Metal Complexes of Diamido- and Tetraamido-benzene Ligands: Privileged Compounds in Organometallic Chemistry and Molecular Magnetism

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The deprotonated forms of diamino- and teteraamino-benzenes (Figure 1) are typical examples of non-innocent ligands.[1] Traditionally metal complexes of these ligands have either been studied because of their intriguing electronic structures,[2] or because of their proton-responsive nature[3]. In this contribution, we will focus on recent contributions from our groups in which we have used these ligands to generate "masked" low-valent or high-valent compounds with intriguing organometallic reactivity.[4] Additionally, we will present modifications on the substitution pattern in these ligands that have led to air- and moisture-stable radical-bridged organometallic compounds.[5] Furthermore, we will discuss the relevance of such complexes, and in particular of the radical-bridged forms for generating state-of-the-art single-ion magnets.[6]

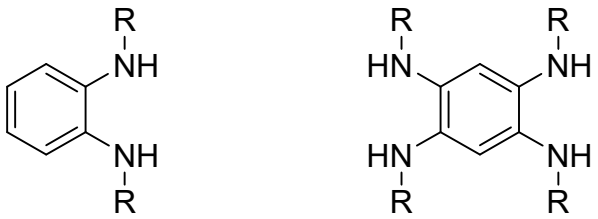

Figure 1. The ligands 1,2-diaminobenzene (left) and 1,2,4,5-tetraaminobenzene (right).

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