

Abstract Submitted
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Transition linewidth of Mn₁₂-Acetate¹ BETH PARKS, KURT ANDRESEN, Colgate University, CHRISTOPHER BEEDLE, DAVID HENDRICKSON, UC San Diego — The single-molecule magnet Mn₁₂-acetate forms macroscopic crystals in which quantum tunneling of the magnetic moment can be observed. This quantum tunneling occurs due to localized defects in the crystal structure. These same defects are thought to be responsible for broadening the linewidth of transitions between adjacent levels, such as $m_s = 10$ to $m_s = 9$. It is possible to test this understanding by observing the linewidth of the transition during the tunneling process. If the same defects are responsible for both effects, then as tunneling progresses, the linewidth should change. Results of this measurement of the linewidth obtained using terahertz time-domain spectroscopy will be presented.

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