Abstract Submitted
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Terahertz Spectroscopy of Osmate Double Perovskites[1] MATTHEW T. WARREN, Department of Physics, The Ohio State University. Columbus OH 43210, R. MORROW, Department of Chemistry, The Ohio State University. Columbus OH 43210, T. T. MAI, Department of Physics, The Ohio State University. Columbus OH 43210, J. XIONG, P. M. WOODWARD, Department of Chemistry, The Ohio State University. Columbus OH 43210, R. VALDÉS AGUILAR, Department of Physics, The Ohio State University. Columbus OH 43210 — Double perovskites containing 5d transition metal elements allow study of the interplay of spin-orbit coupling and electronic correlations due to the heavy nuclei and large electronic wavefunctions. Here we have studied polycrystalline Sr_2MOsO_6 (M = Mg, Fe, Co; with Os electronic configuration of d^2, d^3, d^2, respectively) with time-domain terahertz spectroscopy. Terahertz electrodynamics seem to be decoupled from observed magnetic and structural phase transitions in M=Mg, Co. A strong absorption is measured in M=Mg, Co around 1.5 THz, which softens with temperature, as expected for an optical phonon. The effectiveness of the variable-range hopping model and the origin of higher temperature conductivity are examined. Work at OSU supported by the NSF MRSEC Center for Emergent Materials under Grant DMR-1420451.

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