DEPARTMENT OF CHEMISTRY
Seminar Series

FEBRUARY 16, 2018 - 12:00 Noon, H313

Redox-active Early Transition-Metal and f-block Phthalocyanines

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Despite the extensive literature on metallophthalocyanines (PcM) there are very few examples with early-transition metals, despite their rich reactivity in organometallic chemistry and small-molecule activation. Using rigorously air- and moisture-free conditions, the isolation and structural characterization of highly reduced Pc^{n-} (n=3,4,5) complexes – among the first ever reported - with early transition-metals, including Sc, Cr and Mo, will be described. New s-organometallophthalocyanines - structurally characterized PcM-complexes with metal-carbon bonds - will be illustrated. The electronic structure of some of these materials will also be examined, using a combination of UV-vis-NIR, X-ray diffraction studies and DFT calculations.[1] Extensions to new lanthanide and actinide PcM complexes will be included.

[1] W. Zhou, J.R. Thompson, C.C. Leznoff, D.B. Leznoff, *Chem. Eur. J.*, **2017**, *23*, 2323-2331; R. Platel, W. Zhou, T.T. Tasso, T. Furuyama, N. Kobayashi, D.B. Leznoff, *Chem. Commun.*, **2015**, 5986-89; W. Zhou, R. Platel, T.T. Tasso, T. Furuyama, N. Kobayashi, D.B. Leznoff, *Dalton Trans.*, **2015**, *44*, 13955.