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**Frustration in the Magnetic Molecules  $W_{72}V_{30}$  and  $Pr_{13}$  Probed by NMR and Tunnel-diode Resonator** STEVEN YENINAS, M. LUBAN, R. PROZOROV, Y. FURUKAWA, The Ames Laboratory, C. SCHRÖDER, University of Applied Sciences, Bielefeld, Germany, J. SCHNACK, University of Bielefeld, Germany — The magnetic molecules  $Pr_{13}$  and  $W_{72}V_{30}$  have been studied by DC and AC magnetic susceptibilities and NMR. These molecules exhibit geometrical frustration resulting from antiferromagnetic intramolecular coupling of nearest neighbor paramagnetic ions. In  $Pr_{13}$ , 12  $Pr^{III}$  ions ( $S=1$ ) interact along edge sites of an icosahedron centered about an additional  $Pr^{III}$  ion. For  $W_{72}V_{30}$ , 30  $V^{IV}$  ions ( $S=1/2$ ) interact along corner sharing sites of a near perfect icosidodecahedron, a spherical representation of a 2-D Kagome Lattice. Characterizing the DC magnetic response requires a distribution of exchange constants for both molecules at low temperatures. Results are compared to similar frustrated systems which feature a variety of magnetic phenomena - metamagnetic phase transitions, magnetic hysteresis without anisotropy, spin glass behavior, and superparamagnetism.

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