

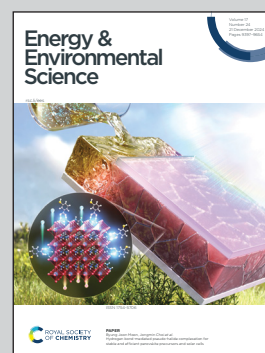


Showcasing research from Professor Wanhong Ma's laboratory, Institute of Chemistry Chinese Academy of Sciences, Beijing, China.

Exponentially enhanced photocatalytic alkane production from biomass-derived fatty acid decarboxylation via self-heating-induced conformational inversion

For the conversion of long-chain fatty acids into biofuels through TiO_2 -based photocatalytic decarboxylation reaction, the unavoidable relaxed heat could drop the upright linear alkyl chain moiety of adsorbed fatty acids down onto the catalyst surface, a process analogous to Chinese classical long-sleeve dancing. This alters significantly the strain on the C-COOH bond and favors the decarboxylation by the photo-induced hole attack, thereby producing high concentrations of long-chain hydrocarbons biofuels under outdoor sunlight. The opposite is true for the short-chain fatty acid counterparts.

As featured in:



See Guibao Guo, Shengli An, Wanhong Ma *et al.*, *Energy Environ. Sci.*, 2024, 17, 9455.