U.S. DEPARTMENT OF ENERGY | Office of Science

Center for Molecular Electrocatalysis (CME)

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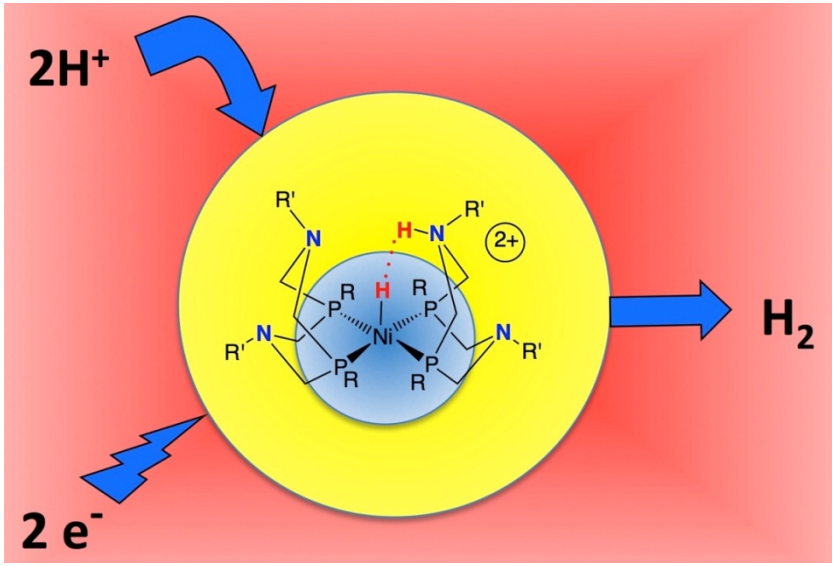
Our vision is to develop a fundamental understanding of **proton transfer reactions** that will lead to transformational changes in our ability to **design molecular electrocatalysts** that rapidly and efficiently convert electrical energy into chemical bonds in fuels, or the reverse, converting chemical energy to electrical energy.



RESEARCH PLAN AND DIRECTIONS

A secure energy future will require catalysts for the production of hydrogen, oxidation of hydrogen, reduction of oxygen, and reduction of nitrogen. These reactions involve movement of multiple protons and electrons. Our research addresses how proton relays regulate the movement of protons and electrons to enhance the rate and efficiency of electrocatalysts.

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