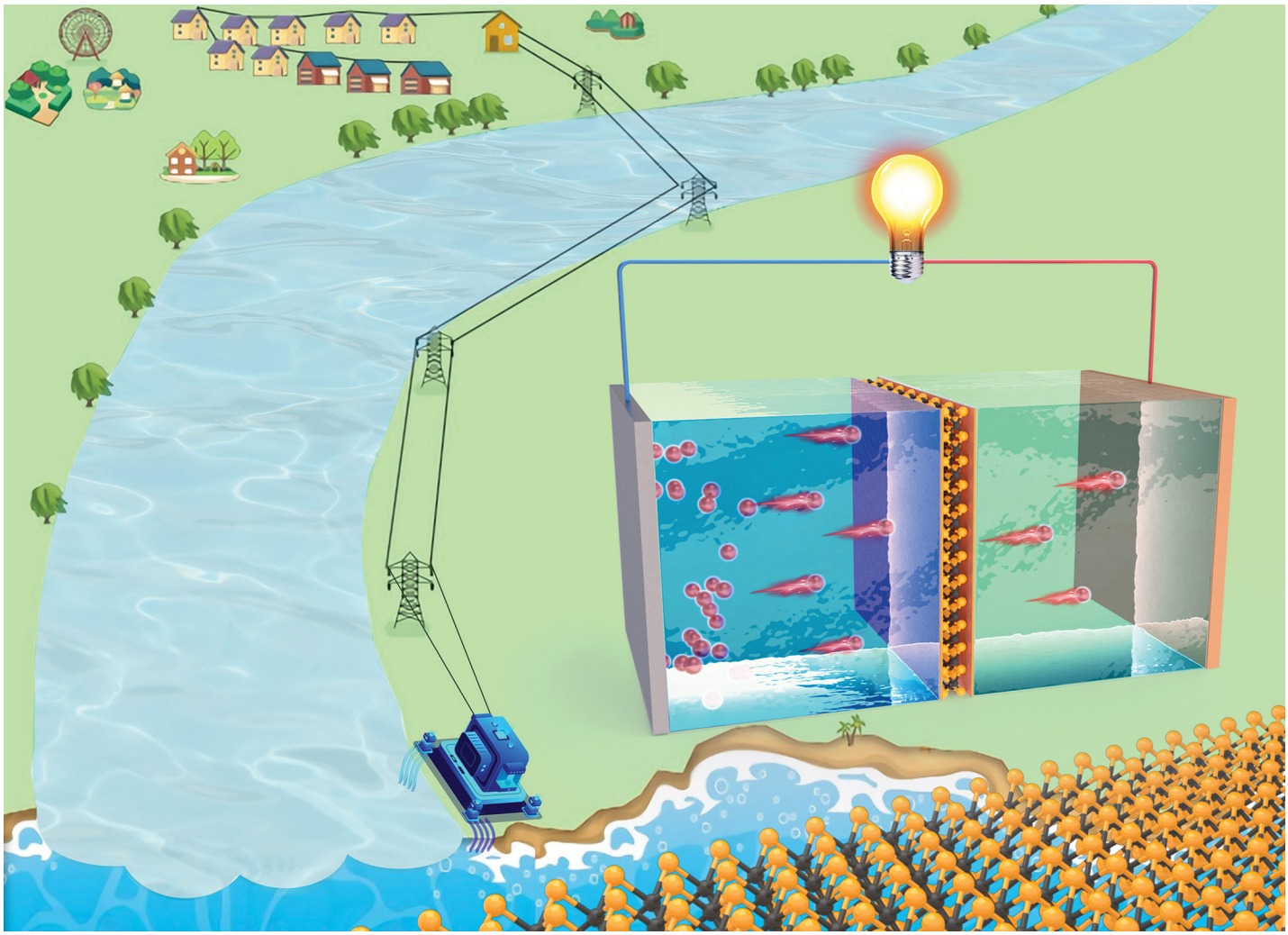
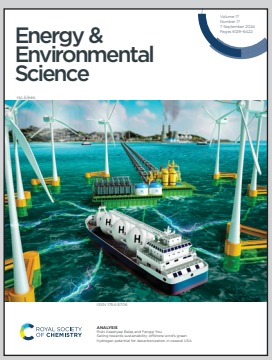


Showcasing research from Professors Naitao Yang, Xiuxia Meng, Shaomin Liu *et al*. School of Chemical Engineering, Shandong University of Technology, Zibo, China

A subnano-confinement in robust MoS_2-based membranes for high-performance osmotic energy conversion

Osmotic energy can be transferred to electricity *via* ion-selective nanofluidic membrane devices. Conventional membranes encounter the trade-off issues between ion selectivity, flux and stability. In this paper, we showcase the efficient subnano-confinement strategy to create high sodium-ion selectivity channels in robust metal dichalcogenide membranes. The new membrane devices can be stably operated for more than 40 days delivering the osmotic power density up to 73 W m^{-2} in a 50-fold concentration gradient, far exceeding previously reported membranes.

As featured in:



See Naitao Yang, Xiuxia Meng, Shaomin Liu *et al*., *Energy Environ. Sci.*, 2024, **17**, 6225.

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