



Showcasing research from Professor Jie He's laboratory at University of Connecticut, Storrs, USA; Professor Shouheng Sun's laboratory at Brown University, Providence, USA; and Professor Peng Bai's laboratory at University of Massachusetts, Amherst, USA.

Why surface hydrophobicity promotes  $\text{CO}_2$  electroreduction: a case study of hydrophobic polymer *N*-heterocyclic carbenes

The hydrophobic microenvironment provided by polymer ligands has a profound impact on the hydrogen bonding network of water at the electrolyte-electrode interface. As a result, the hydrophobicity of polymer ligands promotes the clustering of water molecules and enhances the local concentration of  $\text{CO}_2$  as well as their diffusion within polymer domains, thereby enabling more efficient  $\text{CO}_2$  reduction.

As featured in:



See Peng Bai, Shouheng Sun, Jie He *et al.*, *Chem. Sci.*, 2023, **14**, 9664.