



# Rhodium-containing Conducting Metallopolymers: Utilizing Electronic Changes on the Polymer Backbone to Remotely Attenuate Metal-ligand Interactions

Bradley J. Holliday, Department of Chemistry & Biochemistry, The University of Texas at Austin

The use of redox-active ligands has been extensively investigated for their ability to affect the reactivity and binding of transition metal complexes. These systems have potential applications in small molecule storage and delivery, electrochemically mediated catalysis, and sensor development. Our approach uses conducting metallopolymers with metal complexes synthetically incorporated directly into a conducting polymer backbone which can therefore take advantage of the conducting polymer as a redox-active ligand. The goal is to explore the redox-dependent properties of this class of materials and potentially develop redox-controlled catalysts and molecular separations materials. Specifically, a series of new Pt-[NCN] pincer complexes with electropolymerizable substituents have been prepared and studied. The design, synthesis, characterization, and redox-affected properties of this monomer, the corresponding conducting metallopolymers, and several model complexes have been performed. Solution, solid-state, electrochemical, and spectroelectrochemical techniques have been utilized to study these electroactive materials.

