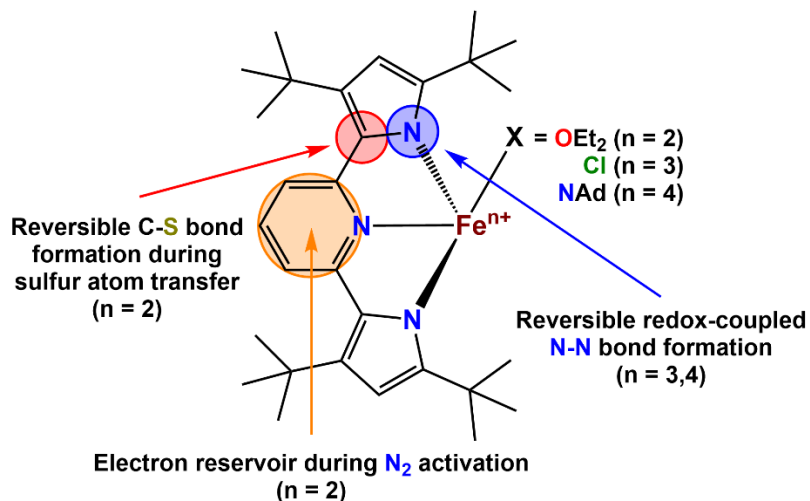


Ligand-based redox reactions supporting the small molecule activation by low-coordinate iron complexes

Versatile cooperative metal- and ligand-based redox chemistry



Redox non-innocent supporting ligands can be employed to facilitate multi-electron redox reactions and stabilize open-shell intermediates in 3d transition metal-mediated conversions.¹ The tridentate meridional N₃-ligand 2,6-di-(3,5-di-tert-butylpyrrol-2-yl)-pyridine (tbpyrr₂py) is shown to support a diverse range of small molecule activation reactions of its low-coordinate iron complexes, specifically, sulfur atom transfer², reversible N-N bond formation³, and dinitrogen activation under ambient conditions.⁴ In these examples, the tbpyrr₂py ligand is found to support various redox processes, ranging from the oxidation of a high-valent iron(IV) to the two-fold reduction of a low-valent iron(II) species.

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