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Broadband IR Spectroscopy of Multiferroic $BiFeO_3$ J. SEIDEL, C.L.S. KANTNER, Y.-H. CHU, L. YANG, Z. SCHLESINGER, D. VIEHLAND, J. ORENSTEIN, R. RAMESH, University of California, Berkeley — $BiFeO_3$ (BFO) is a multiferroic material in which both the ferroelectric and antiferromagnetic ordering is present at room temperature. In order to investigate the dynamics of the coupling between order parameters, optical spectroscopy measurements were made on both a single crystal and epitaxially grown thin film samples. Measurements were made from 3-30cm^{-1} using time domain terahertz spectroscopy, and from 20-700 cm^{-1} with FTIR reflectivity. We report on the spectral weight and damping of modes in BFO in the spectral region where antiferromagnetic resonance is typically observed in orthoferrites.

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