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Kondo effect in single-molecule magnet transistors GABRIEL GONZALEZ, MICHAEL LEUENBERGER, NanoScience Technology Center, Univ Central Florida, EDUARDO MUCCIOLO, Department of Physics, Univ Central Florida — We present a careful and thorough microscopic derivation of the anisotropic Kondo Hamiltonian for single-molecule magnet (SMM) transistors. When the molecule is strongly coupled to metallic leads, we show that by applying a transverse magnetic field it is possible to topologically induce or quench the Kondo effect in the conductance of a SMM with either an integer or a half-integer spin S>1/2. This topological Kondo effect is due to the Berry-phase interference between multiple quantum tunneling paths of the spin. We calculate the renormalized Berry-phase oscillations of the two Kondo peaks as a function of a transverse magnetic field by means of the poor man's scaling approach. We illustrate our findings with the SMM Ni4, which we propose as a possible candidate for the experimental observation of the conductance oscillations.

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