Electronic Structure of the Nitroxyl Complexes Bis(di-*tert*-butylnitroxide)cobalt(II) Halide

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Recently Gatteschi *et al.* [1] confirmed our previous findings [2] on the electronic doublet ground state of the title compounds, which were questioned by Drago *et al.* [3]. Some years ago we also re-examined the magnetic susceptibility of bis(di-*tert*-butylnitroxide) diido cobalt(II) and obtained the same result as previously reported by us [2]. After correcting for the diamagnetic contribution the magnetic susceptibility of the iodo complex was found to be $\chi_{M'} = (2750 \pm 30) \times 10^{-6}$ cm^3 mol^{-1} at 292 K, which corresponds to a magnetic moment of 2.54 μ_B*. As found by Gatteschi *et al.* [1] we observed that the magnetic moment of the nitroxide complex considerably increases after exposing the compound to air and moisture. We also would like to refer to the analogous compound diido bis(2,2,6,6-tetramethylpiperidine-N-oxyl)cobalt, which was studied by Schwarzhans *et al.* [4] and which showed a magnetic moment of 2.59 μ_B (296 K). Thus the spin doublet ground state of these nitroxide cobalt complexes (*i.e.* coupling of the unpaired electrons of the nitroxyl ligand and of the cobalt atom) is definitely established.

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