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Dependence of magnetic field and electronic transport of Mn4 Single-molecule magnet in a Single-Electron Transistor ALVAR RODRIGUEZ, SIMRANJEET SINGH, FIROZE HAQUE, ENRIQUE DEL BARCO, University of Central Florida Department of Physics, TU NGUYEN , GEORGE CHRISTOU, University of Florida Department of Chemistry — Dependence of magnetic field and electronic transport of Mn4 Single-molecule magnet in a Single-Electron Transistor A. Rodriguez, S. Singh, F. Haque and E. del Barco Department of Physics, University of Central Florida, 4000 Central Florida Blvd., Orlando, Florida 32816 USA T. Nguyen and G. Christou Department of Chemistry, University of Florida, Gainesville, Florida 32611 USA Abstract We have performed single-electron transport measurements on a series of Mn-based low-nuclearity single-molecule magnets (SMM) observing Coulomb blockade. SMMs with well isolated and low ground spin states, i.e. S = 9/2 (Mn4) and S = 6 (Mn3) were chosen for these studies, such that the ground spin multiplet does not mix with levels of other excited spin states for the magnetic fields (H = 0-8 T) employed in the experiments. Different functionalization groups were employed to change the mechanical, geometrical and transport characteristics of the molecules when deposited from liquid solution on the transistors. Electromigration-broken three-terminal single-electron transistors were used. Results obtained at temperatures down to 240 mK and in the presence of high magnetic fields will be shown.

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