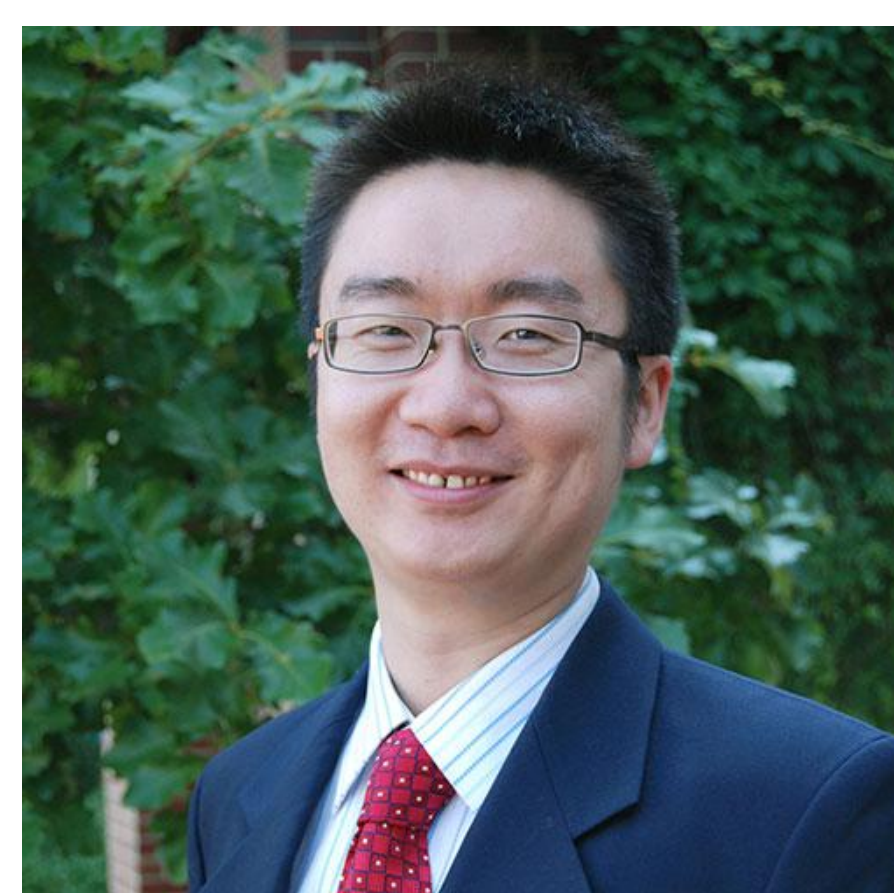
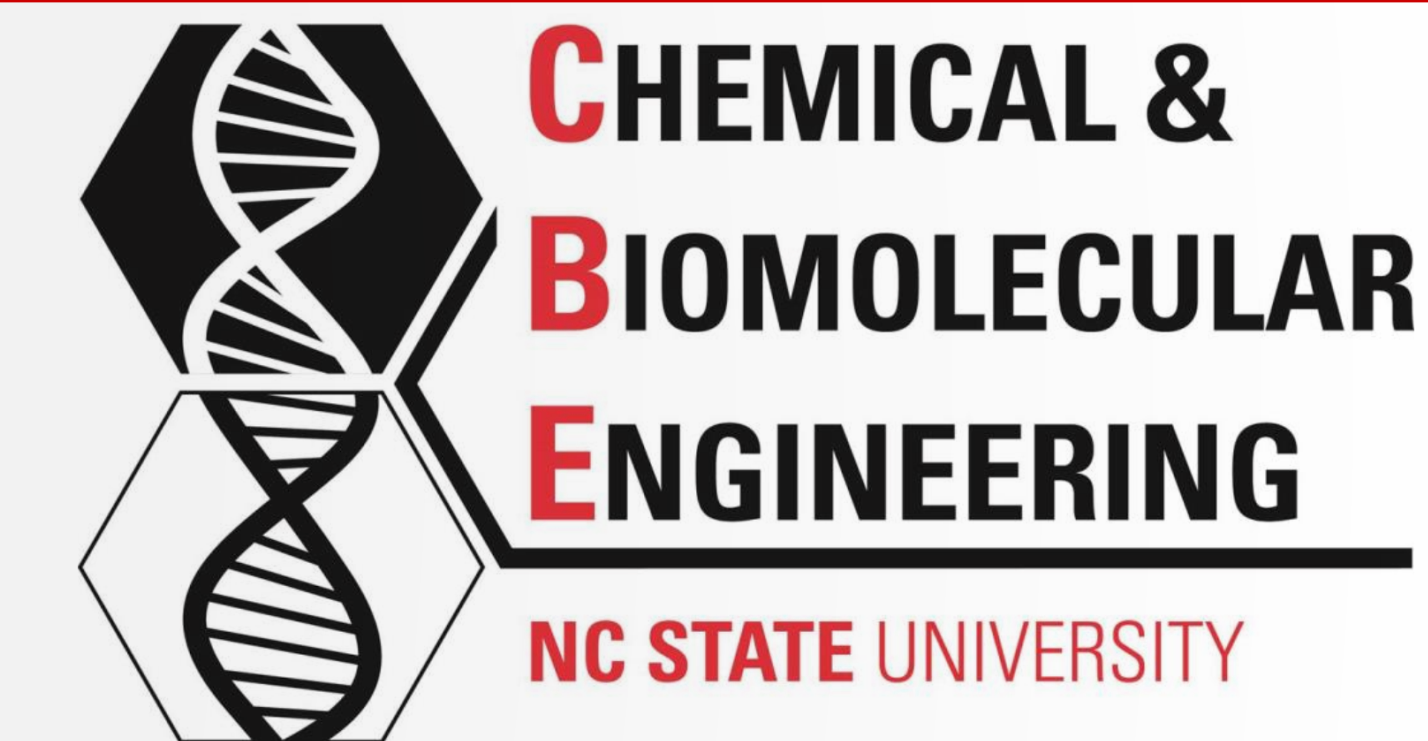




Sustainable Energy Research Lab

Fanxing Li Research Group

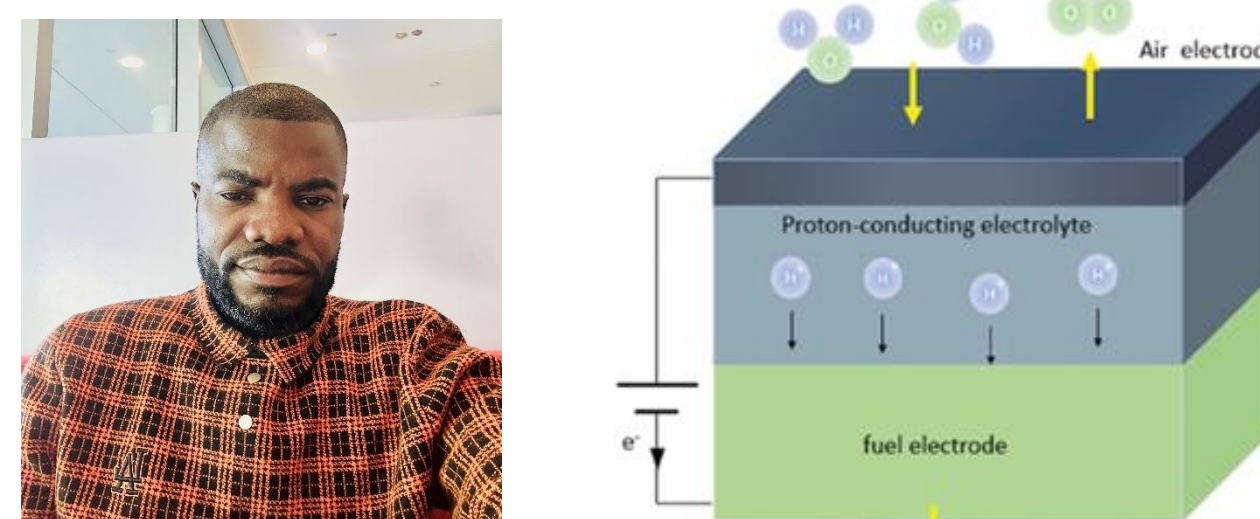
Labs: EB1 2062, 2067, 2070; MAE West 122 Website: cbe.ncsu.edu/ligroup/



"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, CO₂ 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, Thomas M. Clausi Distinguished Professor

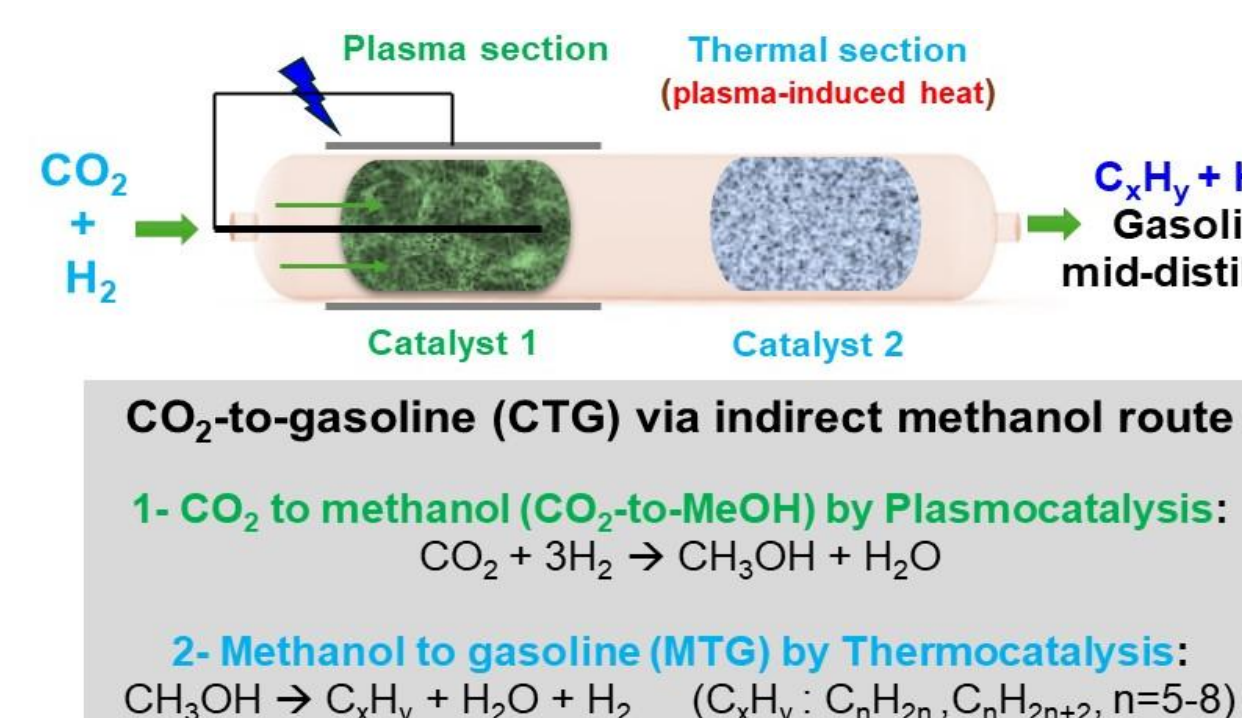
Renewable Hydrogen through Proton-Conducting Solid Oxide Electrolyzer Cells (SOEC)



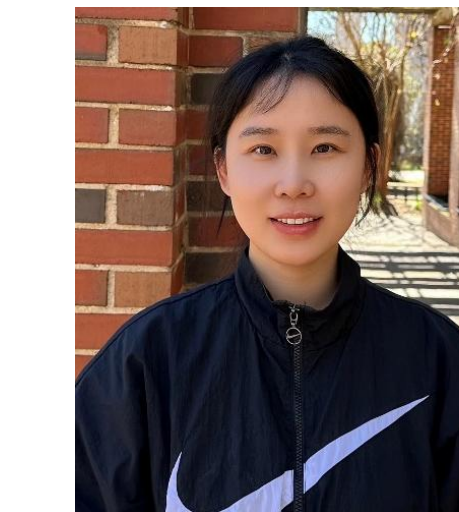
Christopher Obi

Image by Dr. Xingbo Liu, West Virginia University

Plasma-Assisted Catalytic Conversion of CO₂



Ehsanul Hoque



Dr. Miao Miao



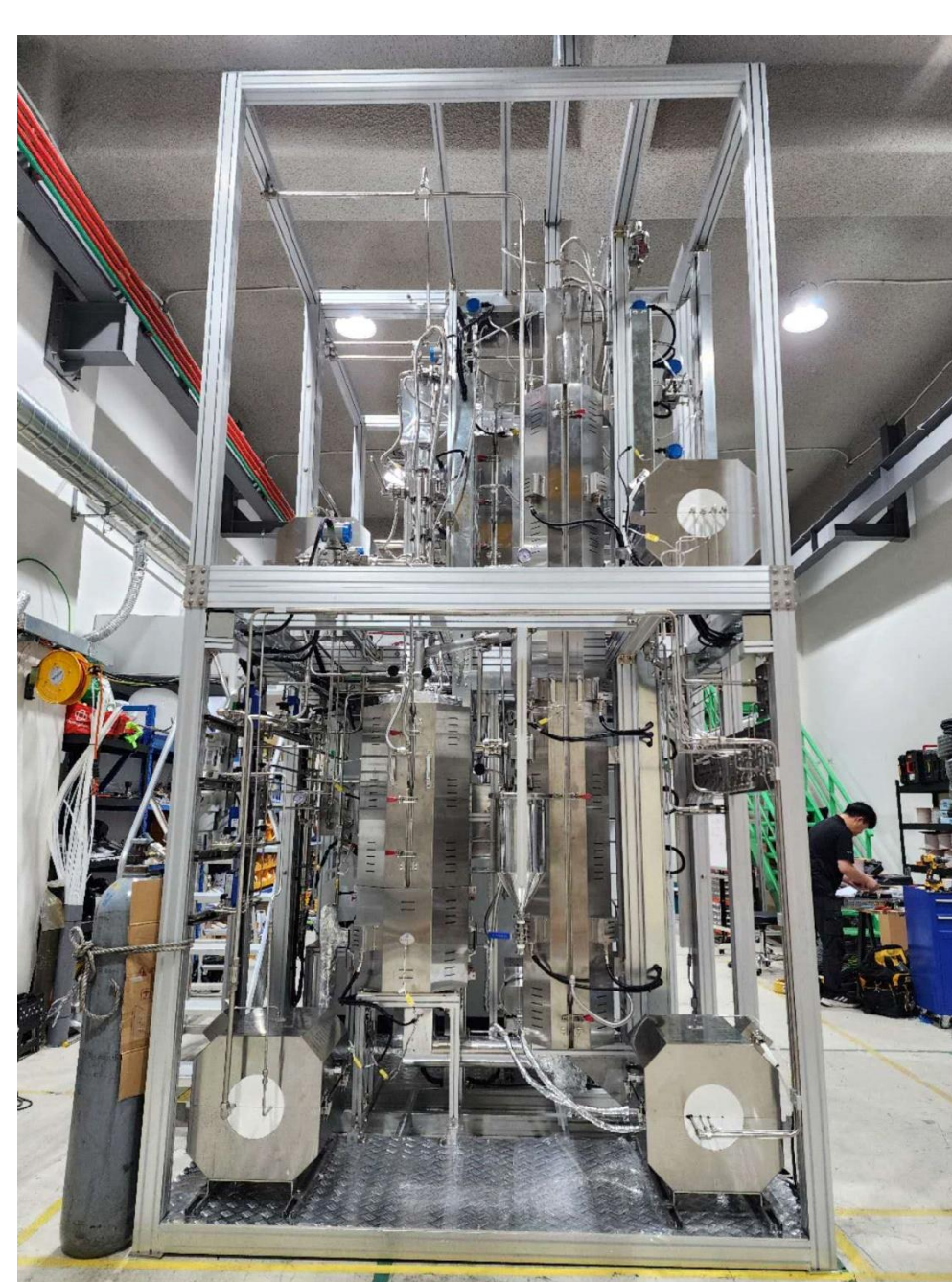
Dr. Mohammedreza Kosari

Pilot-Scale Reactor Demonstrations

Super-equilibrium Reformer



Dual Fluidized Bed Reactor



Chemical Looping Oxidative Dehydrogenation

CL-ODH of Alkylbenzene Compounds



Dr. Luke Neal

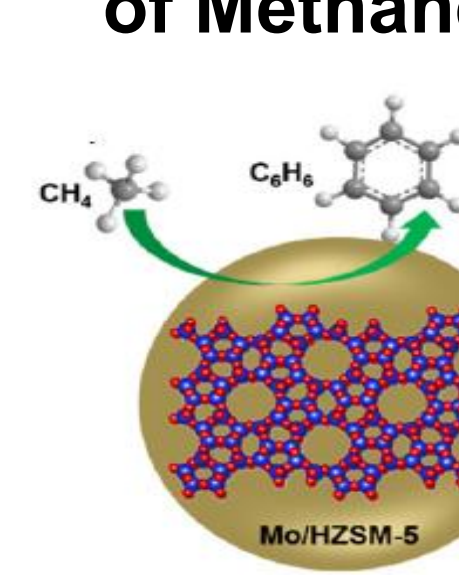


Aaron Frye

Oxidative Coupling and Dehydroaromatization of Methane

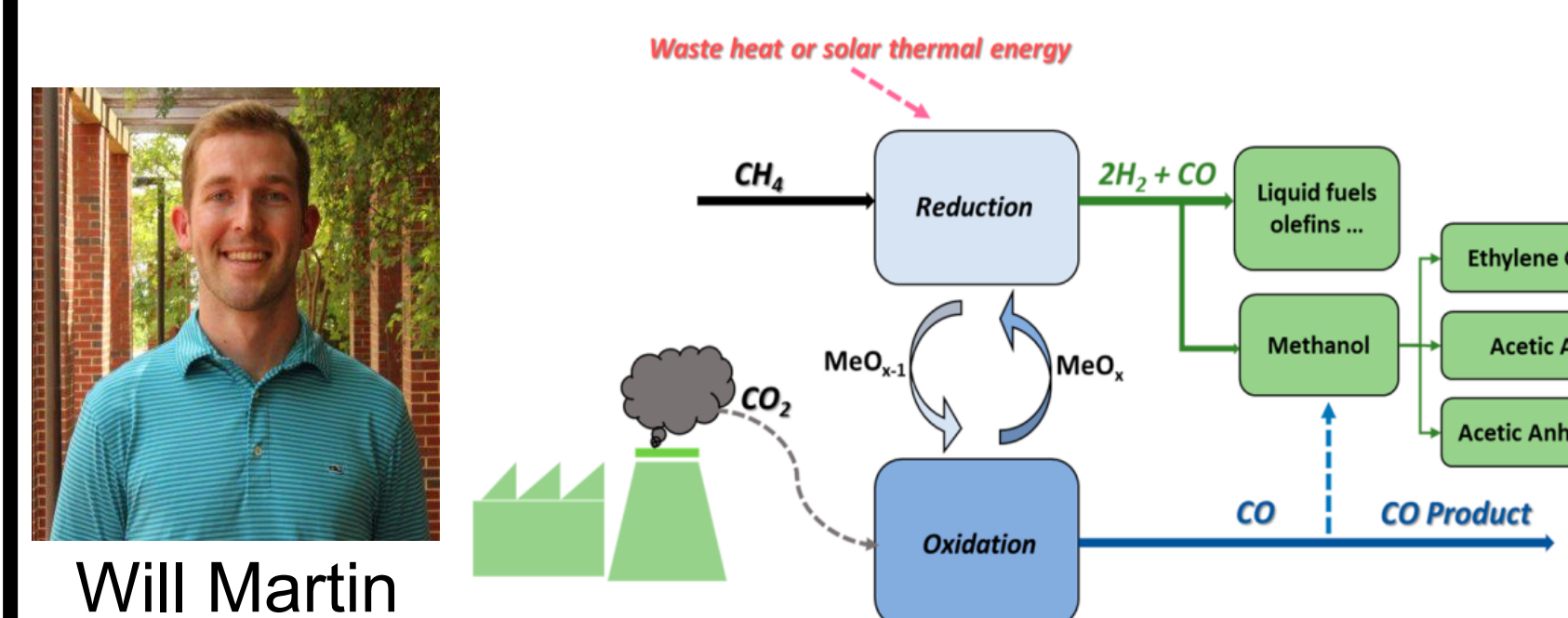


Kyle Peters



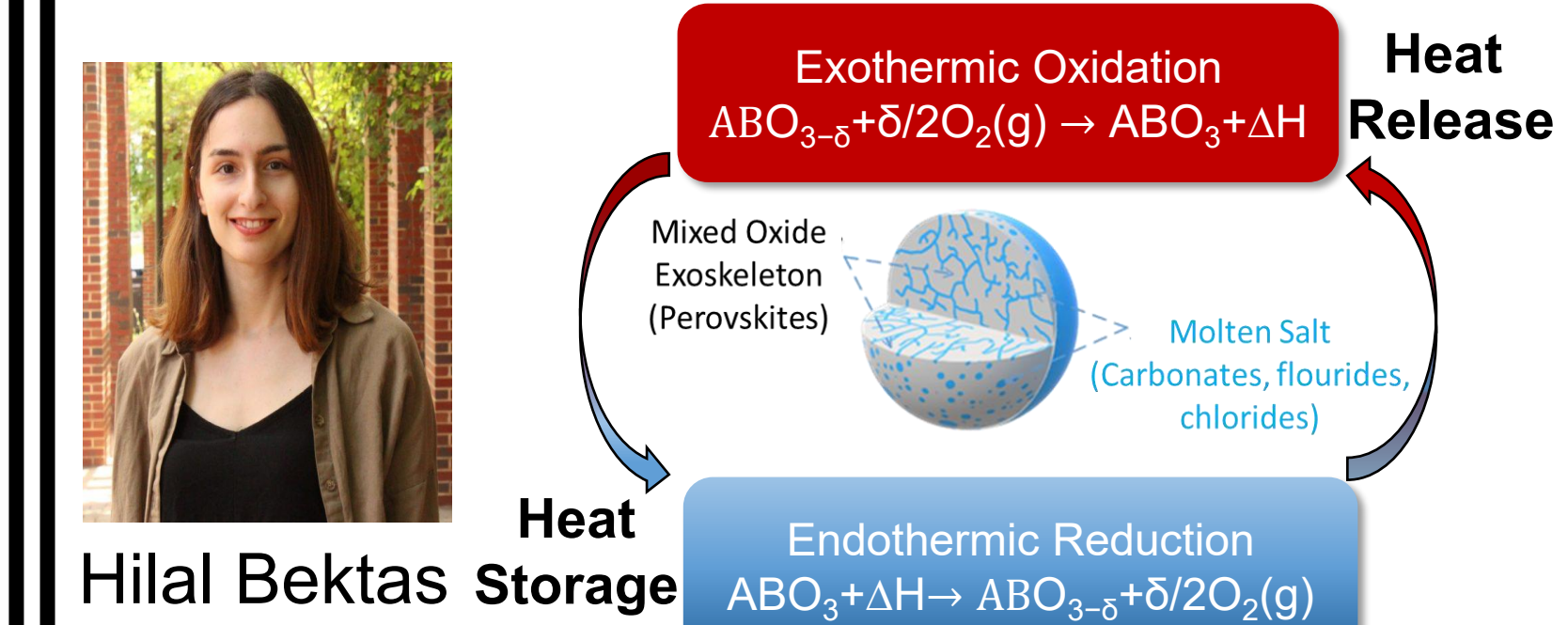
Ibrahim Sultan

Chemical Looping Dry Reforming for Sustainable Syngas Production



Will Martin

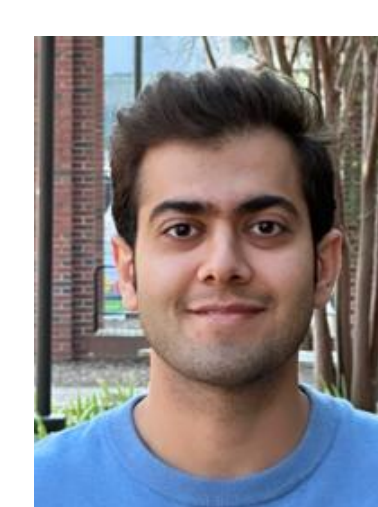
Thermochemical Looping Energy Storage



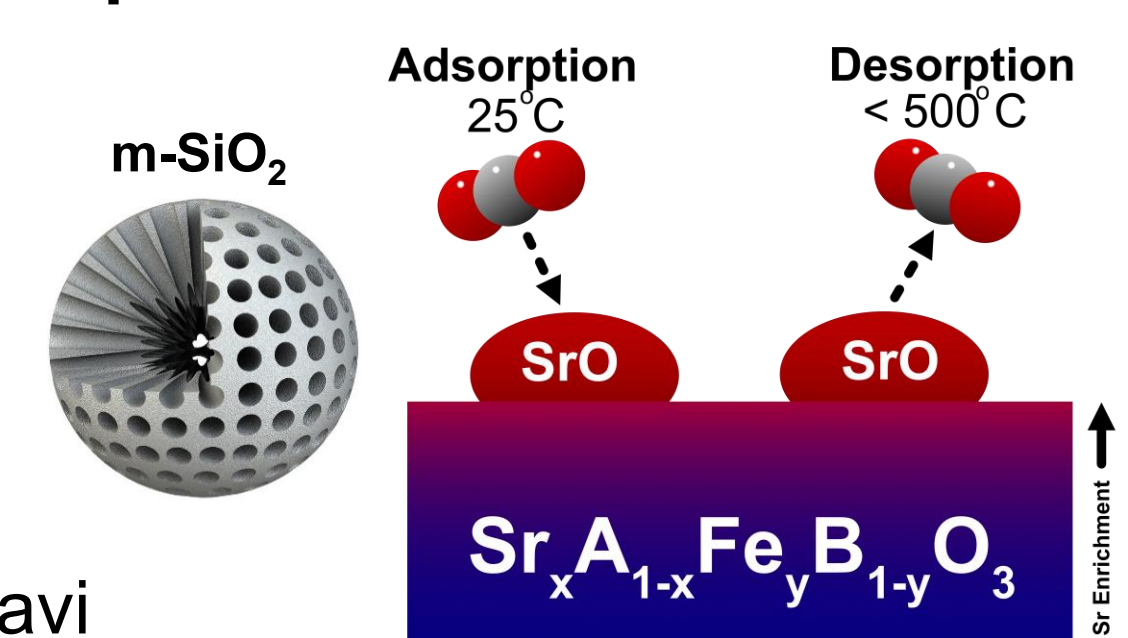
Hilal Bektas

Carbon Capture, Utilization, and Process Intensification

Direct CO₂ Capture From Ambient Air



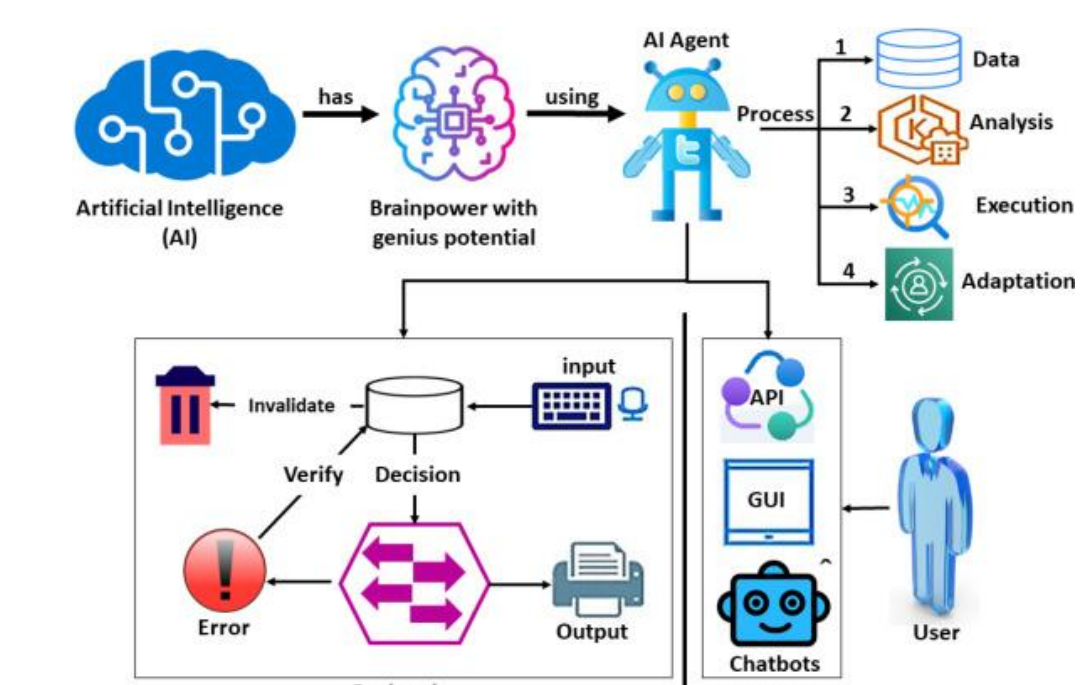
Seyedamin Razavi



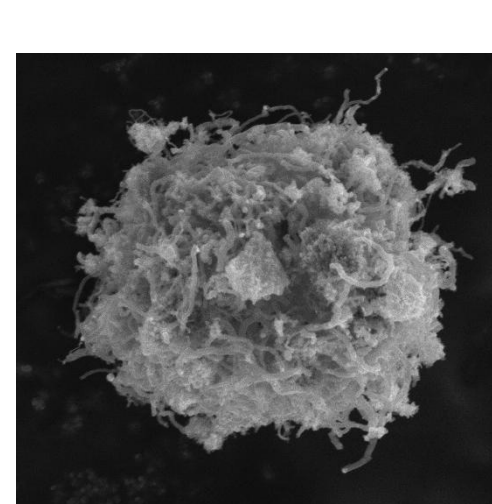
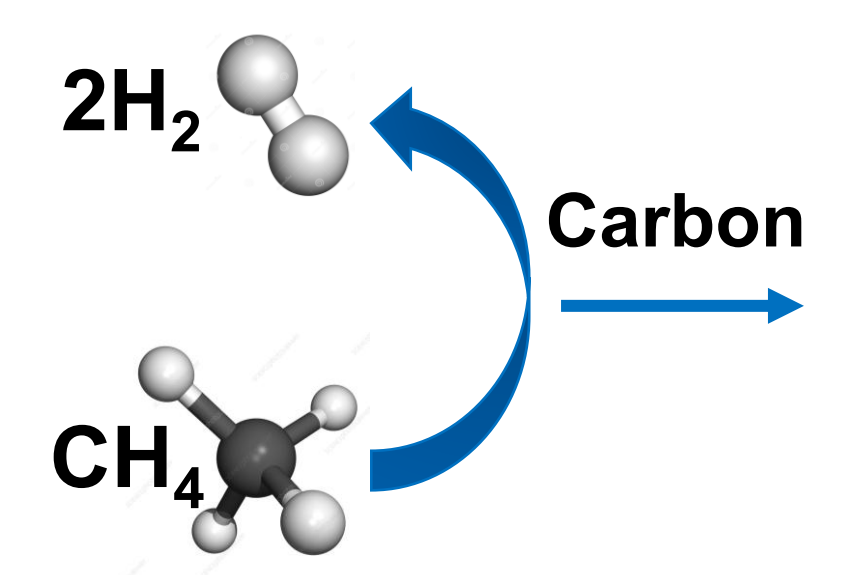
Agentic AI-Assisted Lab Automation



Dr. Yuhan Mei



Methane Pyrolysis for Hydrogen and Carbon Nanotube Production



Sam Portillo



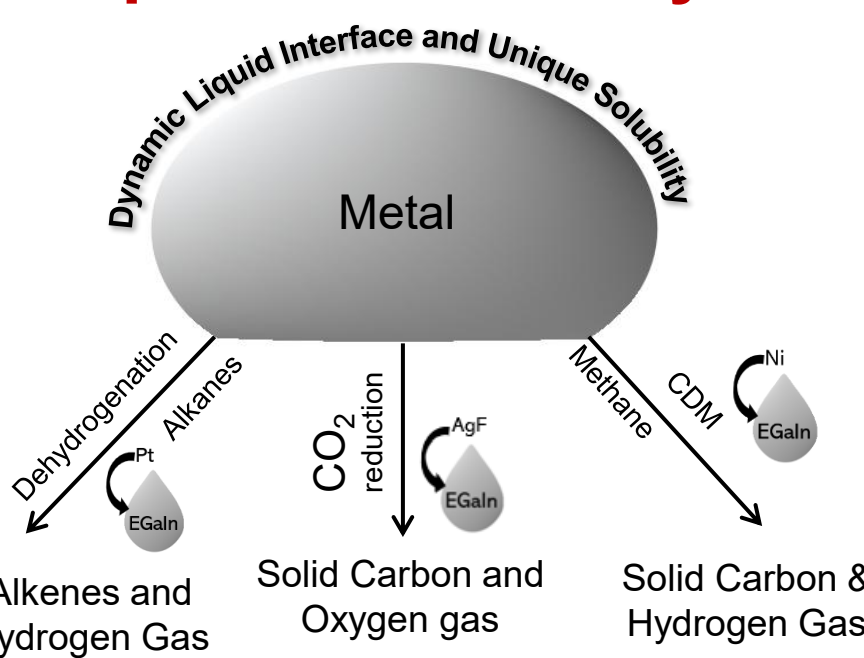
Dr. Mohammedreza Kosari

Liquid Metal Catalysis

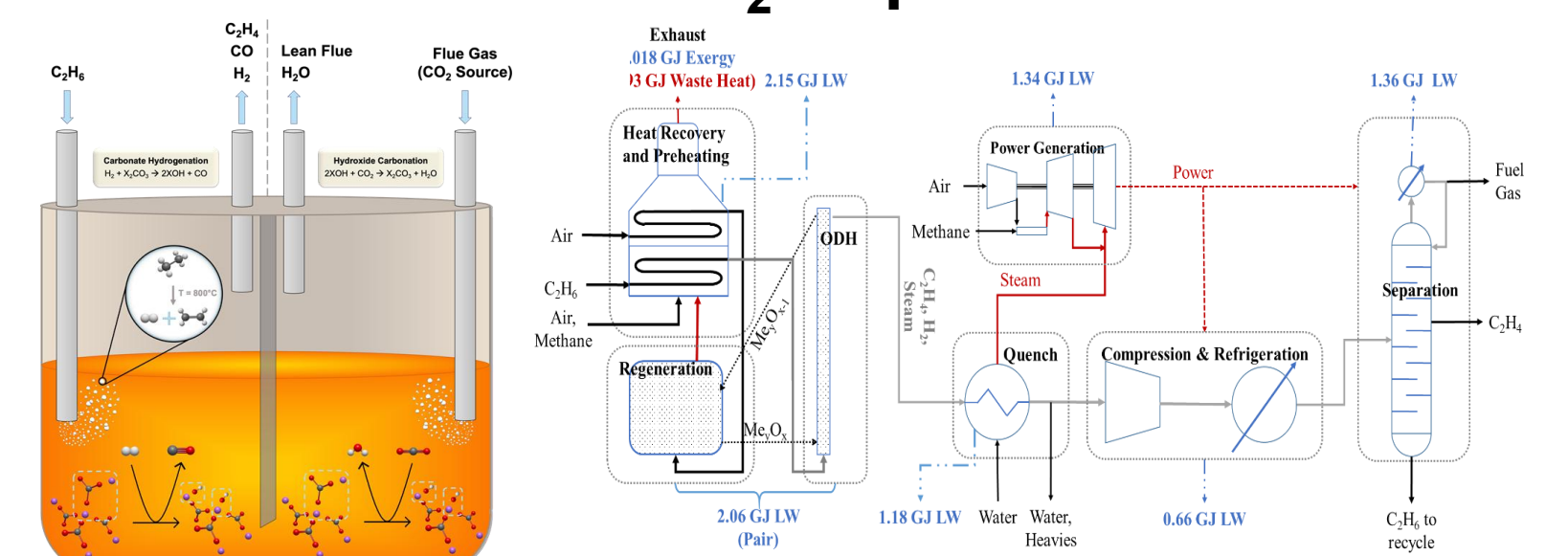


Micah Dickens

(co-advised with Dr. Dickey)

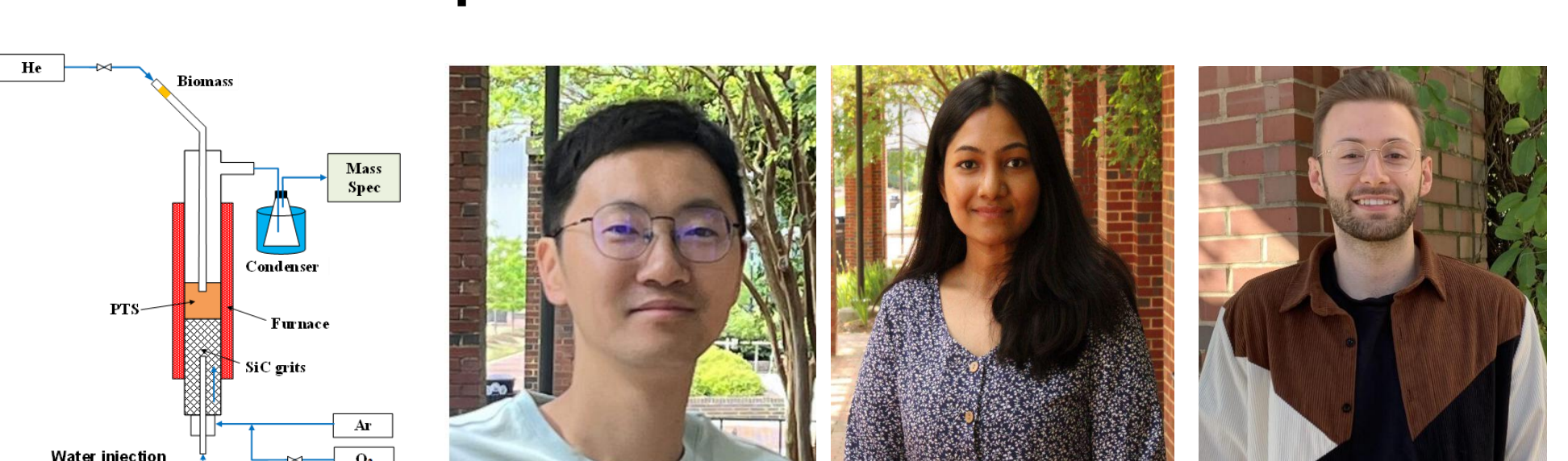


Intensified Oxidative Dehydrogenation with CO₂ Capture

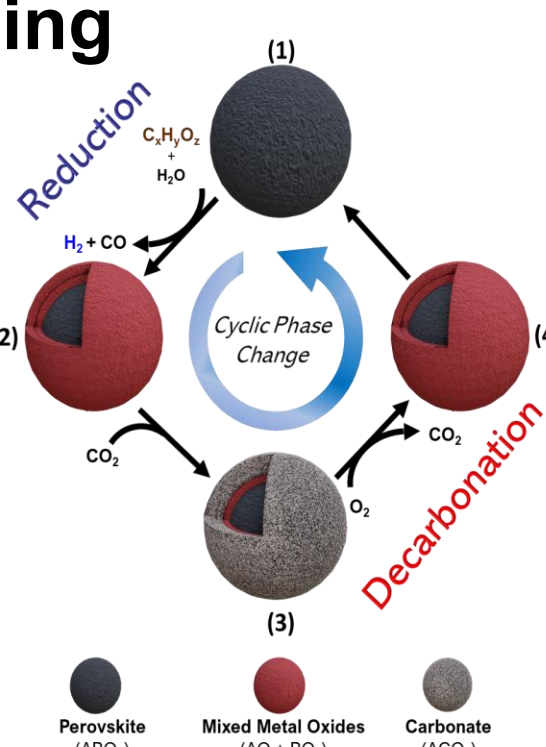


Biomass Conversion for Renewable Hydrogen and Fuels Production

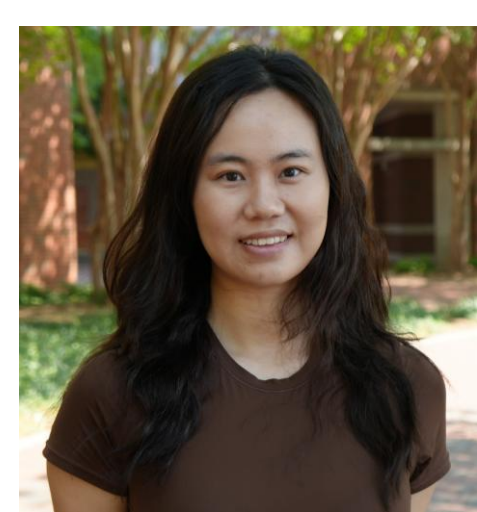
Sorption-Enhanced Oxidative Steam Reforming



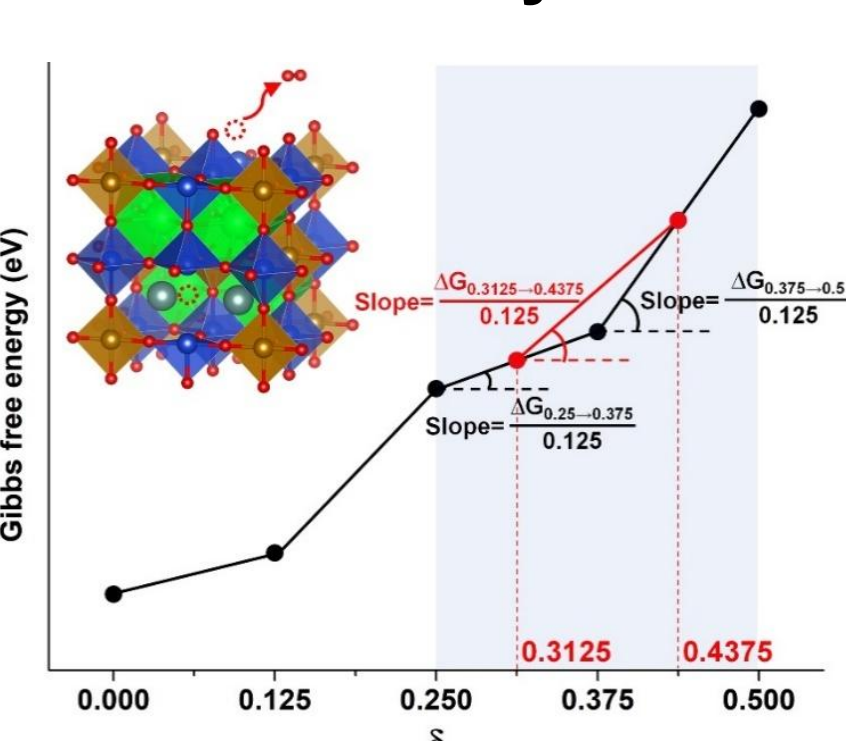
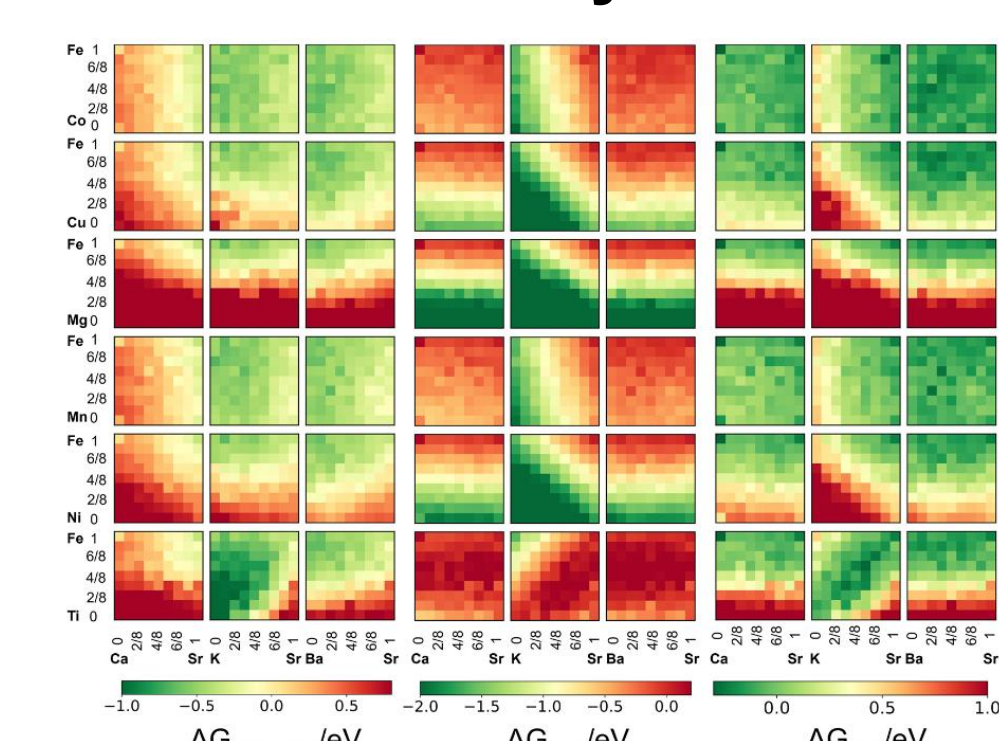
Dr. Yuge Yao Mahe Rukh Casey Killmer



Density Functional Theory Guided Materials Discovery



Dr. Yuhan Mei



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