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Multiferroic behavior in $\text{Lu}_2\text{MnCoO}_6$ VIVIEN ZAPF, E.-D. MUN, B.G. UELAND, J.D. THOMPSON, J. SINGLETON, Los Alamos National Laboratory, Los Alamos, NM, J. GARDNER, NIST Center for Neutron Research National Institute of Standards and Technology, Gaithersburg, MD, S. YÁÑEZ-VILAR, M. SÁNCHEZ-ANDÚJAR, M.A. SEÑARIS-RODRIGUEZ, Dpto. Química Fundamental, U. Coruna, Coruna (Spain), J. MIRA, Dpto. Física Aplicada, U. Santiago de Compostela, Santiago de Compostela (Spain), N. BISKUP, Dpto. Tecnologías de la Información, Inst. de Ciencia de Materiales, Madrid (Spain), C.D. BATISTA, Los Alamos National Laboratory, Los Alamos, NM — $\text{Lu}_2\text{MnCoO}_6$ is a new member of the multiferroics with coupling between net magnetization and net electric polarization. Similar to $\text{Ca}_3\text{MnCoO}_6$, an up-up-down-down order of the magnetic spins is found that breaks spatial-inversion symmetry and creates an electric polarization. Unlike $\text{Ca}_3\text{MnCoO}_6$, the Co and Mn ions are both in a $S = 3/2$ state, the ordering temperature is 42 K, and the magnetic field needed to suppress electric polarization is 2 T. We present an experimental study of the multiferroic properties and spin structure including neutron diffraction, electric polarization, magnetization, dielectric constant, and specific heat measurements.

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