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Phonon dynamics of ferromagnetic Mott insulator $\text{Lu}_2\text{V}_2\text{O}_7$ S. J. MOON, A. SCHAFGANS, D. N. BASOV, Dept. of Physics, Univ. of California, San Diego, La Jolla, California 92093, USA, W. S. CHOI, T. W. NOH, ReCOE, Dept. of Physics and Astronomy, Seoul Nat'l Univ., Korea, J. AKIMITSU, Dept. of Physics and Mathematics, Aoyama-Gakuin Univ., Japan — We investigated phonon dynamics of ferromagnetic Mott insulator $\text{Lu}_2\text{V}_2\text{O}_7$ using infrared spectroscopy. Pyrochlore structure inherent to geometrical frustration could give rise to intriguing spin-phonon coupling effect. We observed that phonons showed anisotropic line shapes indicating their coupling to broad excitation. As temperature decreased, some phonons became strongly softened without an anomaly across the magnetic transition. In addition, the phonon spectra showed little change with the application of magnetic field. We will discuss possible effects of the coupling of phonon to spin and orbital.

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