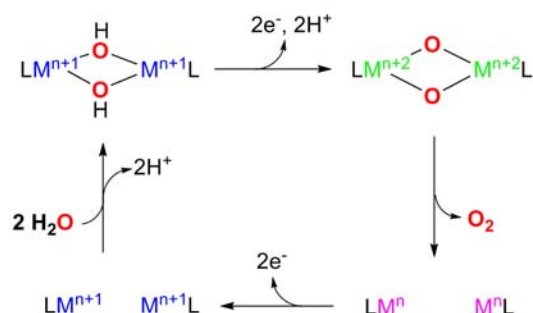


Renewable Energy Catalysis: The Study of Water Oxidation by Binuclear Metal Complexes



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We plan to develop dinuclear metal complexes designed to catalyze water oxidation by employing a novel paradigm of O₂ formation through the reductive elimination of a bis(μ-oxo) dinuclear metal complex (Scheme 1). The targeted binucleating ligands contain rigid linkers that control of the metal-metal distance (Figure 1).



Scheme 1

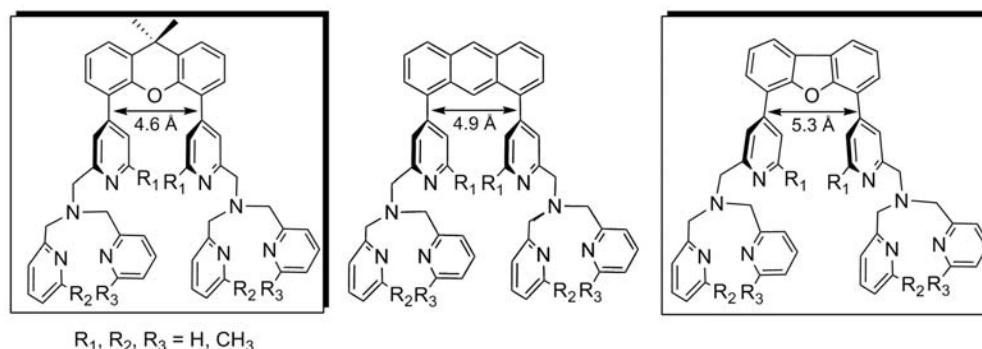


Figure 1

We were successful in synthesizing various metal complexes using the designed ligands. Bis(μ-hydroxo) dinuclear nickel complexes are currently being investigated for electrochemical water oxidation catalysis (Figure 2).

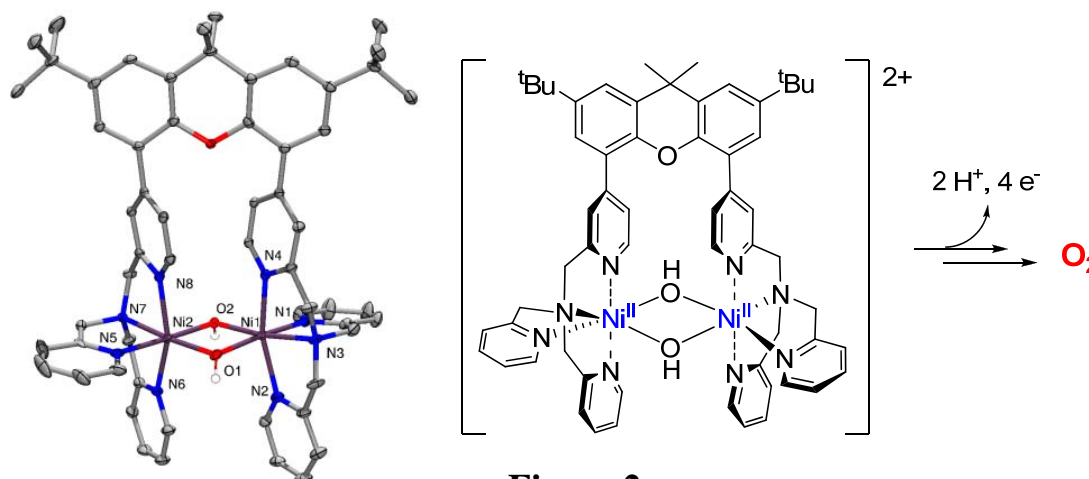


Figure 2