

UV SPECTROSCOPY ON GAS PHASE Cu(I)-BIPYRIDYL COMPLEXES

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Transition metal complexes with bipyridine ligands are of great interest in metal-organic chemistry, since they are prototypes for many applications in photochemistry and homogeneous catalysis. Under-coordinated bipyridyl complexes are elusive species in the condensed phase, and the ligand-induced changes in electronic structure are of fundamental interest. We present UV photodissociation spectra of mass-selected monocationic copper(I)-bipyridyl complexes $[\text{bpy-Cu-L}]^+$ with different ligands ($L = \text{H}_2\text{O}, \text{D}_2, \text{N}_2, \text{MeOH}, \text{Cl}$). Complexes were prepared via electrospray ionization of copper/bipyridine solutions followed by accumulation and buffer gas cooling in a cryogenic Paul trap. In addition, we show spectra of similar species based on copper oxide, $[\text{bpy-CuO-L}]^+$.