Abstract Submitted
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CDW dynamics in $NbSe_3$ probed by ^{93}Nb NMR[1] S. SUH, UCLA, P. MONCEAU, CRTBT, CNRS, W. G. CLARK, UCLA, R. E. THORNE, Cornell, S. E. BROWN, UCLA — Using ^{93}Nb NMR spin echoes applied on a single crystal of $NbSe_3$, we have probed electric-field induced displacements of the CDW forming below T_2=144K. In our experiments, good S/N was achieved by aligning the chain axis of a single large crystal (cross-section $O(500\mu m^2)$ with the coil symmetry axis. Evidence for CDW motion throughout the sample for $E > E_T$ was observed in motional narrowing experiments. For $E \leq 0.9E_T$, we find a wide distribution of displacements less than one CDW wavelength, for both unipolar and bipolar electric field pulse excitations. At $E \sim 0.9E_T$, the mean displacement is approximately 6-7 degrees, and the width of the distribution is about twice the mean displacement. We discuss the results in the context of the Fukuyama-Lee phase Hamiltonian, and describe the constraints imposed by these experiments on the proposal that CDW depinning is an example of a dynamic critical phenomenon.

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