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Exchange coupling and anisotropy effects on the low temperature magnetization dynamics in rare-earth dioxolene complexes ASMA AMJAD, GIORDANO PONETI, SILVIA SOTTINI, ANDREA DEI, LORENZO SORACE, INSTM, Universit di Firenze — The prelude of relevant magnetic coupling in *f*-element based complexes is actively pursued to improve the single-molecule magnetic features. However, a quantitative analysis of magnetic properties of exchange-coupled anisotropic rare-earth based complexes is often hampered owing to the comparable magnitude of the crystal field with the magnetic coupling. In this study, we investigated the properties of complexes containing different ligands with comparable molecular structures and ligand field strengths. Comparative low-temperature magnetic and EPR study of homologous Ln^{III}Semiquinonate (LnSQ) and Ln^{III}Tropolonate (LnTrp) complexes, where Ln = Dy, Tb is investigated. Single-crystal EPR revealed that the direct exchange coupling in DySQ resulted in a highly anisotropic pseudo-triplet state. An out-of-phase susceptibility signal was observed for TbTrp only in the presence of an external magnetic field. Furthermore, the dynamics revealed slow relaxation of magnetization in the DySQ at low temperature which upon comparative study with the dynamics of the related DyTrp revealed a not so simple dependence on the crystal field effects of the coordination sphere of the lanthanide.

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