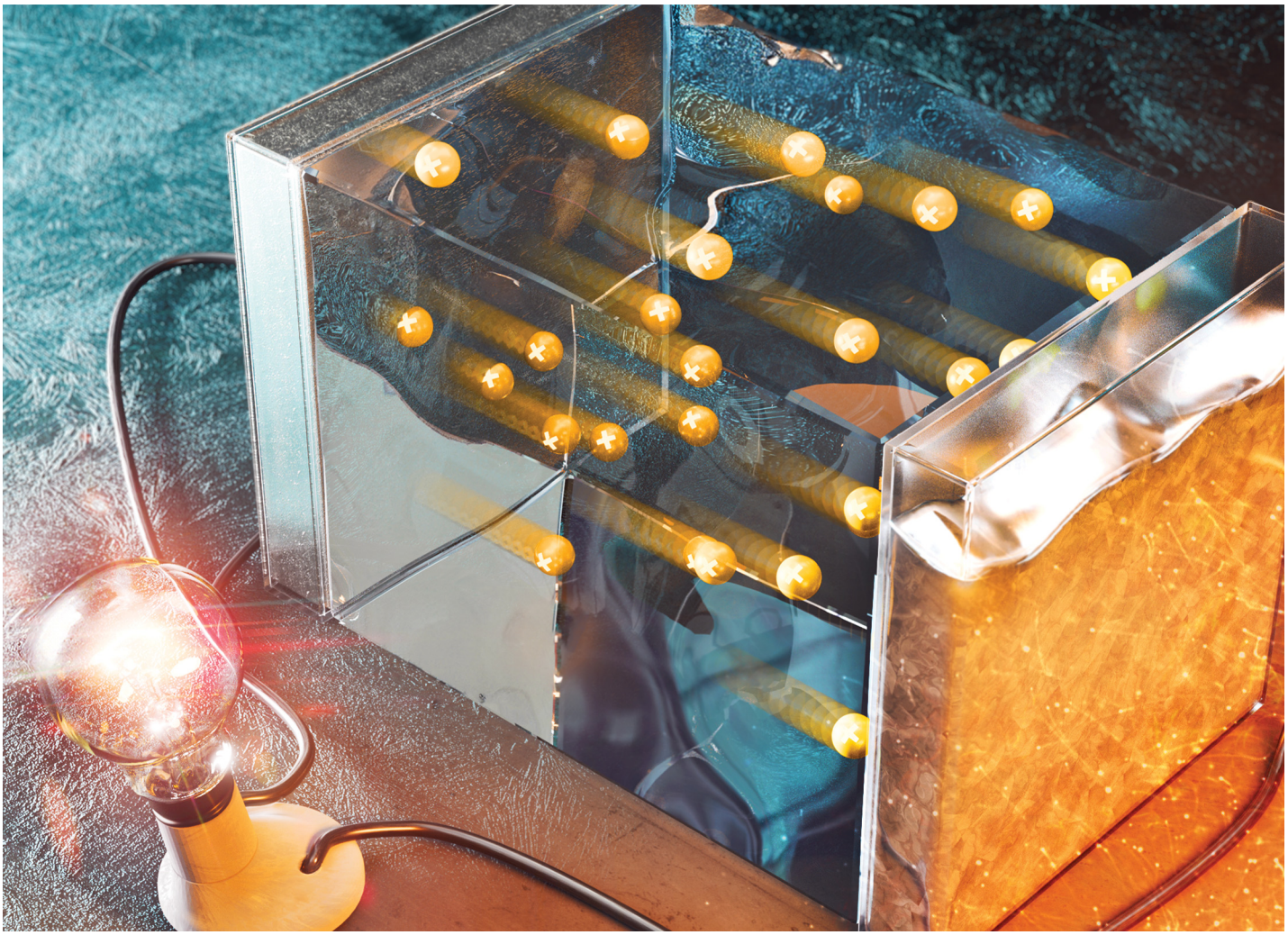

Showcasing research from Professor Wonjoon Choi and Sangtae Kim's laboratories, Korea University, Hanyang University, Seoul, Republic of Korea.

Boosted thermogalvanic thermopower upon solid-to-liquid phase transition

Thermogalvanic devices show promise to efficiently harvest low-grade waste heat by overcoming the coupled materials properties and thermal equilibration of thermoelectrics. Exploiting the entropy of fusion and the associated configurational entropy change of alloys, we show that the thermogalvanic thermopower can be boosted up to 26.1 mV K^{-1} from 1.5 mV K^{-1} for $Na_{2+x}K$ alloys and the respective power density of 5.5 μW cm^{-2}. Stabilizing the alloy surface during melting/solidification phase transition critically affects the generated voltages and thermopower, pointing to the importance of solid-electrolyte interphase stabilization and electrolyte design.

As featured in:

See Sangtae Kim, Wonjoon Choi *et al.*, *Energy Environ. Sci.*, 2024, **17**, 7712.

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