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Frequency dependent magneto-dielectric effect in bilayer manganite $\mathbf{Pr(Sr_{0.1}Ca_{0.9})_2Mn_2O_7}$[1] BARNALI GHOSH-SAHA, S.N. Bose National Centre for Basic Sciences, D. BHATTACHARYA, Central Glass and Ceramic Institute, S. PATNAIK, Jawaharlal Nehru University, A.K. RAYCHAUDHURI, S. ARUMUGAM — We report novel frequency dependent magneto-dielectric effect and a strong dielectric anomaly near Neel temperature (T_N) in a single crystal of bilayer manganite $Pr(Sr_{0.1}Ca_{0.9})_2Mn_2O_7$ system. The magneto-dielectric effect measured in a field of 3T shows large frequency dependence and reaches a maximum ($\sim$25%) near T_N at a measurement frequency of 1 kHz. Change in frequency leads to a change in the sign of the effect. There is a sizeable dielectric relaxation process near T_N, which exhibits an activated behavior and strongly non-Debye nature at or below T_N while becoming Debye like at higher temperature.

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