

There exist a substantial number of bimetallic complexes formed from Ru, Ir, and Rh ions bound to bidentate ligands. Although the properties of these complexes have been investigated to some extent, the synthesis and properties of many require greater investigation.

First, a ligand (BisL) is synthesized that is capable of tethering two metal centers together. Then partially ligated transition metal complexes are synthesized as reaction precursors to the complete complexes. Finally, Ru, Ir and Rh bimetallic complexes with two metal centers, ligated to 2,2'-bipyridine or 2,2'-phenylpyridine and BisL are synthesized and the methods developed to create good yield and purity. The electrochemical properties are studied using cyclic voltammetry and tested against Co complexes to determine the hydrogen reduction capability.