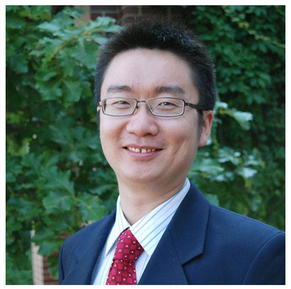
Sustainable Energy Research Lab

Fanxing Li Research Group

Labs: EB1 2062, 2067,2070; MAE West 122 **Website:** cbe.ncsu.edu/ligroup/

Li Research Group

CHEMICAL & BIOMOLECULAR ENGINEERING
NC STATE UNIVERSITY



"Here at the Li Research Group, we focus on the **design**, **synthesis**, and **characterization** of **nanomaterial-based catalyst and reagent particles** for biomass and fossil energy conversions, green liquid fuel synthesis, CO_2 capture, and pollutant control. Our research also encompasses **chemical reaction engineering** and **process synthesis** and **optimization**. Density Functional Theory (DFT) based methods are also used to elucidate the particle reaction mechanisms and to identify potential ways to improve particle performance."

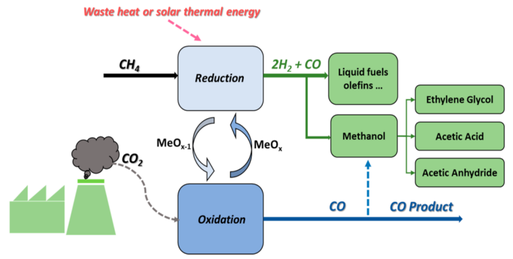
– Fanxing Li, *Alcoa Professor & University Faculty Scholar*

Chemical Looping Dry Reforming for Sustainable Syngas Production

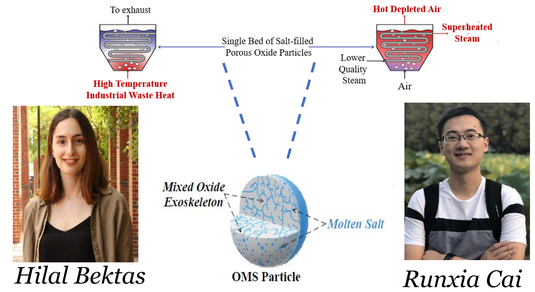

Will Martin


Sherafghan Iftikhar


Chongyan Ruan



Thermochemical Looping Energy-Storage



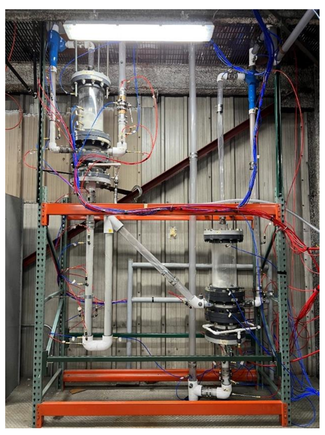
Hilal Bektas

Runxia Cai

Pilot-Scale Reactor Demonstrations

Super-equilibrium Reformer

Dual Fluidized Bed Reactor



Chemical Looping Oxidative Dehydrogenation

CL-ODH of Alkylbenzene Compounds


Junchen Liu


Aaron Frye

Oxidative Coupling and Dehydroaromatization of Methane


Baitang Jin


Ibrahim Sultan

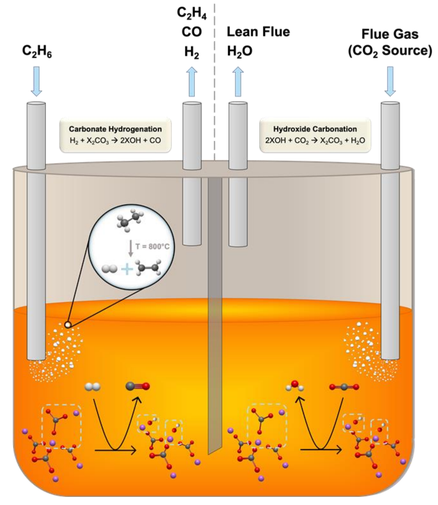
Chemical Looping for Carbon Capture and Utilization

Molten Salt-Mediated Ethane ODH with Integrated CO2 Capture

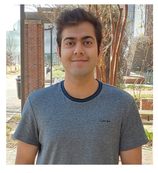

Junchen Liu

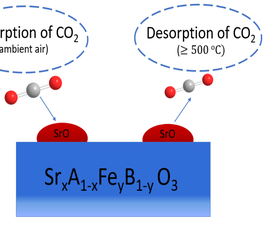

Dennis Chacko

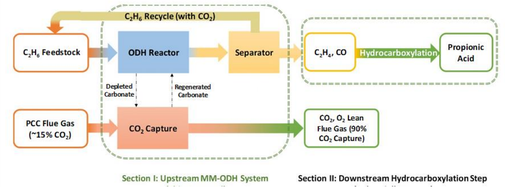

Kyle Vogt-Lowell



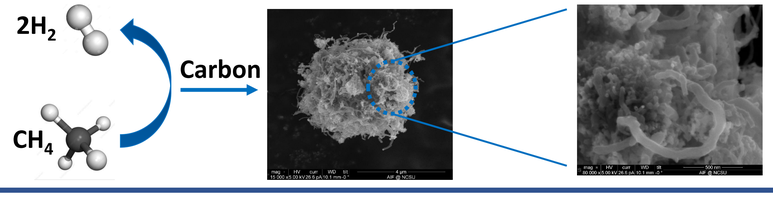
Direct CO2 Capture From Ambient Air


Seyedamin Razavi





Chemical Looping Methane Pyrolysis for Hydrogen and Carbon Production



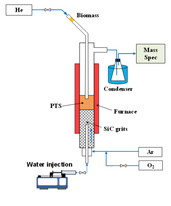

Sherafghan Iftikhar


Sam Portillo

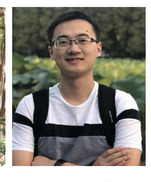

Mohammedreza Kosari

Biomass Conversion for Renewable Hydrogen and Fuels Production

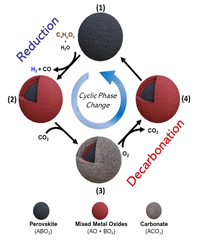
Sorption-Enhanced Oxidative Steam Reforming




Leo Brody

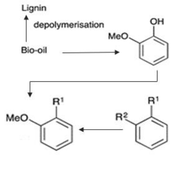

Runxia Cai


Mahe Rukh

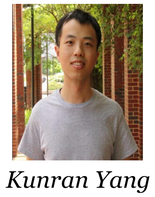


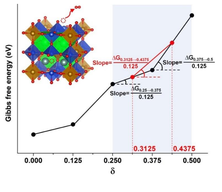
Hydrodeoxygenation of Bio-oils


Chongyan Ruan



Density Functional Theory


Kunran Yang



Where We Publish

- **ACS Catalysis**
- **ACS Sustainable Chemistry and Engineering**
- Advanced Energy Materials
- AIChE Journal
- **Applied Catalysis B: Environmental**
- Applied Energy
- Biotechnology Progress
- Catalysis Science and Technology
- Catalysis Today
- Carbon
- ChemCatChem
- **ChemSusChem**
- **Chemical Engineering Journal**
- Chemical Engineering Science
- **Chemistry of Materials**
- Current Opinion in Chemical Engineering
- Energy
- **Energy and Environmental Science**
- Energy and Fuel
- The Journal of Chemical Physics
- Energy Technology
- Environmental Science and Technology
- Fuel
- Fuel Processing Technology
- IScience
- International Journal of Hydrogen Energy
- Industrial and Engineering Chemistry Research
- Journal of Advanced Manufacturing Processing
- Journal of Catalysis
- Journal of Cleaner Production
- **Journal of Material Chemistry A**
- Journal of Physics: Energy
- Journal of Vacuum Science Technology
- Nano Energy
- **Nature Communications**
- Physical Chemistry Chemical Physics
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Poster made by Leo Brody and Hilal Bektas