

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Temperature-dependent Raman studies of the magnetodielectric vanadates:  $\text{Ni}_3\text{V}_2\text{O}_8$ ,  $\text{Co}_3\text{V}_2\text{O}_8$ , and  $\text{K}_2\text{V}_3\text{O}_8$** <sup>1</sup> M. KIM, Y. GIM, S.L. COOPER, Department of Physics and Frederick Seitz Materials Research Laboratory, University of Illinois, Urbana, Illinois, 61801, USA, R.J. CAVA, Department of Chemistry, Princeton University, Princeton, New Jersey 08544 — The kagome staircase compounds,  $\text{Ni}_3\text{V}_2\text{O}_8$  and  $\text{Co}_3\text{V}_2\text{O}_8$ , are known to exhibit dielectric anomalies at the magnetic transitions; and inhomogenously mixed-valent  $\text{K}_2\text{V}_3\text{O}_8$  has been shown to have a strong dependence of the dielectric constant on applied magnetic field. However, while strong spin-lattice coupling is generally associated with the complex phases and phenomena in these materials, there has been little microscopic information about this coupling. In this talk, we present temperature-dependent Raman scattering studies of  $\text{Ni}_3\text{V}_2\text{O}_8$ ,  $\text{Co}_3\text{V}_2\text{O}_8$ , and  $\text{K}_2\text{V}_3\text{O}_8$  that allow us to investigate the microscopic connection between the strong spin-lattice coupling and the magnetodielectric effects in these materials.

<sup>1</sup>Work supported by the National Science Foundation under Grant NSF DMR 08-56321.

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Date submitted: 27 Nov 2011

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