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High-field EPR study of a $ReCl_4(CN)_2$ molecular magnet building block JUNJIE LIU, Department of Physics, University of Florida, T. DAVID HARRIS, JEFFREY LONG, Department of Chemistry, University of Californian, Berkeley, STEPHEN HILL, NHMFL and Department of Physics, Florida State University — Slow magnetic relaxation has been observed in the single-chain magnet $(DMF)_4MReCl_4(CN)_2$ (M = Mn, Fe, Co, Ni) [D. Harris *et al.*, J. Am. Chem. Soc. **132**, 3980 (2010)]. The $ReCl_4(CN)_2$ **(1)** molecule has been synthesized in which the local environment of the Re^{IV} ion is same as in the single-chain magnet. Electron Paramagnetic Resonance (EPR) measurements have been performed on single crystal of complex **1** to determine the magnetic anisotropy of the Re^{IV} ions. Both intra and inter Kramer's doublet transitions are observed in high-field (up to 36T) EPR experiments. The data indicate a significant axial anisotropy of the easy-plane type ($D > 0$), with sizeable rhombic E term. In light of these findings, we are developing a theoretical model to account for the slow relaxation in the single-chain magnet.

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