

Abstract Submitted  
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**NMR in the high-field magnetic phase of  $\text{LiCuVO}_4$**  WOLFGANG KRAETSCHMER, NORBERT BUETTGEN, ALOIS LOIDL, Center for Electronic Correlations and Magnetism, University of Augsburg, LEONID E. SVISTOV, LYUDMILA A. PROZOROVA, Kapitza Institute, Moscow, ANDREY PROKOFIEV, Institute for Solid State Physics, TU Vienna —  $\text{LiCuVO}_4$  is a quasi-one-dimensional antiferromagnetic spin-1/2 system with strong magnetic frustration due to competing interactions within the Cu spin chain. Consequently, a complex magnetic phase diagram with three critical magnetic field values evolves [arXiv:1005.5668]. Furthermore, spiral spin order below  $T_N=2.7\text{K}$  induces ferroelectricity thus rendering  $\text{LiCuVO}_4$  multiferroic. The ferroelectric polarization can be switched by reorienting the spin helix through application of external magnetic fields [PRB **77**, 144101 (2008)]. Above  $H > H_{c2}$   $\text{LiCuVO}_4$  becomes paraelectric and the magnetic order changes to a collinear spin-modulated phase. Employing Nuclear Magnetic Resonance we study the nature of this high-field phase by analysis of  $^7\text{Li}$  and  $^{51}\text{V}$  spectra recorded around  $H > H_{c2}=7.5\text{T}$ . We find, together with simulations for different scenarios, that Cu-spins of neighboring planes along the c-axis have a random phase-relation thus implying a two-dimensional character of the spin order [PRB **77**, 144101 (2008)].

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