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Spin-phonon coupling in the rare-earth orthoferrite $DyFeO_3$ ANDREW LAFORGE, University of California, Santa Cruz, JEFFREY WHALEN, THEO SIEGRIST, Florida State University, ARTHUR RAMIREZ, ZACK SCHLESINGER, University of California, Santa Cruz — The rare-earth orthoferrite ($RFeO_3$) canted antiferromagnets are known to exhibit a wide array of magnetic properties, including spin reorinetation transitions and compensation points between the rare-earth and iron sublattices. Furthermore, strong magnetoelastic coupling has been observed to lead to field-induced multiferroism with a large dielectric polarization. Here we present an infrared optical study of $DyFeO_3$, focusing on the evolution of the phonon structure with temperature. Polarized single-crystal relfectance measurements are supplemented with magnetization and dielectric constant measurements to illuminate the role of spin-phonon coupling in the lattice dynamics.

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