

USING ELECTROABSORPTION SPECTROSCOPY TO GAIN INSIGHT INTO THE GROUND- AND EXCITED-STATE MIXED VALENCE PROPERTIES OF A SERIES OF DIMERS FORMED FROM METAL-METAL QUADRUPLY BONDED UNITS

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A series of complexes of the type $[(MM)(piv)_3]_2-\mu_2-BL$, where M= Mo or W, piv= pivalate, and BL= oxalate or terephthalate, were synthesized. These complexes are known to form strongly coupled mixed valence species in their +1 (singly oxidized) state. Here, we report the properties of the neutral complexes, which are of appropriate symmetry to form mixed valence species in their metal-to-ligand charge transfer (MLCT) excited states. In particular, we discuss the steady state, electroabsorption, and time resolved spectroscopy associated with MLCT excitation. We also consider the inter-relation (if any) of the properties of ground- and excited-state mixed valency.