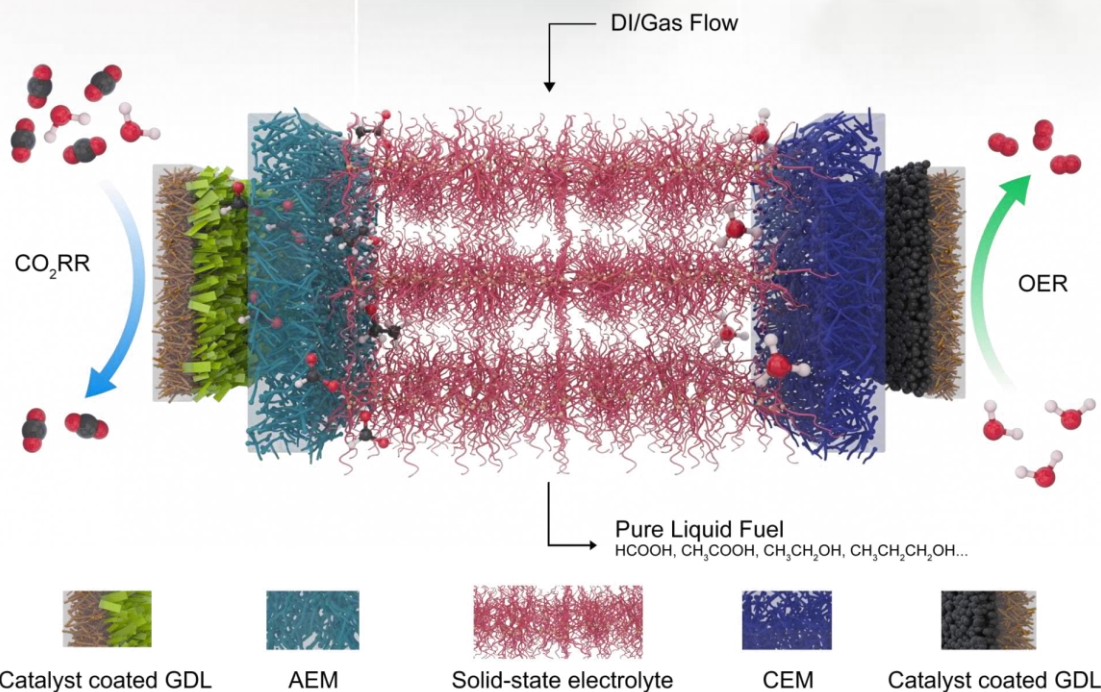


Electrocatalyst Turns Greenhouse Gas Into Pure Liquid Fuel



This schematic shows the electrolyzer to reduce carbon dioxide, a greenhouse gas, to valuable fuels. (Credit: Rice University)

Scientific Achievement

Scientists created and tested a new electrocatalyst that turns carbon dioxide into formic acid, which can directly be used as a liquid fuel in a fuel cell.

Significance and Impact

This work can help repurpose a common greenhouse gas in an efficient and environmentally friendly way with an electrolyzer that uses renewable electricity to produce pure liquid fuels.

C. Xia, P. Zhu, Q. Jiang, Y. Pan, W. Liang, E. Stavitski, H.N. Alshareef, H. Wang. Nature Energy 4, 776-785 (2019).

Research Details

- In tests, the new electrocatalyst reached an energy conversion efficiency of about 48.5%.
- X-ray absorption spectroscopy at NSLS-II's ISS was used to follow the behavior of bismuth during the chemical reaction process.

Work was performed in part at Brookhaven National Laboratory