lin, X.D. Shi, J.L. Li, L.Y. Li & J.W. Hu

Combustion of biomass and waste materials in the Czech Republic: Determination of mixed emission limits
T. Výtisk & R. Janalík
Identifying sources of heavy metal using the multivariate geostatistical method
D.X. Chen, X.Y. Sui & S.L. Zhou

Cd removal in laboratory scale of unvegetated vertical subsurface flow constructed wetland using mixed substrates
S.X. Gao, J. Ren, J.X. Hao, L. Dai & L. Tao

Experimental research on fine particles removal from flue gas by foaming agglomeration
X. Jiang, C.P. Wang, G. Li & H.Y. Li

Elimination of chaos in a light-emitting diode system with optoelectronic feedback
Y. Qin, B. Liu, X. Wang, C. Han & Y. Che

Water resource and wastewater treatment
Research on removal of residual antibiotics in water
Y. Yu & Y.Q. Lu

Optimization of multiple-tube fermentation for determination of Fecal coliform in medical wastewater

Research progress in High-strength Rare earth Ammonia Wastewater treatment
W.B. Hou, L.H. Wu, W.J. Zhang, Y. Jin & Y. Ye

Water resources analysis and assessment of recent ten years in Tianjin district
M.C. Li, Q. Si & Y. Wang

Study on total amount control of water pollutants in county areas based on pollution receiving red-line
X. Zhang, Z.C. Dong, G.D. Wu & Y.X. Ding

Study on Ion Selective Electrode in ammonia nitrogen monitoring application of water and soil loss
Y. Zhao

Identifying desired groundwater remediation strategies by using PROMETHEE and GAIA methods
L.X. Ren, H.W. Lu, L. He & Z. Wang

The water quality and its pollution sources in Poyang Lake wetlands: A Ramsar site in China
D.M. Xie, Y.M. Zhou & G.H. Jin

Effect of sudden expansion flow on mass transfer performance of tubular electrochemical reactor used for organic wastewater treatment
J. Su, Y.X. Wen, Y.F. Long & H.B. Lin

Pretreatment of ABS resin wastewater by coagulation-dissolved air flotation apparatus
Y. Li, Q.B. Wang & X.W. He

Experimental research on the disposition of overflowing rain sewage in Chongqing through artificial wetland of free aeration waterfall
X.H. Peng, W.B. Wang & Y.Q. Li

Preliminary study on desorption of cadmium from soil using pretreated citric acid industrial wastewater
Y.Y. Gu, G.D. Liu, L.H. Yan, H. An & Y. Wang

Study on preparing ultra-5A molecular sieve and adsorbing phenol in wastewater
J.L. Yang, M.L. Du, C. Chen & C.X. Yu

Photo-Electro-Fenton process for wastewater treatment
X.Q. Wang, L.H. Zang & D.D. Ji

Up-flow hydrolysis reactor as a pretreatment process for treating domestic sewage
J. Li & J. Zhou
The study of geothermal reservoir coupling systems in dual-porosity rock
B. Cui, Y. Duan & M.T. Xu

City development and sustainable city

Primary investigation on the planning and design of urban river landscape
Y. Chen & Y. Wang

Research on the speed limit for highway traffic safety
Q. Cheng & C.J. Zheng

Recycling of industrial solid waste in landscape design
W.J. Zhao, H. Deng & L.Y. Zheng

Ecological town construction strategy based on the analysis of SWOT and AHP:
A case study of Panjin-Dawa
S.T. Ma, H.S. Cui & L.X. Yang

Urban road traffic early warning classification in adverse weather conditions
P.F. Gong

Analysis of the urban heat island effect in Shenyang City
J.L. Wang & Y.T. Ma

The sandstorms and environmental governance of Kaifeng City in the Northern Song Dynasty
H.Q. Li & L.X. Si

Study on the factors of the coastal city impact on economic developing of development zone
Z.X. Sun & T.P. Fu

Ecological environment and sustainable development

A discussion on design method and development trend of eco-architecture
W. Chen

The effect of vegetation restoration on denitrification in Shuangtaizi estuary reed wetland
Y. Zhang, K.R. Li, H.M. Yao, Y.G. Zhao, X. Huang & J. Bai

The ecological factors of arbor forests in saline-alkali soil
W.Z. Huang, Y.J. Qin, J.H. Yang, J.K. Li, W.Q. Gong & B.B. Wang

Distribution features of nitrogen and phosphorus in different grain-size surface sediment
in the Yellow River Estuary
J.J. Chang, Y. Liu & X.X. Luo

Activated carbon impregnated with zirconium hydroxide for toxic chemical removal
L. Li, K. Li, L. Ma & Z.Q. Luan

Research on the resource-constrained government investment multi-project scheduling problems
Y.N. Wu & Y. Ding

Characterization of the sediment pore in Chaohu Lake with a new in situ sampling method
S.F. Wen

China home kitchen waste disposal and recycling way in O2O mode
L.W.J. Zhang, X.Q. Feng & J.J. Wang

Comparison of non-linear models for determining the growth rhythm of stem height
in Populus deltoides seedlings
Q.Y. Ma, J. Hou, C.M. Qian & S.X. Li

Power engineering and green energy

Considering the economic benefits of wind power planning in power system
Y.D. Ling & W.X. Liu
Innovation of the Chinese photovoltaic enterprises business model  
L. Yang

Chaotic differential evolution algorithm for low-carbon power dispatch with wind power integration  
B. Cao, R.Z. Wang & J.H. Zhang

Study on the application of green energy-saving technology in the civil construction environment  
W. Wu

Research on the credit rating model of energy contract management mode in power grid enterprises  
Y.N. Wu, M. Yang & K.F. Chen

A real-time failure model for transmission lines considering healthy index  
P.J. Shi, Y.B. He, C.X. Guo, H.J. Fu & J.G. Wang

Transmission line maintenance based on the Proportional Hazards Model  
H.J. Fu, J.G. Wang & C.X. Guo

Simulation on erosion surface of transmission line by sand particles based on LS-DYNA software  
G.R. Hua, Y.Y. Guo & W.H. Li

Environmental engineering and technology

Preparation of nanometer Fe-doped SnO₂ photocatalyst and photocatalytic oxidation application in aquaculture wastewater  
X.C. Yu, X.J. Jin, X.L. Shang, Y.Q. Liu, D.N. Yin & G.H. Xue

Adsorption of harmful gases by the activated carbon catalyst impregnated with Pd  
L. Ma, P.W. Ye, L. Li, Z.N. Chen & L.Y. Wang

Anaerobic ammonia oxidation (anammox) technology: A review of application issues  
W.B. Hou, W.J. Zhang, Y. Jin & Y. Ye

Cyclic measurement of the carbon blank value with the carbon/sulfur determinator  
J.H. Wei

Effects of O₃ and drought on the leaf gas exchange parameters of three seedling types in China  
X.L. Hou & L. Xue

Photodynamic effect on Human Esophageal Carcinoma Cell Eca-109 and tissue distribution in vivo of Pyropheophorbide a  
Y. Ye, Y.J. Yan, Z.L. Chen, J.W. Li & D. O'Shea

Active control of transformer noise with adaptive filtering algorithm  
J.B. Liang, T. Zhao, X.H. Zhao, J.Q. Liu, Z.H. Qi & X.H. Li

Apoptosis effect of photosensitizer Hematoporphyrin Monomethyl Ether on human hepatoma cell SMMC-7721  
Y. Ye, Y.J. Yan, Z.L. Chen, J.W. Li & D. Margetić

Author index

xiii