

Abstract Submitted  
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**Proposed New Mechanism for Nuclear Magnetic Relaxation (NMR) in Type-II Superconductors**<sup>1</sup> ROBERT THROCKMORTON, OSKAR VAFEK, Florida State University, National High Magnetic Field Laboratory — By and large, nuclear magnetic resonance (NMR) data on cuprate superconductors in the vortex state has been interpreted as evidence for antiferromagnetism in the vortex cores. More specifically, the upturn in the spin-lattice relaxation rate divided by temperature,  $\frac{1}{T_1T}$ , with decreasing temperature and the broadening of the line shape have been interpreted as such evidence. We find, however, that it is possible to account for these phenomena without invoking antiferromagnetism. The upturn in the spin-lattice relaxation rate may be explained as due to another relaxation process, namely one in which two spin-up quasiparticles are created or destroyed, in addition to the usual spin-flip scattering process. Furthermore, we show that the broadening of the line shape can be explained by the fact that the Knight shift in the vortex state is dependent on position inside the lattice.

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