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Magnetic hysteresis in a lanthanide molecular magnet dimer system[1] JAMES ATKINSON, REBECCA CEBULKA, ENRIQUE DEL BARCO, University of Central Florida, Physics Department, Orlando, FL, USA, OLIVIER ROUBEAU, Instituto de Ciencia de Materiales de Aragn (ICMA), CSIC and Universidad de Zaragoza, Zaragoza, Spain, VERONICA VELASCO, LEO BARRIOS, GUILLEM AROMI, Universitat de Barcelona, Departament de Qumica Inorgnica, Barcelona, Spain — Molecular magnets present a wonderful means for studying the dynamics of spin. Often synthesized as a crystal lattice of identical systems, ensemble measurements enable thorough detailing of the internal degrees of freedom. Here we present the results of characterization performed on a dimer system, $CeTm(HL)_2(H_2L)NO_3pyH_2O$ (L = ligand, $C_{45}H_{31}O_{15}N_3$), consisting of two lanthanide spins (Cerium and Thulium) with expected local axial anisotropies tilted with respect to each other. Microwave EPR spectroscopy at low temperature reveals hysteresis in observed absorption features, with angle dependence studies indicating the presence of several easy axis orientations. We attempt to understand this system through modelling via a spin Hamiltonian, and to determine the strength and nature of the coupling between the lanthanide centers.

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