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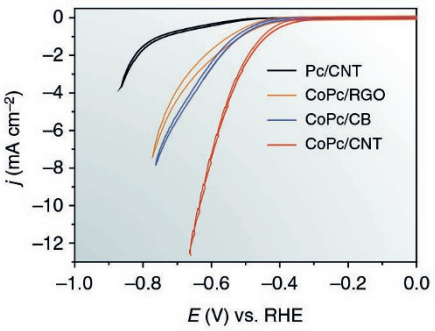
IN BRIEF

HETEROGENEOUS CATALYSIS

Tuning up a hybrid catalyst



Converting carbon dioxide into useful fuels is seen as an important goal in the fight to mitigate global carbon emissions. An energy-efficient route to carbon-neutral fuel is the electrocatalytic reduction of carbon dioxide, a reaction that can proceed under ambient conditions in aqueous media. However, it remains challenging to fabricate active and durable catalysts that can facilitate this process efficiently and selectively.

Writing in *Nature Communications*, Yongye Liang, Hailiang Wang and colleagues describe a highly active and selective electrocatalyst for the reduction of carbon dioxide to carbon monoxide. The latter is a useful feedstock for fuel production, not least by the Fischer–Tropsch process, in which carbon monoxide and hydrogen are converted into liquid hydrocarbons. The team made carbon monoxide by using a catalyst comprising evenly distributed cobalt phthalocyanine molecules anchored to a carbon nanotube support. The presence of electron-withdrawing groups on the catalyst increases current densities for the electrocatalytic reduction by increasing the number of active sites. Accordingly, by adding more cyano groups to the material, the authors are able to increase the activity and selectivity to record-high levels.

Adam West, Associate Editor, Nature Communications

ORIGINAL ARTICLE Zhang, X. et al. Highly selective and active CO_2 reduction electrocatalysts based on cobalt phthalocyanine/carbon nanotube hybrid structures. *Nat. Commun.* **8**, 14675 (2017)