

UNEXPECTED MAGNETIC PROPERTIES OF LINEAR TRIATOMIC CHAIN OF CR^{II} Jingfang Wang^{1, 2}, Zhenxing Wang^{1, 2}, Johan van Tol ², Andrzej Ozarowski ², Ronald J. Clark ¹, Irinel Chiorescu ^{2,3}, Wolfgang Wernsdorfer ⁴, Naresh S. Dalal^{1, 2, *}

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We report a systematic study of triatomic chain complex $\text{Cr}_3(\text{dpa})_4\text{Cl}_2 \cdot \text{CH}_2\text{Cl}_2$ with $S = 2$ by means of variable frequency (35 – 400 GHz) and variable temperature (1.2 – 285 K) *cw*-EPR and *pulsed* EPR (240 GHz) on both powder and single crystals of the sample. The following unusual results were obtained: (a) Strong EPR signals at temperatures up to 295 K, implying a well defined spin ground state $S = 2$ [1] (b) unexpected direction of the magnetic symmetry axis, (c) unusual mechanism of spin decoherence and its possible control and (d) phonon bottleneck effect.

1. Wang, J.; Wang, Z.; Clark, R.J.; Ozarowski, A.; van Tol, J.; Dalal, N.S.; *Polyhedron*, (In press)