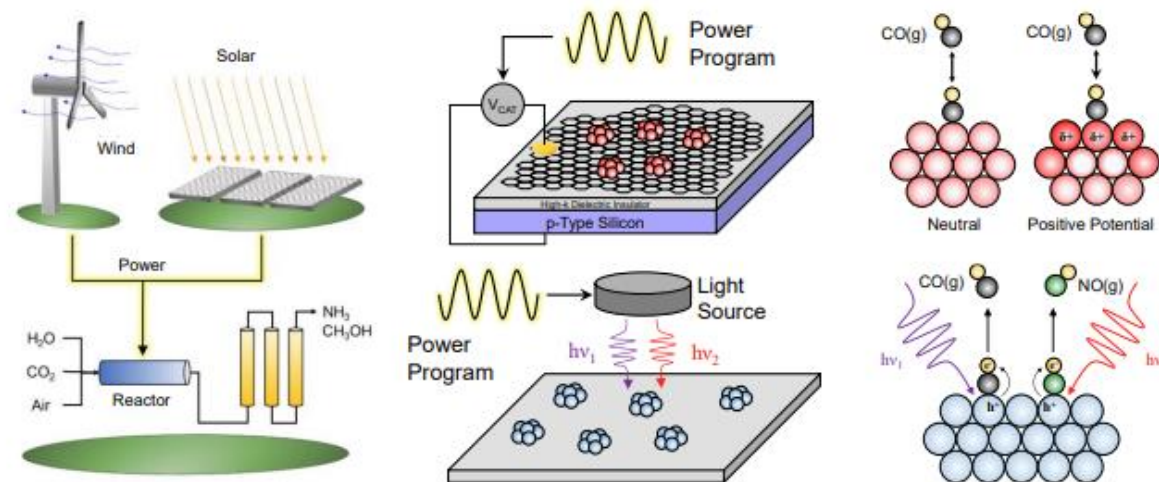


Center for Programmable Energy Catalysis (CPEC)

Paul Dauenhauer (University of Minnesota); Class: 2022-2026

MISSION: To transform how catalysts control energy, and to accelerate surface reactions beyond kinetic limitations using rapid perturbations of light and charge in programmed oscillations that alter the flow of energy at the surface and control the behavior of molecules and chemistry for renewable energy storage.



RESEARCH PLAN: CPEC aims to understand how electrons rearrange on metal and metal oxide surfaces such that they can be programmed to optimally control catalytic reactions. The power programs that temporally control the catalyst surface will be designed to promote targeted products at higher rates using a combination of modeling and experiment of two catalytic systems (dynamic photocatalysis and programmable catalytic condensers) that are designed for maximum power and oscillation frequency control with variable active surface compositions.