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Microwave dielectric constant measurements of multiferroic TbMn_2O_5 ¹ SAMUEL LOFLAND, Rowan University, A SUSHKOV, University of Maryland, H.D. DREW, University of Maryland, S.W. CHEONG, Rutgers University — We have measured the temperature dependence of the dielectric constant of TbMn_2O_5 by a cavity perturbation technique at frequencies between 2 and 13 GHz. There are three anomalous features seen in the quasistatic dielectric constant as a function of temperature below the onset of magnetic ordering (~ 38 K); however at microwave frequencies, the enhancement in the dielectric constant is significantly reduced. In fact, by 13 GHz, the anomalies have nearly disappeared. Each anomaly has its own characteristic relaxation frequency, with the ones at higher and lower temperature being in the GHz range and the intermediate one being in the MHz. We discuss these results in terms of magnetoelectric domains.

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Samuel Lofland
Rowan University

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