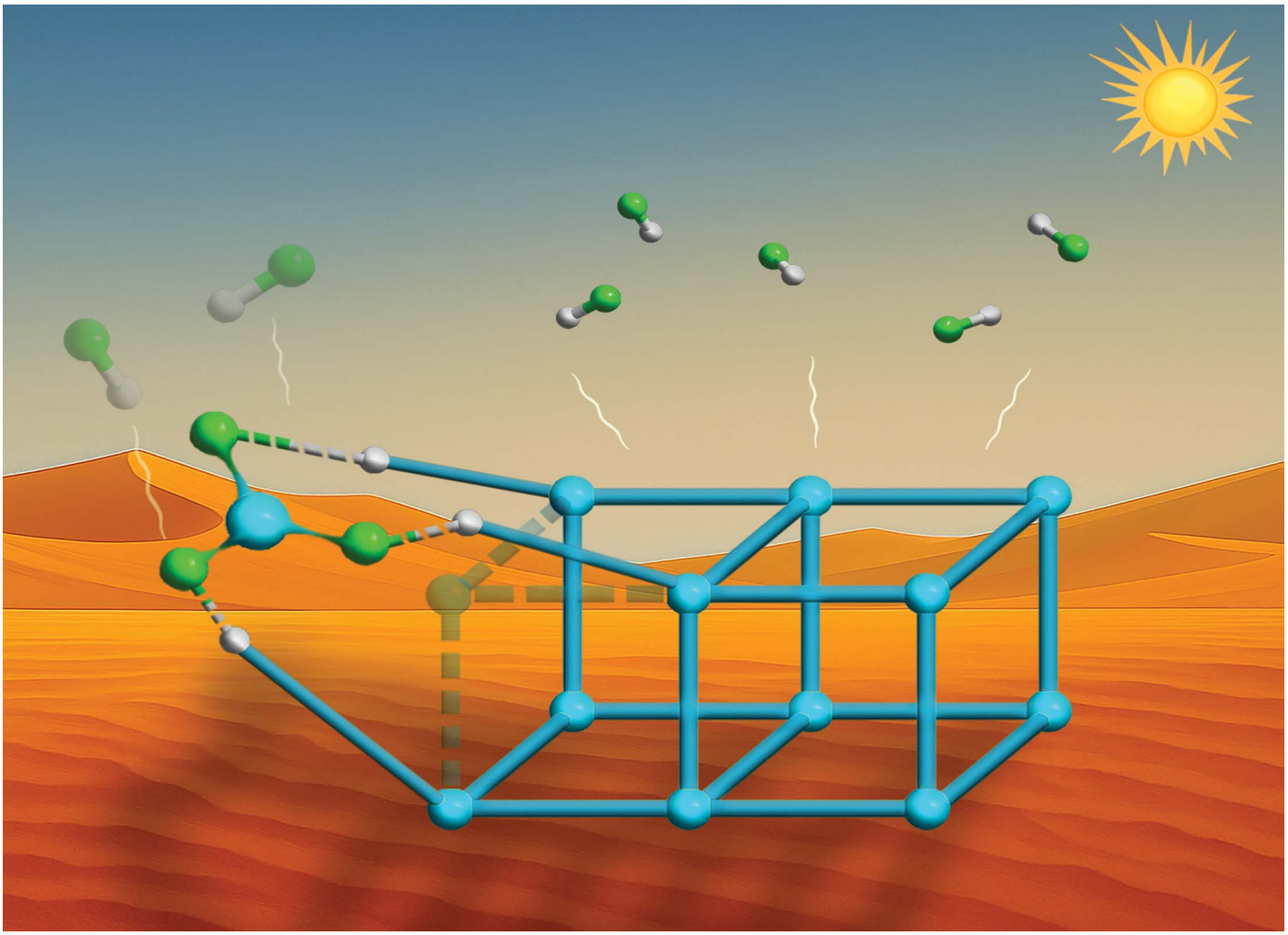

Showcasing research from Professor Fan Yang's laboratory, State Key Laboratory of Advanced Separation Membrane Materials, Tiangong University, Tianjin, China.

Solvent-free construction of Cr(III)-sulfonate coordination polymers

Chromium-sulfonate coordination polymers (CPs) have been synthesized for the first time *via* a solvent-free method. This eco-friendly method significantly enhances the coordination ability of sulfonate groups, leading to an unprecedented reversal in coordination preference—from the conventional solvent-based $-COO^- > -SO_3^-$ to $-SO_3^- > -COO^-$. The resulting Cr–SO_3 CPs exhibit outstanding long-term stability and ultrahigh proton conductivity, outperforming other sulfonated CPs. This work presents a generally applicable and simple solvent-free strategy for designing novel metal–ligand coordination and advancing reticular chemistry beyond the limitations of conventional solvent-based methods.

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As featured in:

See Xiaoge Wang, Jian-Rong Li, Junliang Sun, Chongli Zhong *et al.*, *Chem. Sci.*, 2025, **16**, 11823.

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