

Descriptions of Additional Supplementary Files

Supplementary Data 1 :

Description - DFT dataset: one representative relaxed (geometry-optimized) structure of the Pt-COF lattice at each strain level of 0%, 3%, 5%, 7%, and 9%.

Supplementary Movie 1

Description - The process of collecting gas from a hydrocyclone based photocatalytic reactor.

Supplementary Movie 2

Description - High-speed camera experiments capturing the motion and deformation of tracer particles within a hydrocyclone.

Supplementary Movie 3

Description - AIMD simulation demonstrating the deformation motion of the Pt-COF lattice during the application of strain between 5% and 11%.