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Unusual Magnetic-Pressure Response of an $S = 1$ Antiferromagnetic Linear-Chain near the $D/J \approx 1$ Critical Point.¹ M. K. PEPRAH, P. A. QUINTERO, J. S. XIA, J. M. PÉREZ, M. W. MEISEL, Dept. of Physics and NHMFL, Univ. of Florida, A. GARCIA, S. E. BROWN, Dept. of Physics, UCLA, J. L. MANSON, Dept. of Chemistry, Eastern Washington Univ. — An $S = 1$ chain, $[\text{Ni}(\text{HF}_2)(3\text{-Clpy})_4]\text{BF}_4$ (py = pyridine), has been identified to have nearest-neighbor antiferromagnetic interaction $J/k_B = 4.86$ K and single-ion anisotropy $D/k_B = 4.3$ K, while avoiding long-range order to 25 mK.² With $D/J = 0.88$, this system is close to the $D/J \approx 1$ gapless quantum critical point between the Haldane and Large- D phases. The magnetization was studied at $50 \text{ mK} \leq T \leq 1 \text{ K}$ and with $B \leq 10 \text{ T}$.³ Using a magnetometer equipped with a pressure cell, the low-field (0.1 T), high temperature ($T \geq 2 \text{ K}$) magnetic susceptibility was studied to 1.47 GPa. These data suggest the response at ambient pressure² changes between 0.24 GPa and 0.35 GPa. These studies are being extended by ^1H NMR experiments capable of varying the pressure and of spanning from 300 K to below 100 mK.

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²J.L. Manson *et al.*, *Inorg. Chem.* 51 (2012) 7520.

³J.-S. Xia *et al.*, arxiv.1409.5971 (2014).

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