

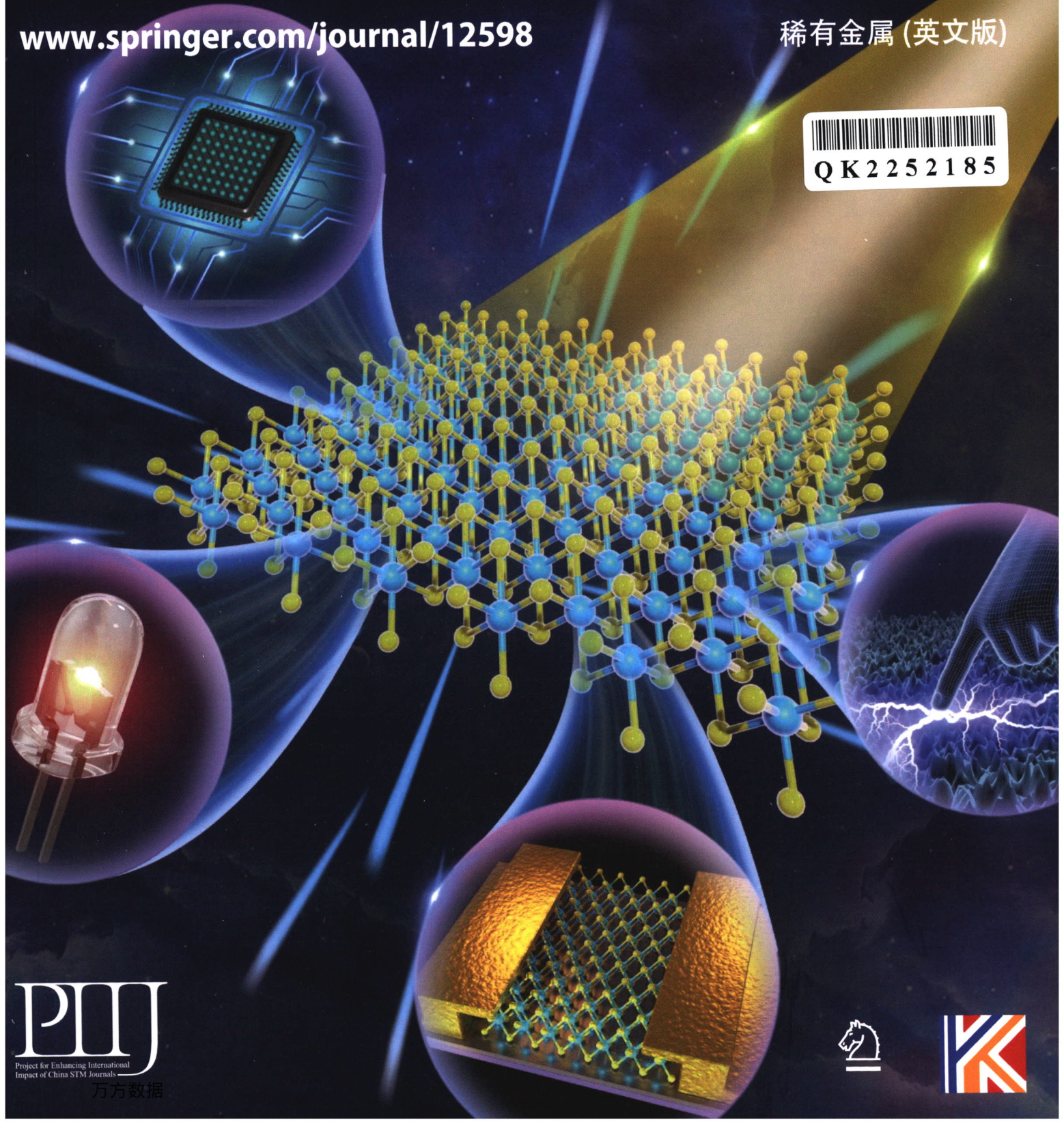
ISSN 1001-0521 · e-ISSN 1867-7185
CN 11-2112/TF · CODEN RARME 8

Volume 42 · Number 1 · January 2023

RARE METALS

www.springer.com/journal/12598

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RARE METALS (Monthly)

Volume 42 • Number 1 • January 2023

Cover story

(Liang-Rui Zou, Dan-Dan Sang, Yu Yao, Xue-Ting Wang, Yuan-Yuan Zheng, Nai-Zhou Wang, Cong Wang, Qing-Lin Wang, pp. 17–38)

Research progress of optoelectronic devices based on two-dimensional MoS₂ materials

MoS₂ is widely used as an optoelectronic material with exceptional electrical, magnetic, optical, and mechanical properties. Owing to the quantum confinement effect, high absorption coefficient, high surface-volume ratio, and tunable bandgap, nano-MoS₂-based devices exhibit size-dependent and novel optoelectronic properties, such as excellent photoluminescence and high anisotropic electrical, mechanical, and thermal properties. This issue focuses mainly on the latest progress of optoelectronic device applications based on two-dimensional (2D) nano-MoS₂. Various advanced devices, such as sensors, photodetectors, light-emitting diodes, memory applications, and field-effect transistors are considered. This issue will provide a new perspective in promoting the development of 2D nanomaterial-based photoelectric applications. The possibility of creating MoS₂/diamond heterojunction devices is put forward, so as to further explore the development of 2D nano-material optoelectronic devices in a complex environment.

Edited and Published by Youke Publishing Co., Ltd.

(No. 2, Xijiekouwai 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

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ISSN 1001-0521



9 771001 052237

Price: RMB 500