Inorganic Seminar

Monday, May 2, 4 pm

473 Hutchison Hall

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"*The Carbonyl-Isocyanide Relationship and Beyond*"

Abstract: Recent results concerning the synthesis and reactivity of low-coordinate transition-metal complexes featuring sterically encumbering m-terphenyl isocyanide ligands are presented. Given the isolobal relationship between organoisocyanides and carbon monoxide, these complexes serve as mimics of the unsaturated binary metal carbonyls. The latter have traditionally been studied in either the gas phase or by matrix-isolation techniques and, consequently, their condensed-phase reactivity patterns are largely unknown. Specifically addressed will be synthetic studies that have delivered homoleptic and heteroleptic isocyanide complexes that mimic several unsaturated binary carbonyls for the middle and late transition metals. An emphasis is placed on the generation of anionic isocyanide complexes and their use as metal-based nucleophiles. The constrained steric environment enabled by m-terphenyl isocyanides has allowed for the isolation of unique organometallic complexes when these anionic isocyanide complexes are treated with main group electrophiles. It has been recently reported that such systems support the stabilization of the simple 10e$^-$ diatomic molecule boron monofluoride (BF) as a terminal ligand. The reactivity of this complex is detailed, with purpose of establishing the electronic structure features of the BF ligand. Also discussed is the synthesis of other, unusual 10e$^-$ diatomic ligands within the protective environment of the m-terphenyl isocyanide framework.

Website: https://events.rochester.edu/event/chemistry_inorganic_seminar_figueroa

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