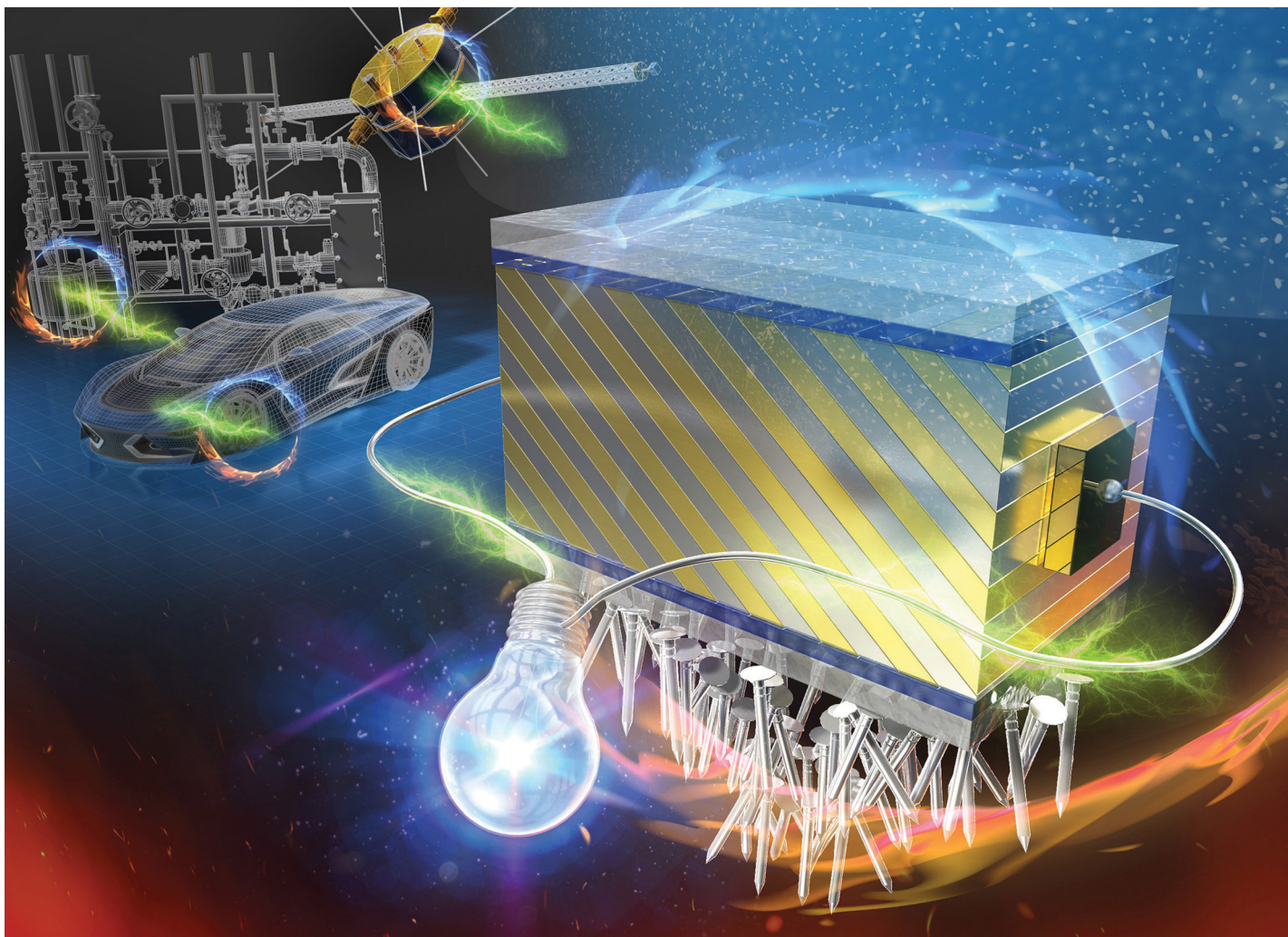




Spin Caloritronics Group, Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba 305-0047, Japan.

Multifunctional composite magnet realizing record-high transverse thermoelectric generation

We have created a novel functional material named “multifunctional composite magnet (MCM)”, which simultaneously exhibits record-high transverse thermoelectric performance and permanent magnet features. Owing to the optimized composite structure and extremely low interfacial electrical and thermal resistivities, the power generation performance of our MCM-based thermopile module is not only record-high among transverse thermoelectric modules but also comparable to that of commercial modules utilizing the Seebeck effect. This multifunctionality will extend application fields of thermoelectrics to everywhere permanent magnets are used.

Image reproduced by permission of Ken-ichi Uchida from *Energy Environ. Sci.*, 2025, **18**, 4068

As featured in:



See Fuyuki Ando,
Ken-ichi Uchida *et al.*,
Energy Environ. Sci., 2025, **18**, 4068.