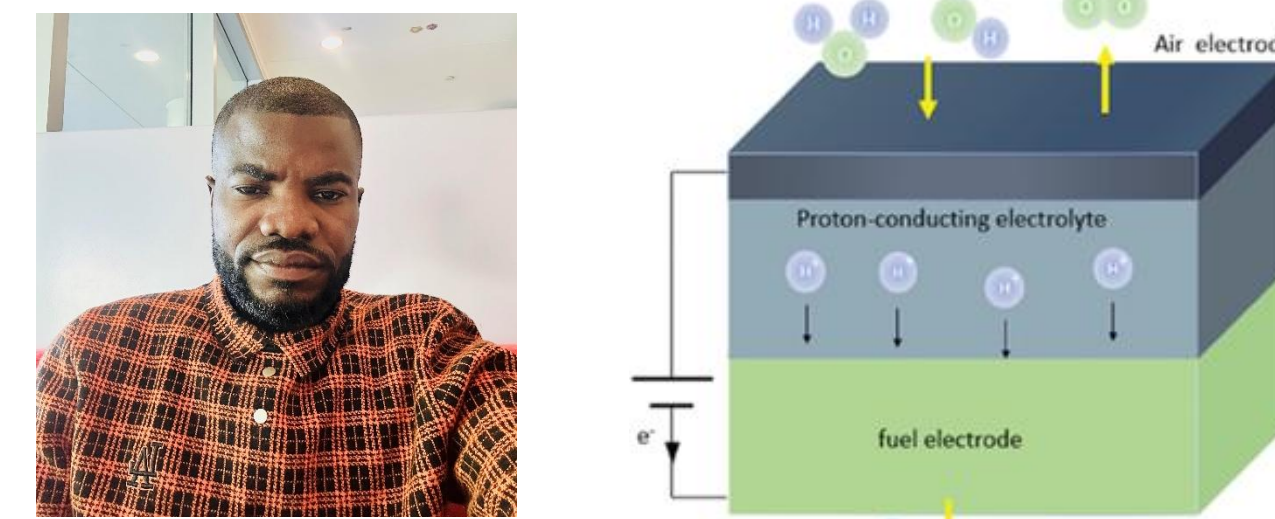


"Here at the Li Research Group, we focus on the **design, synthesis, and characterization of nanomaterial-based catalyst and reagent particles** for biomass and fossil energy conversions, green liquid fuel synthesis, CO₂ capture, and pollutant control. Our research also encompasses **chemical reaction 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

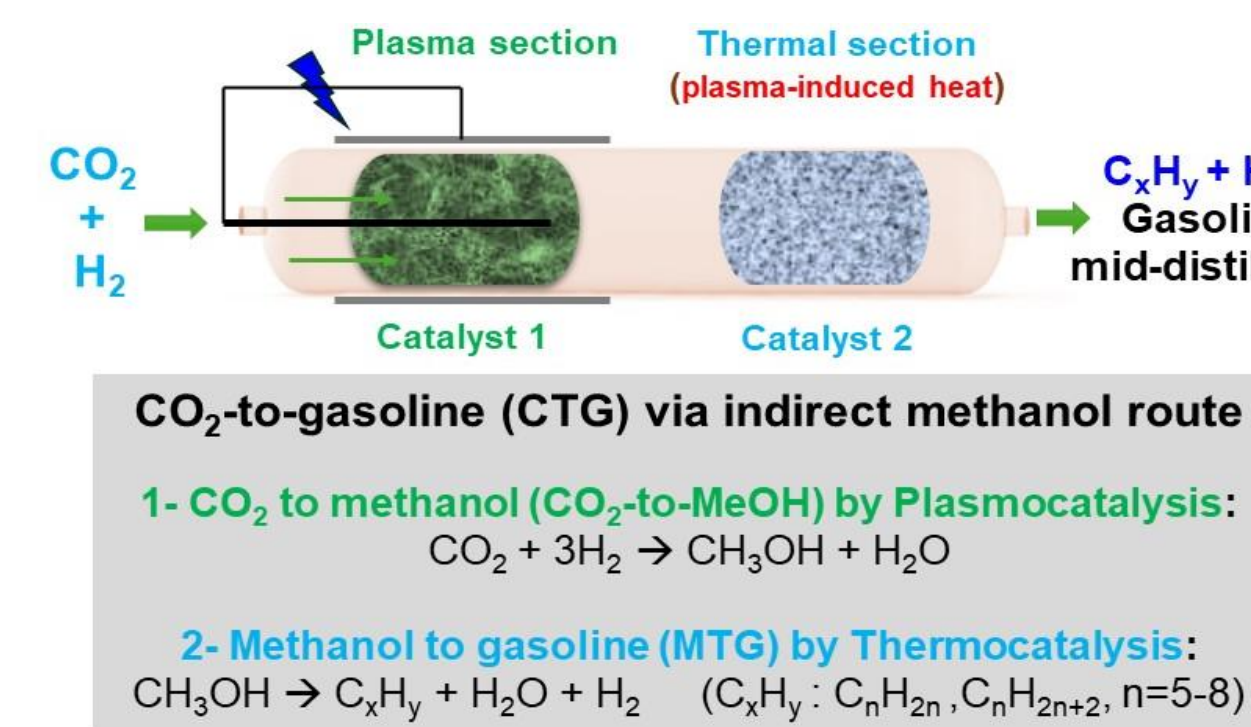
Renewable Hydrogen through Proton-Conducting Solid Oxide Electrolyzer Cells (SOEC)



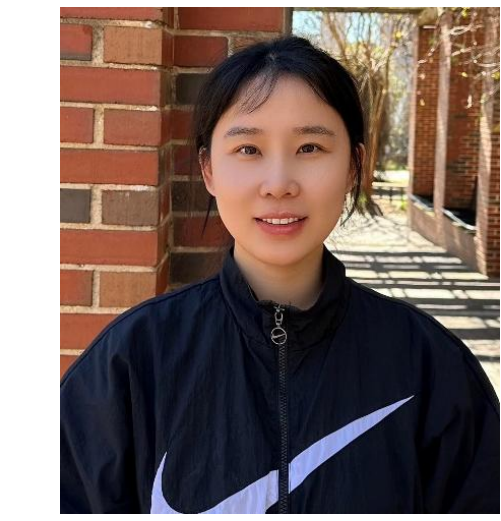
Christopher Obi

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

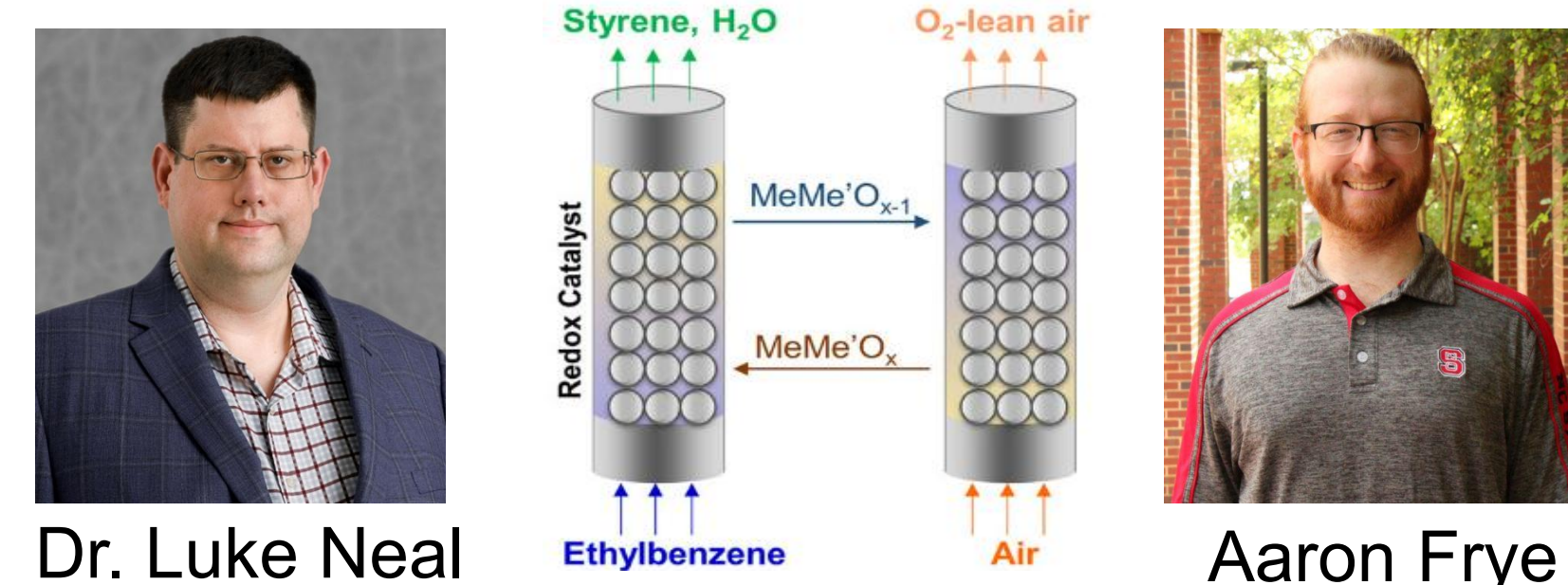


Dual Fluidized Bed Reactor



Chemical Looping Oxidative Dehydrogenation

CL-ODH of Alkylbenzene Compounds



Dr. Luke Neal

Aaron Frye

Oxidative Coupling and Dehydroaromatization of Methane



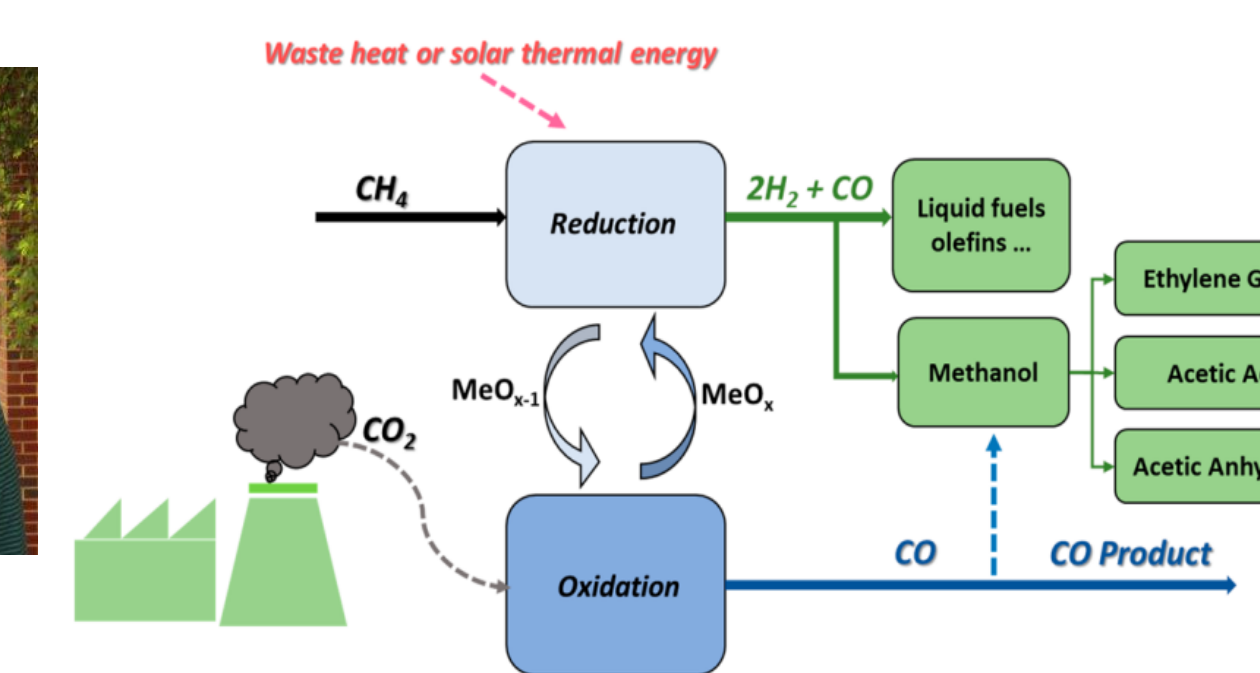
Dr. Baitang Jin

Ibrahim Sultan

Chemical Looping Dry Reforming for Sustainable Syngas Production



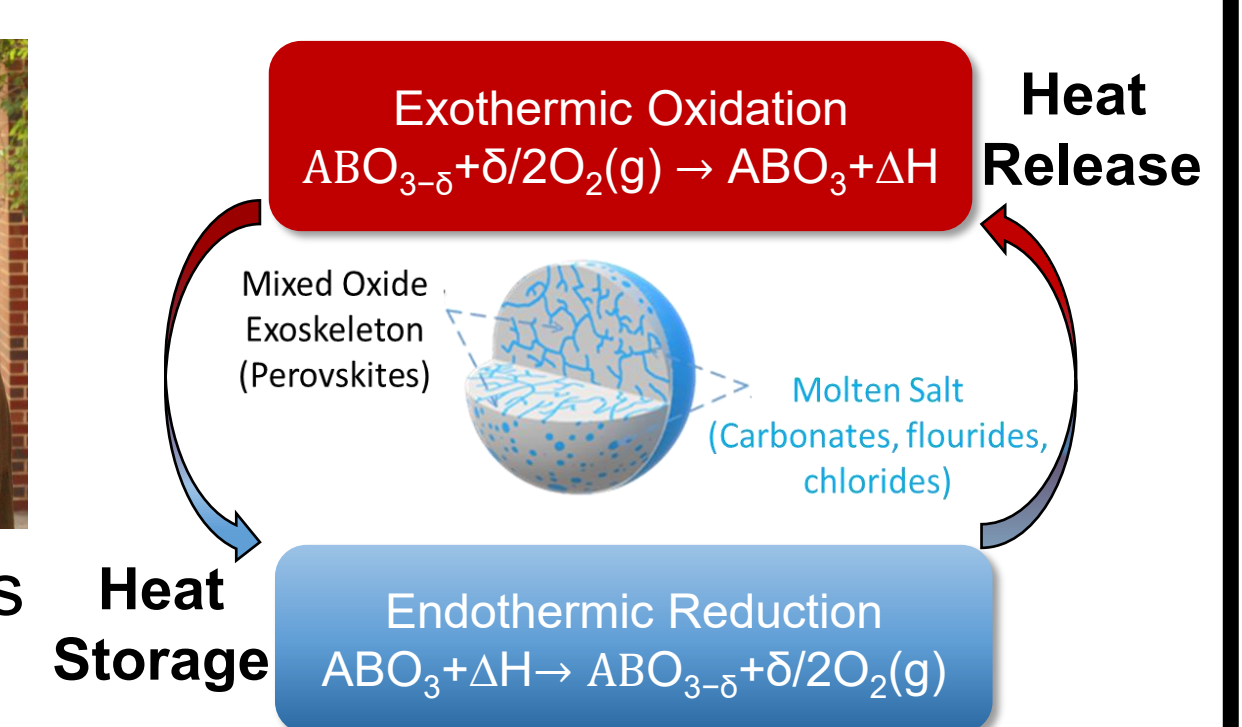
Will Martin



Thermochemical Looping Energy Storage

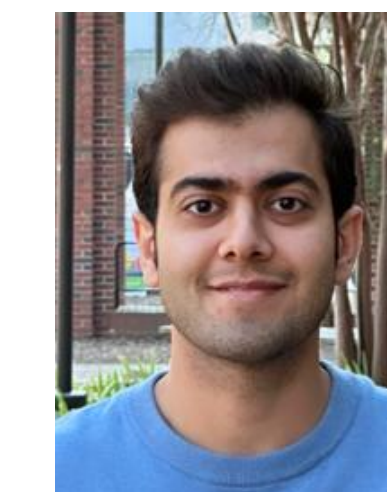


Hilal Bektas

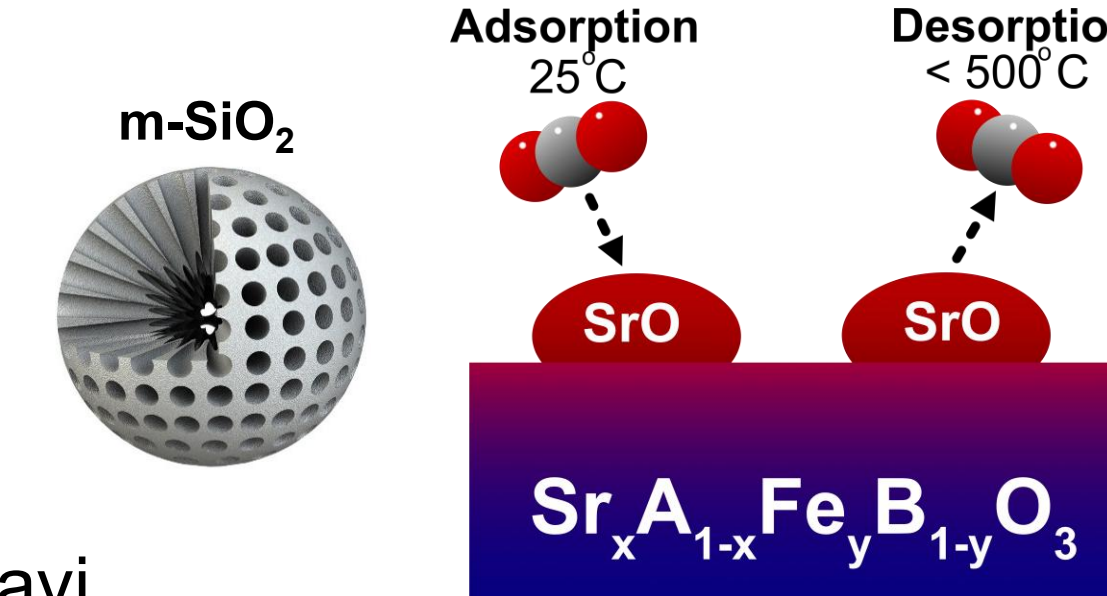


Carbon Capture, Utilization, and Process Intensification

Direct CO₂ Capture From Ambient Air



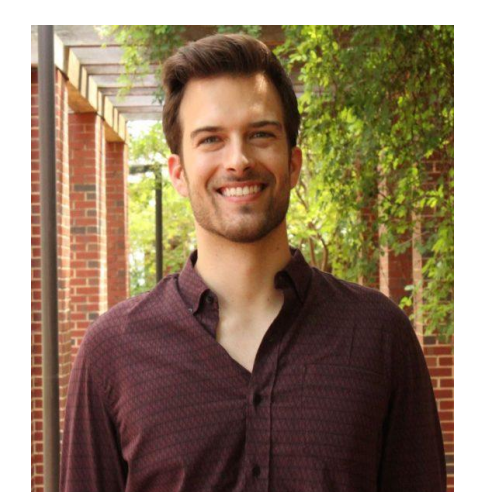
Seyedamin Razavi



Intensified Oxidative Dehydrogenation with CO₂ Capture

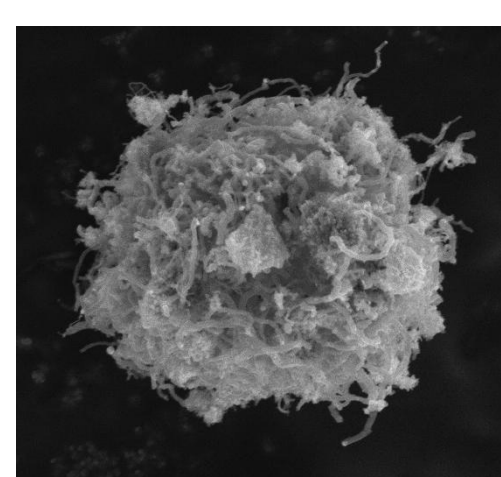
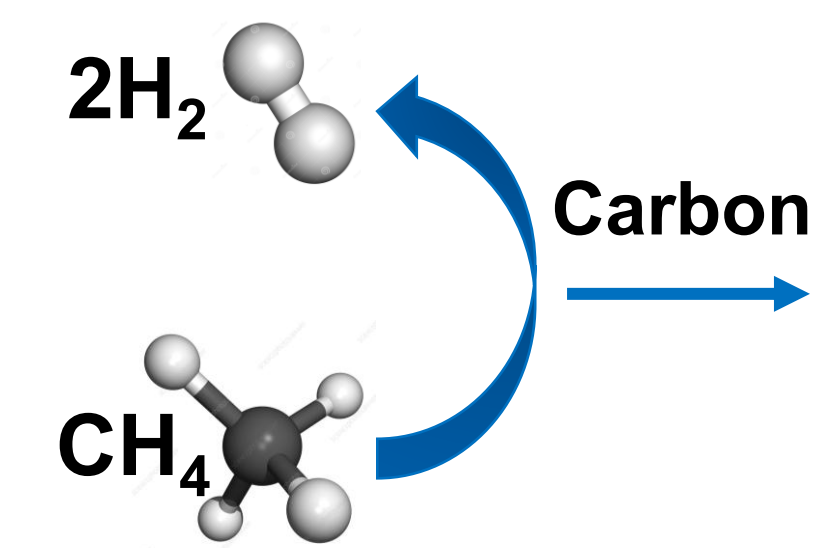


Dennis Chacko



Kyle Vogt-Lowell

Methane Pyrolysis for Hydrogen and Carbon Nanotube Production



Sam Portillo



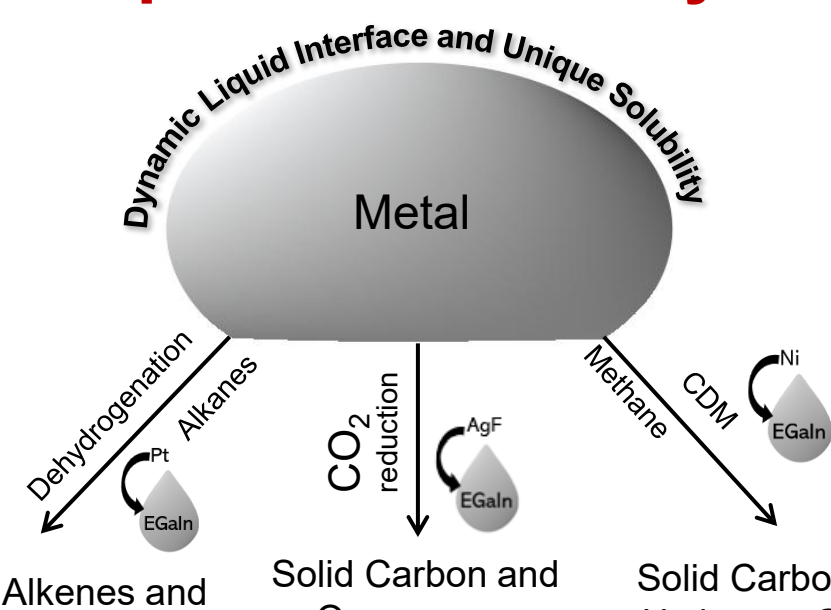
Dr. Mohammedreza Kosari

Liquid Metal Catalysis



Micah Dickens

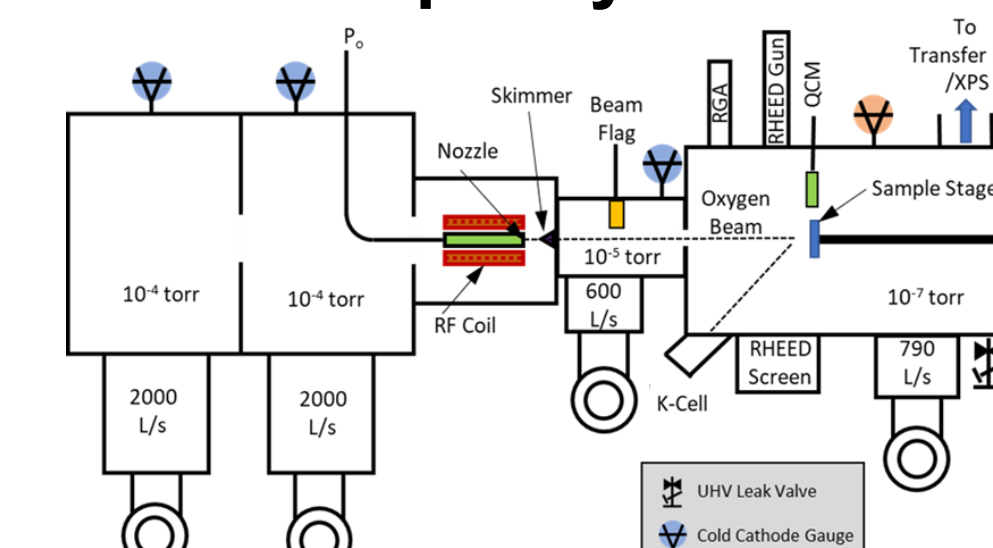
(co-advised with Dr. Dickey)



Thin Film Model Catalyst Systems through Molecular Beam Epitaxy

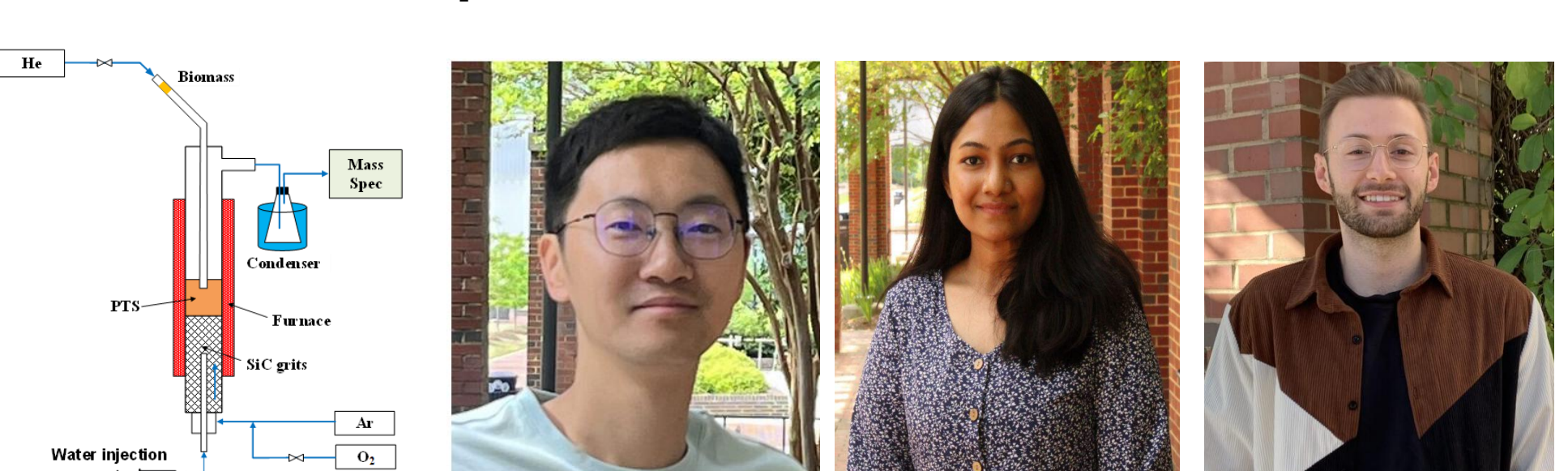


Dr. Andrew Pedersen



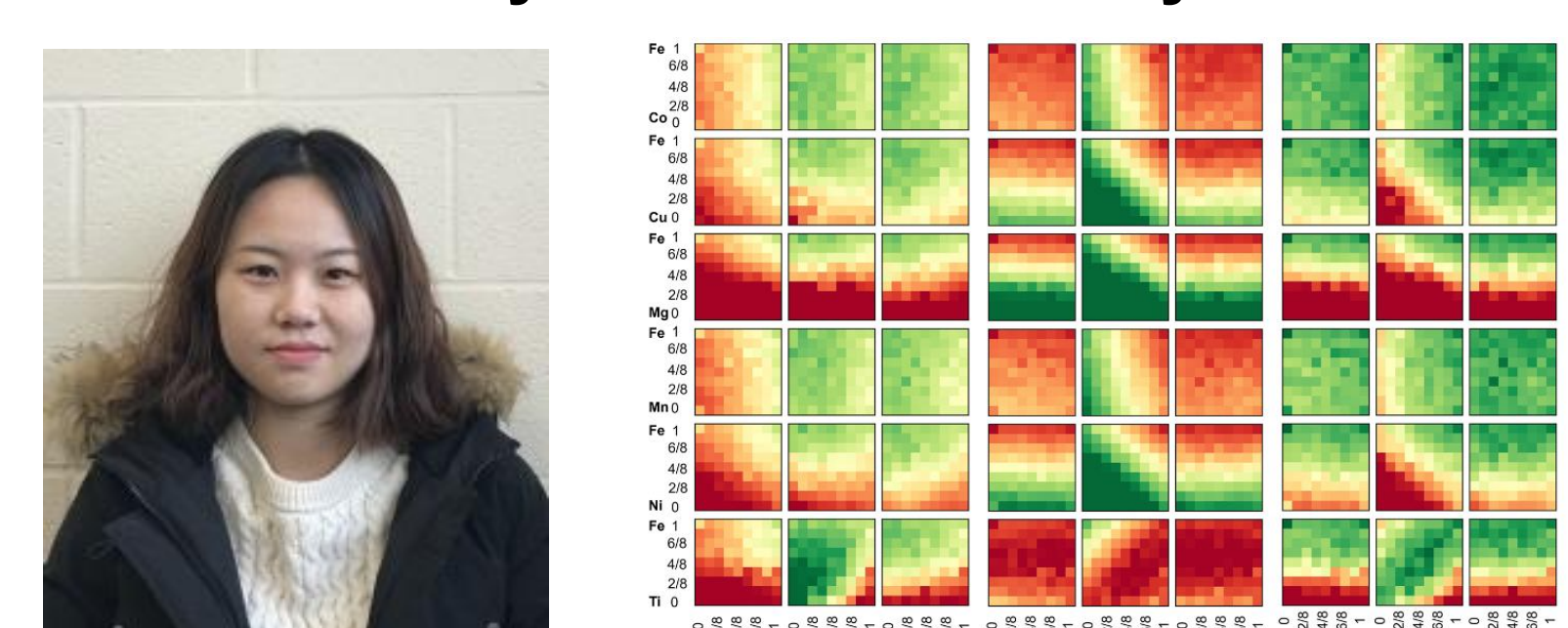
Biomass Conversion for Renewable Hydrogen and Fuels Production

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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