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**La-139 NMR in  $\text{La}_4\text{Ni}_3\text{O}_8$ : a possible analog to the cuprate high temperature superconductors** NICHOLAS APROBERTS-WARREN, ADAM DIOGUARDI, ABIGAIL SHOCKLEY, NICHOLAS CURRO, UC Davis, VIKTOR POLTAVETS, MARTHA GREENBLATT, Rutgers University — The  $\text{Ni}^{1+}/\text{Ni}^{2+}$  states in the nickelates have identical electronic configurations as  $\text{Cu}^{2+}/\text{Cu}^{3+}$  in the high temperature superconducting cuprates ( $3d^9/3d^8$ ), and may exhibit similar properties. However, the  $\text{Ni}^{1+}$  state is rare and cannot be easily stabilized. Recently, Martha Greenblatt and collaborators at Rutgers University have succeeded in growing a family of such compounds,  $\text{Ln}_{n+1}\text{Ni}_n\text{O}_{2n+2}$  with a layered structure similar to the cuprates. The  $\text{La}_4\text{Ni}_3\text{O}_8$  compound is particularly interesting as it undergoes an antiferromagnetic transition at  $T_N = 100$  K. We have done La NMR on powder samples to investigate the nature of this phase. Our spin lattice relaxation rate measurements clearly reveal a second order electronic phase transition similar to that observed in other antiferromagnets. Although we found clear signatures of changes to the spectra below  $T_N$ , we are unable to assign these changes to the presence of an internal field from the antiferromagnetic structure, or changes to the electric field gradient at the La site.

Nicholas apRoberts-Warren  
University of California at Davis

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