

Abstract Submitted  
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**Inelastic Neutron Scattering and Magnetisation Investigation of an Exchange-Coupled Dy<sub>2</sub> SMM**<sup>1</sup> MICHAEL L. BAKER, City College of New York, CUNY and New York University, QING ZHANG, MYRIAM P. SARACHIK, City College of New York, CUNY, ANDREW D. KENT, YIZHANG CHEN, New York University, NICHOLAS BUTCH, NIST, EUFEMIO M. PINEDA, ERIC MCINNES, University of Manchester — The strong spin orbit coupling and weak crystal field energies of simple exchange-coupled rare earth SMMs makes the precise evaluation of their magnetic properties nontrivial. Here we report a detailed investigation of the single molecule magnet  $\text{hqH}_2\text{Dy}_2(\text{hq})_4(\text{NO}_3)_3\text{MeOH}$ . Inelastic neutron scattering is used to obtain direct access to several low energy crystal field excitations. The INS results display several features that are not found in earlier FIR absorption experiments [1], while other features found in the latter are absent. Based on the effective point charge model, numerical calculations are currently underway to resolve these apparent discrepancies using complementary magnetisation measurements to resolve the exchange between Dy ions. [1] E. M. Pineda et al. Nat. Commun. 5, 5243 (2014).

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