

# Synthetic Carbon-based HMF-Selective Sorbents

## Scientific Achievement

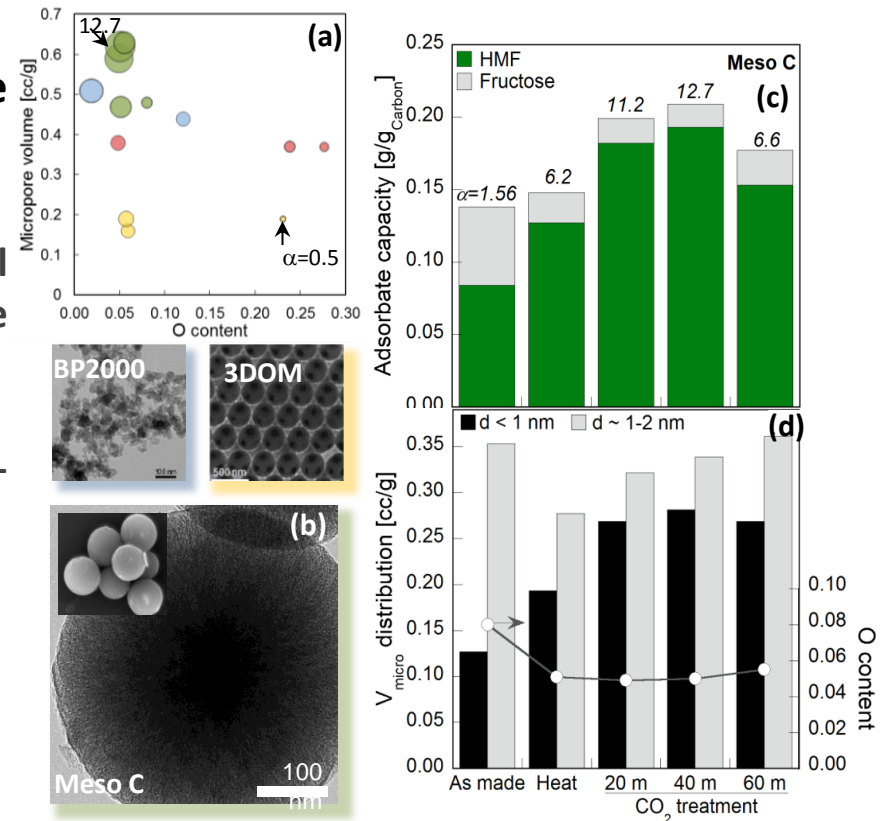
Developed the highest-adsorption performance carbons for 5-hydroxymethyl furfural (HMF).

## Significance and Impact

- Adsorption-selectivity exceeding best commercial sorbent, BP2000, enhances viability of selective DMSO-based dehydration of fructose to HMF.
- Novel hydrothermally stable catalytic supports.
- Structure-function insights developed for HMF-selective carbon sorbents.

## Research Details

- HMF/fructose adsorption from DMSO onto commercial and synthetic carbons elucidated.
- Structure-function relations linking adsorption capacity/selectivity to carbon ultra-microporosity/polarity established and found to transcend different classes of synthetic carbons.
- Design rules leveraged for synthesizing new class of meso-microporous carbons (Meso C) with superior HMF adsorption selectivity.



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Work was performed at Lehigh University and the University of Minnesota