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Slow relaxation of the magnetization in an Isostructural series of Zinc-lanthanide complexes: an integrated EPR and AC susceptibility study ASMA AMJAD, INSTM Research Unit - LAMM Dipartimento di Chimica "U. Schiff," Università di Firenze, Sesto Fiorentino(FI), Italy, AUGUSTIN MADALAN, MARIUS ANDRUH, University of Bucharest, Faculty of Chemistry, Inorganic Chemistry Laboratory, Bucharest, Romania, ANDREA CANESCHI, LORENZO SORACE, INSTM Research Unit - LAMM Dipartimento di Chimica "U. Schiff," Università di Firenze, Sesto Fiorentino(FI), Italy, UNIVERSITY OF BUCHAREST, FACULTY OF CHEMISTRY, INORGANIC CHEMISTRY LABORATORY, BUCHAREST, ROMANIA COLLABORATION — Lanthanide based molecular complexes have shown potential to behave as single molecule magnets proficient to function above cryogenic temperatures. In this work we explore the dynamics of one such family, $[Zn(LH)_2Ln](NO_3)_3{\cdot}6H_2O$ - (Ln = Nd^{3+}, Dy^{3+}, Tb^{3+}, Ho^{3+}, Er^{3+}, Yb^{3+}). The series has a single lanthanide ion as a magnetic center in a low symmetry environment; the dynamics and energy landscape of the series is explored using X-band EPR, AC and DC susceptibility over a range of temperature, field and frequency. DC magnetic data show χT value consistent with expected behavior. EPR spectra for Er^{3+} and Yb^{3+} complexes shows EPR spectra typical for easy-plane and quasi-isotropic systems respectively, thus explaining the lack of out of phase susceptibility even in an external applied filed. However, Dy^{3+} derivative show slow relaxation of the magnetization in zero field up to 15 K and is, accordingly EPR silent.

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