THE PHOTOPHYSICAL PROPERTIES OF QUADRUPLY BONDED M_2 ARYLETHYNYLCARBOXYLATE COMPLEXES

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The incorporation of tolylethynylcarboxylate and anthrylethynylcarboxylate ligands into quadruply bonded dimetal complexes has been achieved. Their photophysical properties have been investigated by fs-transient absorbance, ns-transient absorbance, visible and near-IR emission. These dimetal complexes, where M = molybdenum, exhibit two excited states: one short-lived (fs) and one long-lived (μs). The higher energy emission associated with the short lived excited state has been assigned as the ^{1}MLCT based on the small stokes shift and DFT-calculations. DFT-calculations of the lowest energy triplet state along with the vibronic features of the lowest energy emission have allowed the long lived excited state to be assigned as metal based in character.