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**High Frequency EPR studies of an antiferromagnetic supramolecular grid** SAITI DATTA, STEPHEN HILL, University of Florida, OLIVER WALDMANN, University of Bern, VICTORIA MILWAY, LAURIE THOMPSON, Memorial University, UNIVERSITY OF FLORIDA COLLABORATION, UNIVERSITY OF BERN COLLABORATION, MEMORIAL UNIVERSITY COLLABORATION — The magnetic anisotropy of an antiferromagnetic Mn(II)-[3 x 3] grid was studied by High Frequency Electron Paramagnetic Resonance(HFEPR). The ground state level crossing was observed from various temperature dependent studies. Frequency dependent studies illustrate a breaking of the  $\Delta S = 0$  EPR selection rule due to the strong mixing induced by the comparable exchange and magneto-anisotropy energy scales within the grid. In addition, the field-orientation dependence of the energy gap between the ground and first excited state was studied. All of these studies have contributed to a better understanding of this supramolecular grid, which represents a promising candidate to observe the long sought after quantum tunneling of the Néel vector.

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