## Abstract Submitted for the MAR09 Meeting of The American Physical Society

Tunneling spectra of individual magnetic endofullerene molecules E. S. TAM, J. E. GROSE, J. J. PARKS, B. ULGUT, H. D. ABRUÑA, D. C. RALPH, Cornell University, C. TIMM, University of Kansas, M. SCHELOSKE, W. HARNEIT, Freie Universität Berlin — We report measurements of electron tunneling spectra for individual N@C60 molecules, a spin-3/2 endohedral fullerene. The molecules were measured at low temperature in electromigrated break-junctions in the single-electron transistor configuration. We observe that the N@C60 devices exhibit a spin-state transition as a function of applied magnetic field which was not observed in C60 control devices. The nature of this transition enables us to identify the charge and spin states of the molecule. The spectra of N@C60 devices also exhibit low-energy excited states and signatures of non-equilibrium spin excitations predicted for this molecule. The experimental spectra can be reproduced theoretically by accounting for the exchange interaction between the nitrogen spin and electron(s) on the C60 cage.

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