# ELECTRONIC IMPACT OF FLUORINATED TRITYL ALKOXIDE LIGANDS ON METAL CENTERS

Mary M. Bussiere, James McNeely, and Linda H. Doerrer

Department of Chemistry, Boston University, Boston, MA, USA

Low-coordinate transition metal centers are often targeted for enhanced reactivity, because the unusual electronic configurations and the steric accessibility for substrate binding imposed by the ligand environment are desirable qualities. In addition to steric advantages, weak-field ligands that impose high-spin electron configurations at metal centers may improve or favor different reactivity. Such metal centers continue to be of interest in C-H bond oxidation catalysis. This report describes a new group of compounds with bulky and highly fluorinated tertiary alkoxide ligands, whose ligands are inherently resistant to intramolecular C-H oxdiation.

Three perfluorotrityl-derived monodentate alkoxide ligands, termed the "Fox" ligands, have been used to prepare a large family of divalent, late 3*d* transition metal compounds, primarily Co but also Mn and Fe. Complexes of "big fox," $(OC(C_6F_5)_3)^{1-}$ = $(OFox^B)^{1-}$, and "medium fox," $(OC(CF_3)(C_6F_5)_2)^{1-}$ = $(OFox^M)^{1-}$, yielded similar structural motifs to each other, whereas complexes of "little fox," $(OCH(C_6F_5)_2)^{1-}$ are structurally distinct. These transition metal compounds were fully characterized including SCXRD, UV-vis spectroscopy, cyclic voltammetry, Evans method susceptibility, and elemental analysis.

The electronic structures and redox behavior of these compounds were compared to both perhydro analogs as well as complexes of the related, but less bulky tertiary alkoxide ligand $(OC(CF_3)_3)^{1-}$. Work toward isolating trivalent complexes of the form $[M(OR)_3]$ will be described.