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Magnetic exchange studies of one-dimensional Co(II) molecular chains ASMA AMJAD, University of Central Florida, Orlando, G.M. ESPALLARGAS, J.M. CLEMENTE-JUAN, Instituto de Ciencia Molecular, Universidad de Valencia, Spain, R. KLEMM, E. DEL BARCO, University of Central Florida, Orlando, E. CORANADO, Instituto de Ciencia Molecular, Universidad de Valencia, Spain, M. EVANGELISTI, ICMA, Universidad de Zaragoza, Spain — We present a detailed experimental and theoretical study of a 1D spin ½ Co-based molecular chain, trans-[$CoCl_2$(3,5-Br_2py)$_2$]. Our results show distinct features that are associated to both intra-molecular interactions (along the chain) and inter-molecular interactions (perpendicular to the direction of chains). The hysteresis observed at low temperature (230mK), indicate presence of 3D ordering attributed to the exchange interactions between the chains. Measurements done at different angles from the chains axial direction (c-axis), restricted within the a-c and b-c planes, reveal uniaxial anisotropy along the c-axis. The experimental data are explained using the mean field approximation, focusing on the behavior of inter-chain interactions and g-tensor anisotropy at the Co sites in the presence of a static magnetic field. A transition between two different relaxation regimes encountered for variable sweep rates will also be discussed.

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