

Abstract Submitted  
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**Quantum Acoustic Magnetic Resonance Imaging and Spectroscopy:** VIOLETA ZAMORANO, V CELLI, B SHIVARAM, University of Virginia — We present a new modality to characterize single molecule and molecular magnets and propose that it can be used as a powerful spectroscopy and imaging tool. Heisenberg type Hamiltonians representing realistic molecules with appropriate crystal field terms are solved and the magnetic field dependence of the resulting quantum spin energy levels enumerated. The results through thermodynamic identities yield the bulk modulus which is shown to be sensitive to the crystal field parameters at low temperatures. Thus high field low temperature measurements of the sound velocity in molecular and single molecule magnets open the road to a completely new method of understanding such systems.

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