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Showcasing research from Prof. Long Bai, Prof. Yang Liu and Prof. Zhiguo Li's laboratories at Northeast Forestry University, China.

Double selective ionic gel with excellent thermopower and ultra-high energy density for low-quality thermal energy harvesting

Ionic thermoelectric cells are promising for converting low-quality thermal energy into electric energy, yet suffer low voltage and energy density generated from restricted temperature difference. We create ion-hopping routes in the polymer network by introducing biguanide and maleic anhydride (MA) into the chitosan gel, synergistically enhancing the effect of thermogalvanic and thermodiffusion in single redox electrolytes. Benefiting from the selective adsorption of chitosan and MA, the ionic gel produces excellent thermopower and ultra-high energy density, which is promising on fabricating novel thermoelectric batteries for high-efficiency use of low-grade thermal energy.

As featured in:



See Long Bai, Yang Liu, Zhiguo Li *et al.*, *Energy Environ. Sci.*, 2024, 17, 1664.