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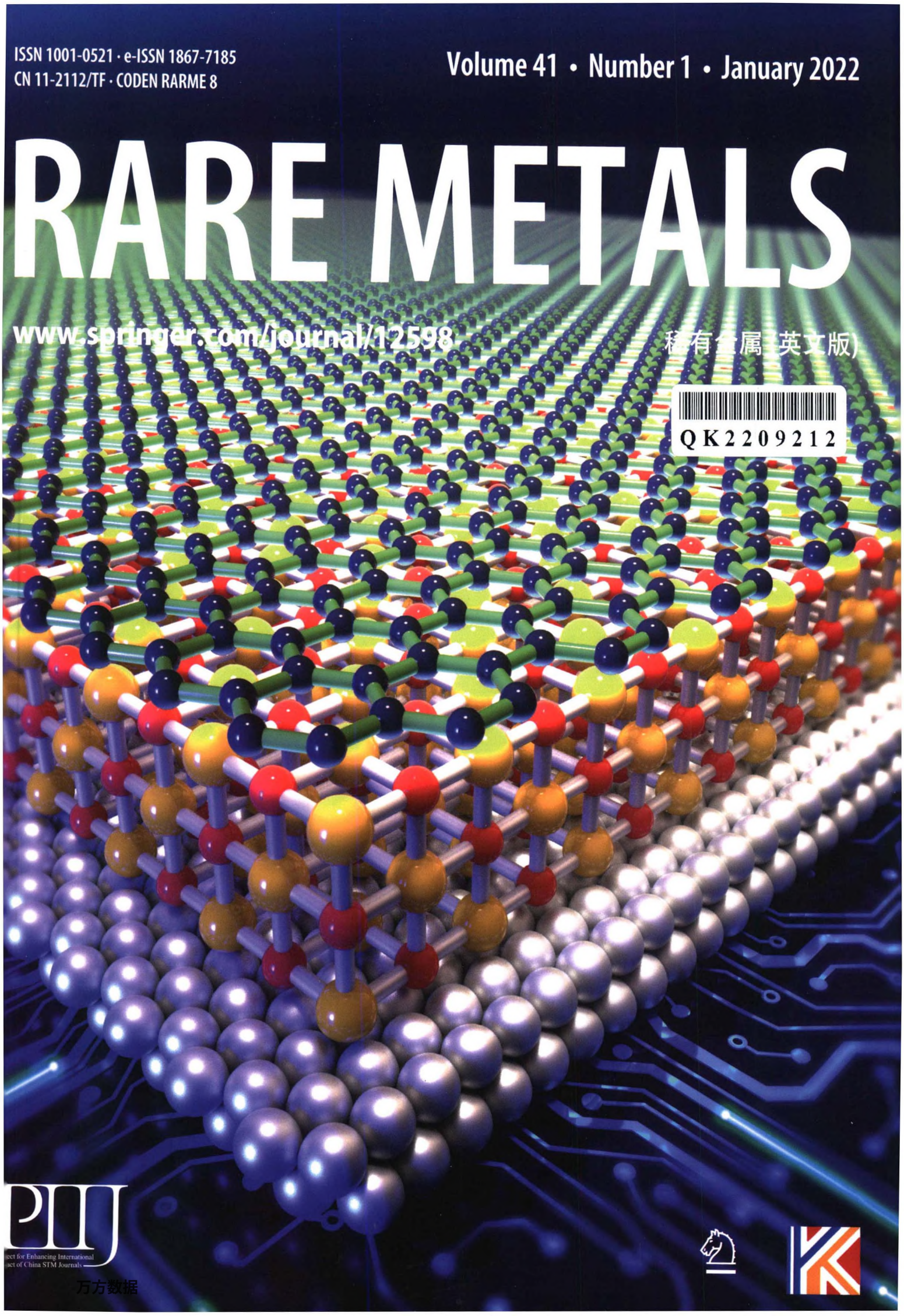

RARE METALS (Monthly)

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Cover Picture
X.-Y. Wang et al. MgO intercalation and crystallization between epitaxial graphene and Ru(0001)

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Cover story

(Xue-Yan Wang, Hui Guo, Jin-An Shi, Yi Biao, Yan Li, Guang-Yuan Han, Shuai Zhang, Kai Qian, Wu Zhou, Xiao Lin, Shi-Xuan Du, Cheng-Min Shen, Hong-Liang Lu* , Hong-Jun Gao,pp. 304–310)

MgO intercalation between graphene and metal substrates for novel electronic devices

The excellent properties of graphene, such as high electron mobility and large spin diffusion length, make it promising for applications in electronic devices. Fabrication of graphene on insulating layers is a key step towards such applications. However, it is still challenging to grow high-quality large-area graphene on insulating layers, especially those with high dielectric constants. In this issue, Wang et al. reported the fabrication of high-quality, large-area, single-crystal graphene on MgO layer by intercalating and oxidizing Mg layer between epitaxial graphene and Ru(0001) substrate. The intercalated MgO has a rock salt structure, with a thickness of up to ~2.3 nm. Since magnesium oxide has a high dielectric constant and can be used as tunnel barrier for spin injection, this work provides a new route to fabricate graphene/MgO/metal heterostructures, which may have potential applications in electronic and spintronic devices based on high-quality graphene.

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