Abstract: My research program is focused on developing molecular catalysts for energy conversion (redox) reactions. We focus on the thermochemistry of key bond-making and cleavage steps for H+ reduction to H2 and CO2 reduction to HCO2-. We also design new ligand frameworks to explore bio-inspired secondary coordination sphere effects on reactivity. These include proton acceptors to mediate multi-proton, multi-electron processes such as oxidation of H2O to O2 as well as the effect of incorporating a non-redox active metal ion to tune redox potentials and reactivity through an electrostatic field potential.