

Abstract Submitted
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Infrared Properties of NiO-SrTiO₃ Composites¹ I.D. VUGMEYSTER, K. KASTELLA, C. KNILL, R. MERLIN, J.F. WHITAKER, J.A. AZURDIA, S.N. KARLSDOTTIR, V. TOMECKOVA, C. TORRES-GARIBAY, J.W. HALLORAN, U. Michigan, G.O. ANDREEV, D.N. BASOV, U. California San Diego — Magnetic-dielectric composites with overlapping magnetic- and electric-dipole resonances are promising candidates in the search for artificial systems with negative refractive index [1]. Here we report on the fabrication and infrared characterization of NiO-SrTiO₃ ceramics. Transmission and reflection data were obtained in the 10-700 cm⁻¹ range using both a THz time-domain and a FTIR spectrometer. The spectra show features associated with the bulk antiferromagnetic resonance of NiO and the soft mode of SrTiO₃, as well as new collective modes of the aggregate. The results are in qualitative agreement with effective medium theories.

[1] S. D. Kirby, M. Lee, R. B. van Dover, J. Phys. D **40**, 1161 (2007)

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