

Abstract Submitted
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Nonlinear optical evidence for broken inversion symmetry in $\text{Cd}_2\text{Re}_2\text{O}_7$ JESSE PETERSEN, J. STEVEN DODGE, MICHAEL STEGER, Department of Physics, Simon Fraser University, Burnaby, British Columbia, Canada, JIAN HE, DAVID MANDRUS, Department of Physics and Astronomy, University of Tennessee, Knoxville and Solid State Division, Oak Ridge National Laboratory — $\text{Cd}_2\text{Re}_2\text{O}_7$ is a superconducting metallic pyrochlore that exhibits a second-order phase transition at 200 K, from a cubic to a tetragonal structure. According to Landau theory, such a phase transition must be accompanied by a loss of inversion symmetry; to date, however, the precise symmetry of the tetragonal phase remains undetermined. We observe second-order optical nonlinearity in this phase, confirming the loss of inversion symmetry. We will discuss efforts to characterize the low-temperature point group via second-harmonic polarimetry.

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