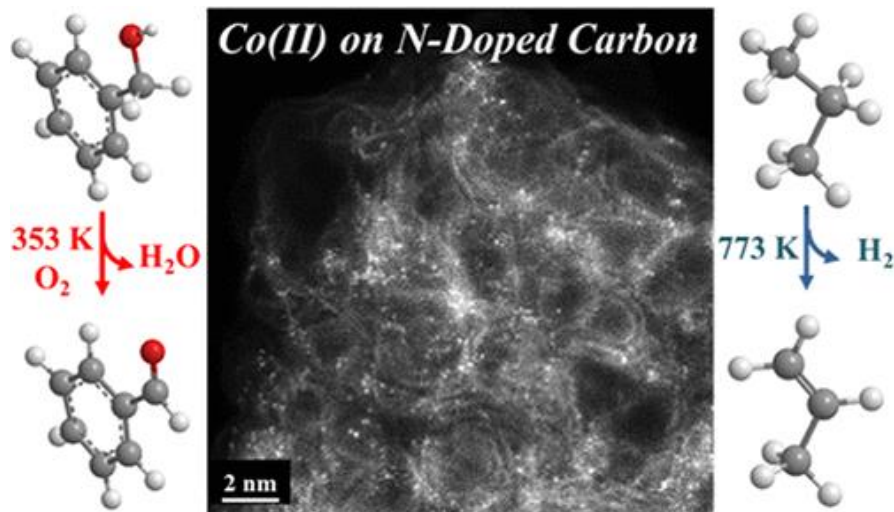


Catalytic Transformation of Carbon Feedstocks to Liquid Fuels



The image in the center shows an electron micrograph of single-atom catalysts transforming carbon feedstocks into useful chemicals. The reactions are shown to the left and right.

J. Xie, J. D. Kammert, N. Kaylor, J. W. Zheng, E. Choi, H. N. Pham, X. Sang, E. Stavitski, K. Attenkofer, R. R. Unocic, A. K. Datye, R. J. Davis. *ACS Catal.* 8, 3875–3884 (2018)

Work was performed in part at Brookhaven National Laboratory

Scientific Achievement

Scientists demonstrated how the structure of atomically dispersed metal sites affects their catalytic performance in C-H bond activation.

Significance and Impact

This highly-active, non-precious metal catalyst offers a cost-effective way to transform carbon feedstocks into value-added chemicals and liquid fuels.

Research Details

- *In situ* x-ray absorption spectroscopy (XAS) was used at the ISS beamline at NSLS-II to characterize the structure of these single metal-atom active sites during conversion of the carbon feedstocks.