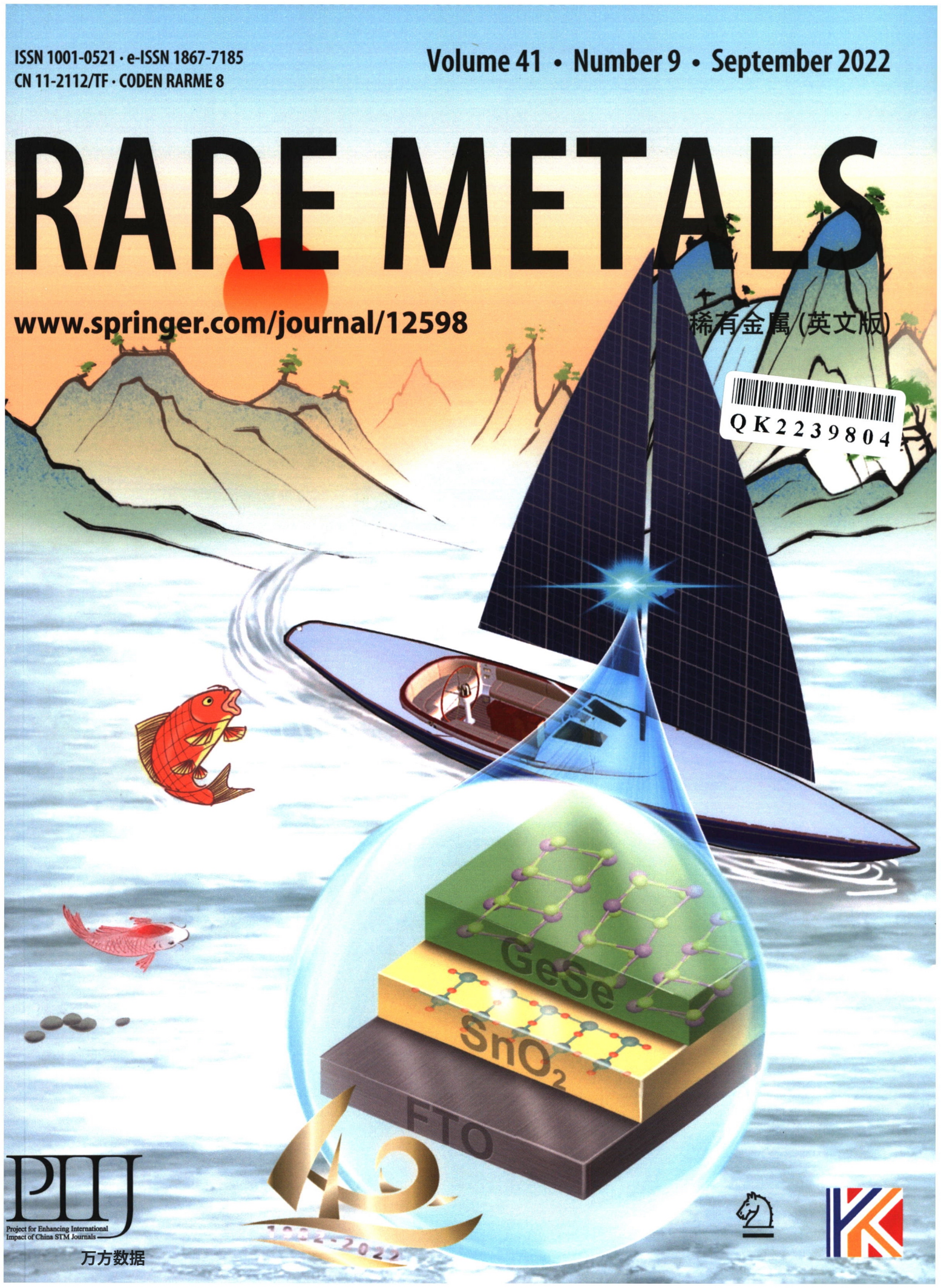
ISSN 1001-0521 · e-ISSN 1867-7185
CN 11-2112/TF · CODEN RARME 8

Volume 41 • Number 9 • September 2022

RARE METALS

www.springer.com/journal/12598

稀有金属(英文版)



RARE METALS (Monthly)

Volume 41 · Number 9 · September 2022

REVIEWS

Magnetic two-dimensional chromium trihalides: structure, properties and modulation
B. Zhang · Y. Zeng · Z.-J. Zhao · D.-P. Qiu · T. Zhang · Y.-L. Hou **2921**

Ferrite-based composites and morphology-controlled absorbers
Y. Mu · Z.-H. Ma · H.-S. Liang · L.-M. Zhang · H.-J. Wu **2943**

MINI REVIEW

Recent advances in transition metal chalcogenides for lithium-ion capacitors
L. Wang · X. Zhang · C. Li · X.-Z. Sun · K. Wang · F.-Y. Su · F.-Y. Liu · Y.-W. Ma **2971**

LETTERS

Metal-organic framework derived porous cathode materials for hybrid zinc ion capacitor
Y. Liu · A. Umar · X. Wu **2985**

Stable GeSe thin-film solar cells employing non-toxic SnO_2 as buffer layer
J.-M. Wu · Y.-P. Lv · H. Wu · H.-S. Zhang · F. Wang · J. Zhang · J.-Z. Wang · X.-H. Xu **2992**

Entropy engineering in $CaZn_2Sb_2$–$YbMg_2Sb_2$ Zintl alloys for enhanced thermoelectric performance
K.-J. Liu · Z.-W. Zhang · C. Chen · L.-H. Wei · H.-L. He · J. Mao · Q. Zhang **2998**

Magnetic soliton confinement and discretization effects in $Cr_{1/3}TaS_2$ nanoflakes
C.-H. Zhang · H. Algaidi · P. Li · Y. Yuan · X.-X. Zhang **3005**

Robust interface-induced unusual anomalous Hall effect in Mn_3Sn/Pt bilayers
J.-J. Liu · K.-K. Meng · J.-K. Chen · Y. Wu · J. Miao · X.-G. Xu · Y. Jiang **3012**

Spontaneous magnetization and magnetic domain texture of strontium hexaferrite in equilibrium state
D. Liu · S.-D. Jiang · L.-C. Wang · R.-S. Liu · M. Zhang · T.-Y. Zhao · F.-X. Hu · J.-R. Sun · B.-G. Shen **3019**

ORIGINAL ARTICLES

Enhanced near-room-temperature thermoelectric performance in GeTe
X.Y. Tan · J.-F. Dong · N. Jia · H.-X. Zhang · R. Ji · A. Suwardi · Z.-L. Li · Q. Zhu · J.-W. Xu · Q.-Y. Yan **3027**

Differentiating structure of in situ and ex situ formation of laser-induced graphene hybrids
L.-B. Huang · W.-H. Guo · L. Cheng · J.-J. Su · Y. Song · F.-J. Hu · Y.L. Law · Z. Yan · J. Lin · R.-Q. Ye **3035**

Au cluster anchored on TiO_2/Ti_3C_2 hybrid composites for efficient photocatalytic CO_2 reduction
Y. Li · Y.-L. Yang · G. Chen · J.-J. Fan · Q.-J. Xiang **3045**

Surface pits stabilized Au catalyst for low-temperature CO oxidation
Y.-F. Cai · C. Fei · C. Zhang · J. Yang · L. Wang · W.-C. Zhan · Y.-L. Guo · X.-M. Cao · X.-Q. Gong · Y. Guo **3060**

Sepaktakraw-like catalyst Mn-doped CoP enabling ultrastable electrocatalytic oxygen evolution at 100 mA·cm^{-2} in alkali media
W.-Y. Fu · Y.-X. Lin · M.-S. Wang · S. Si · L. Wei · X.-S. Zhao · Y.-S. Wei **3069**

Enhanced electron transport through two-dimensional Ti_3C_2 in dye-sensitized solar cells
G. Wang · L.-J. Ma · B.-X. Lei · H. Wu · Z.-Q. Liu **3078**

Development of RuS_2 for near-infrared photodetector by atomic layer deposition and post-sulfurization
T. Nakazawa · D. Kim · J. Kim · Y. Kotsugi · T. Cheon · S.-M. Chung · S.-H. Kim · H. Kim **3086**

Modification of Ti_3C_2 MXene nanosheets with tunable properties using a post-processing method
Z.-H. Chen · Z.-N. Zhang · H.-Q. Zhang · D. Hu · Z.-B. Ye · Y. Zhang · Y. Yu · B.-H. Nie · H.-X. Xi · C.-X. Duan **3100**

Rational design of integrative CNTs@Ge nanotube films as binder-free electrodes for potassium storage
J.-Y. Xie · K. Wang · N.-N. Li · G.-L. Lei · H.-S. Mei · X.-H. Liu · J. Zhang **3107**

Flexible single-electrode triboelectric nanogenerator with MWCNT/PDMS composite film for environmental energy harvesting and human motion monitoring
H. Zhang · D.-Z. Zhang · D.-Y. Wang · Z.-Y. Xu · Y. Yang · B. Zhang **3117**

Facile preparation of Nb_2O_5 microspheres and their excellent electrochemical performance in aqueous zinc-ion hybrid supercapacitors
S.-J. Zhang · H. Chen · Y.-X. Xu · C.-S. An · K.-X. Xiang **3129**

Phase formation and crystallization of $LiMn_xFe_{1-x}PO_4$-C olivine material with different Mn^{2+} contents fabricated at lower calcination temperatures
G.-W. Liu · X.-J. Zhang · S. Gong · D.-P. Jiang · B.-X. Liu · R. Yang · S.-G. Lu **3142**

Elongation of skyrmions by Dzyaloshinskii–Moriya interaction in helimagnetic films
Y.-Y. Dai · H. Wang · T. Yang · A.O. Adeyeye · Z.-D. Zhang **3150**

Skyrmion-(non)crystal structure stabilized by dipolar interaction
M.-X. Sui · Y. Hu **3160**

Enhanced ethanol oxidation over Pd nanoparticles supported porous graphene-doped MXene using polystyrene particles as sacrificial templates
Y.-Z. Chen · M. Zhou · Y.-F. Huang · Y.-Y. Ma · L.-Y. Yan · X.-W. Zhou · X.-Z. Ma · X.-L. Zhao · C. Chen · J. Bai · D.-H. Lin **3170**

Probing intermolecular interactions of ZnO-nanoparticle-reinforced molten energetic material
Q. Ma · S.-M. Wang · M.-P. Wen · B.-H. Zheng · H.-J. Huang **3180**

Temperature gradient driving interdiffusion interface and composition evolution in Ni–Al–Cr alloys
Y.-S. Li · H.-Y. Wang · J. Chen · S.-G. Yang · P. Sang · H.-L. Long **3186**

Corrosion behavior of a novel Mg–13Li–X alloy with different grain sizes by rapid solidification rate
B.-L. Wu · B. Chen · C.-W. Wang · J.-Y. Jiao · Q.-C. Shen · T.-T. Zhou **3197**

Microstructure and mechanical properties of gadolinium- and misch metal-added Mg–Al alloy
L.K. Singh · P. Joseph · A. Srinivasan · U.T.S. Pillai · B.C. Pai **3205**

Annealing and optical homogeneity of large $ZnGeP_2$ single crystal
L.-Q. Cao · B.-J. Zhao · S.-F. Zhu · B.-J. Chen · Z.-Y. He · D.-H. Yang · H. Liu · H. Xie **3214**

Fabrication of porous titanium carbide ceramics by gelcasting process
H. Foratirad · M.G. Maragheh · H.R. Baharvandi **3220**

Preparation and electromagnetic properties of nanosized $Co_{0.5}Zn_{0.5}Fe_2O_4$ ferrite
Y.-W. Liu · J. Zhang · L.-S. Gu · L.-X. Wang · Q.-T. Zhang **3228**

Corrosion and wear resistance behaviors of electroless Ni–Cu–P–TiN composite coating
H.-M. Zhou · Y. Jia · J. Li · S.-H. Yao **3233**

Structure and properties of indium-doped ZnO films prepared by RF magnetron sputtering under different pressures
L.-P. Peng · A.-L. He · L. Fang · X.-F. Yang **3239**

X-ray tomography analysis of aluminum alloy powder compaction
S.-D. Yang · R.-J. Zhang · X.-H. Qu **3244**

Cover Picture
J.-M. Wu et al. Stable GeSe thin-film solar cells employing non-toxic SnO_2 as buffer layer

Further articles can be found at link.springer.com

Instructions for Authors for *Rare Met.* are available at www.springer.com/12598

RARE METALS (Monthly)

Volume 41 • Number 9 • September 2022

Cover story

(Jian-Min Wu, Yan-Ping Lv, Hao Wu*, Hui-Sheng Zhang, Fang Wang, Jun Zhang, Jin-Zeng Wang, Liu Yang, and Xiao-Hong Xu*, pp. 2992–2997)

Stable GeSe thin-film solar cells employing non-toxic SnO_2 as buffer layer

Germanium monoselenide (GeSe) has attracted significant attention recently due to its excellent optoelectronic properties, nontoxicity, and high stability. However, the current best-performance GeSe solar cells usually use toxic CdS as the buffer layer that restricts their practical applications. Herein, non-toxic SnO_2 was firstly introduced to construct environment-friendly SnO_2/GeSe heterojunction solar cells. Benefiting from (110)-plane SnO_2, GeSe film with a preferred [111] orientation was relized, facilitating the carrier transport along in-plane direction. The resulting FTO/SnO_2/GeSe/Au solar cells exhibit a power conversion efficiency of 0.51%, accompanied by excellent light and air stability. This work demonstrates the great potential of SnO_2/GeSe heterojunction solar cells for practical applications.

Edited and Published by Youke Publishing Co., Ltd.
(No. 2, Xinjiekouwai Str., 100088 Beijing, China)
Tel.: +86 10 82241917; Fax:+86 10 82240869
Email: raremetals@grinm.com
Administrator: China Association for Science and Technology
Sponsor: The Nonferrous Metals Society of China
GRINM Group Co., Ltd.
Printer: Beijing Shengpinfengshang Technology Development Co., Ltd., Beijing, China

ISSN 1001-0521
09
9 771001 052220
Price: RMB 300