Targeted Paramagnetic Complexes for Sensing, Solar, and Other Aspects of World Domination

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Abstract: The sheer scale of the issues involved in meeting our burgeoning energy and materials needs compels us to consider earth-abundant sources for such compounds. Unfortunately, simple replacement of heavier and rarer metals with their 1st row counterparts is not straightforward, due in large part to significant differences in redox and spin behaviors. To address this gap, our research group focuses on synthetic management of spin and electronic structures in transition-metal coordination complexes. We aim to apply this knowledge toward applications in magnetic data storage, chemical sensing and solar photoconversion. I will focus on iminopyridine ligands and their complexes with 1st row metal ions, highlighting their synthetic versatility and redox non-innocence.