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Spiro Metalla-aromatics ~ Making the Impossible Possible ~

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Spiro compounds with one carbon as the spiro atom are often present in organic chemistry. However, they are impossible to be aromatic. When the spiro atom is replaced by a transition metal, the whole scenario may change completely, because transition metals can make the impossible formation or transformation possible. This presentation will report on the synthesis and characterization of spiro metalla-aromatic compounds, in which a transition metal is the spiro atom, that cross-conjugates two aromatic five-membered metallacycles. Our results on metalla-aromatics formed from dilithio reagents and low-valent transition metal complexes demonstrate that organolithium compounds with π -conjugation can be redox-active. 2-4 The concept of formal oxidation state for organometallic compounds will be discussed also.

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