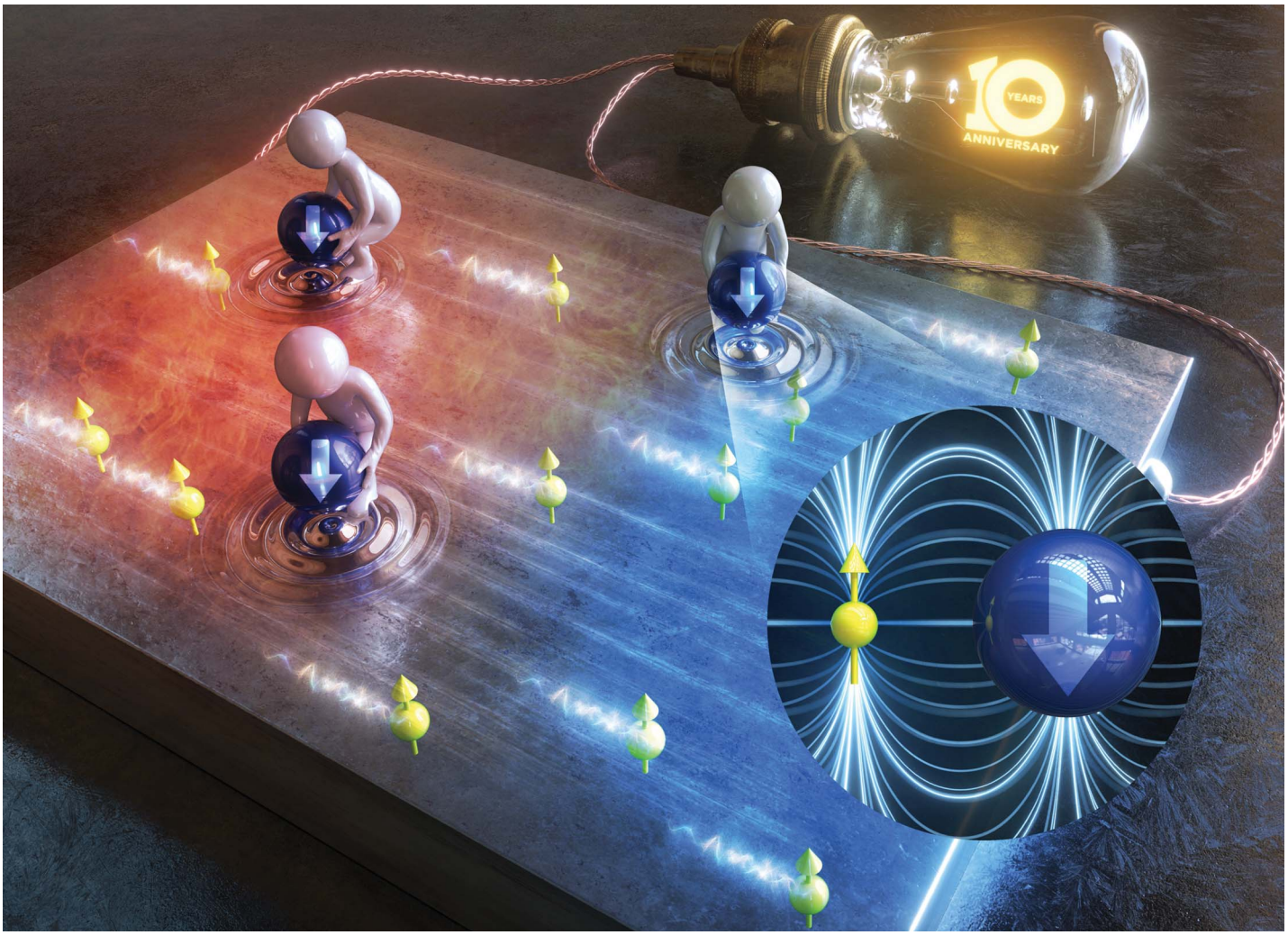
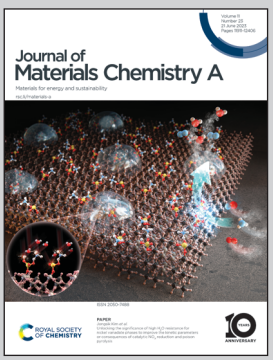


Showcasing research from Professor Hyungyu Jin's laboratory, Department of Mechanical Engineering, Pohang University of Science and Technology (POSTECH), Pohang, South Korea.

Enhancing thermoelectric performance *via* relaxed spin polarization upon magnetic impurity doping

A significant enhancement of the Seebeck coefficient is reported in magnetic-impurity-doped higher manganese silicides (HMS) by virtue of a novel "spin polarization relaxation" mechanism. By doping strong magnetic Fe/Co ions into the HMS matrix, antiferromagnetic couplings between the Fe/Co dopants and host Mn ions are induced. Such magnetic interaction is responsible for the shift of spin-polarized bands in a way to reduce the degree of spin polarization. We demonstrate the relationship between the relaxed spin polarization and the drastic increase of Seebeck coefficient by developing a two-spin-channel transport model.

As featured in:



See Ji Hoon Shim, Hyungyu Jin *et al.*, *J. Mater. Chem. A*, 2023, **11**, 12013.

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