LABORATOIRE D'ELECTROCHIMIE MOLECULAIRE
Université Paris 7 – Denis Diderot
Unité Mixte de Recherche CNRS / Paris 7 (7591)

Séminaire de Chimie - Mardi 10 Mars 2015
11h, Salle 774, Bâtiment Lavoisier

Understanding the Reactivity and Electronic Structure of Biomimetic Peroxo- and Hydroxo-Manganese Complexes

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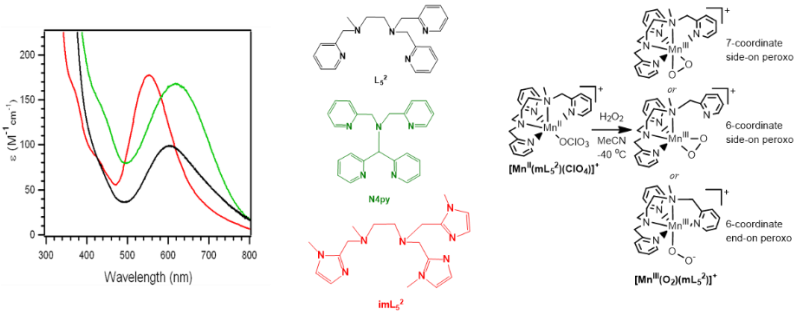
(Professeur Invité au LEM - Mars 2015)

Redox-active manganese enzymes participate in vital biological processes, including the defense against free radicals, the oxidation of aromatic substrates, and the conversion of nucleotides to deoxynucleotides. In many cases, these enzymatic reactions are initiated through the activation of dioxygen, or one of its reduced derivatives (superoxide or hydrogen peroxide), by an active-site manganese(II) center. While peroxo- and hydroxo-manganese species are commonly proposed as intermediates in these processes, the fleeting nature of the enzymatic intermediates prevents a detailed understanding of geometric and electronic contributions to reactivity. This presentation will describe our on-going efforts to provide insight into these intermediates by examining the physical properties and reactivity of biomimetic manganese complexes. In particular, we will focus on understanding the electronic structure of these intermediates, and examining the role of these intermediates in proton-coupled electron-transfer reactions.



Uv-Vis spectra of Mn-perexo complexes with various polypyridine ligands

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