Nature is the cure:
reactivity blueprints for bioinspired catalysis and chemistry

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Biological systems rely on the use of reactivity-enhancing tools to perform chemical reactions with unrivalled efficiency. Among these tools, redox cofactors present near metalloenzymatic active sites provide electron storage and release to assist the neighboring metal center in performing the reactions.[1]

Emulating such systems, the development of catalysts bearing redox-active ligands is a blossoming research field.[2] Our contribution in this area has dealt with the transfer of CF_3 groups[3] and the stabilization of masked high-valent metallic oxidation states.[4] We will present our results on the transfer of nitrene and carbene moieties by redox-active copper complexes bearing iminosemiquinone ligands, and focus on our efforts to cross-fertilize the field of bioinspired catalysis with redox-active ligands with other bioinspired reactivity-enhancing strategies such as spin catalysis[5] and entatic state reactivity.[6]

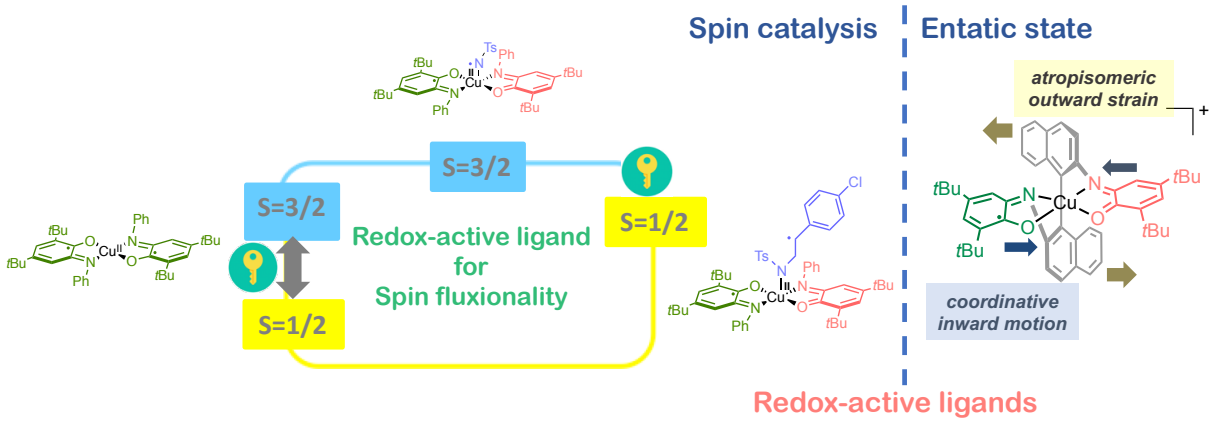

Figure 1. Combining bioinspired strategies for redox catalysis

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