Recent Electrocatalyst Work at NETL

Electrocatalyst Design
- 10 years of early-stage research
- Establish structure-property relationships and develop high activity catalysts

Structure-Enhanced Catalysis

Converting waste CO₂ into value-added chemicals and fuels

Using 3D morphology to tune selectivity and boost activity
- ~90% selective CO production with >72% Faradaic efficiency from CuO inverse opal catalysts
- 6-fold activity enhancement from SnO₂ nanospheres and stable long-term performance over several days

Surface-Science Enabled Electrocatalysis

Precisely identify and quantify important reaction centers

Atomically-Precise Nanocatalysts

Unique structures reduce or eliminate need for precious metals

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