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Magnetoelectric effect in $HoMnO_3$ N. HUR, A. SAXENA, M.F. HUNDLEY, Los Alamos National Laboratory, Los Alamos, NM 87545, S.B. KIM, S.-W. CHEONG, Dept. of Physics & Astronomy, Rutgers University, Piscataway, NJ 08854 — Multiferroic rare earth manganites have attracted a renewed interest because of recent observations of the giant coupling between ferroelectricity and magnetism in these materials. In particular, hexagonal $HoMnO_3$ has been one of the most actively studied systems among them. For incidence, novel dielectric phase transitions and electric field induced ferromagnetism have been observed recently. However, any direct observation of magnetoelectric effect has not been made. In this presentation, I will discuss the effect of magnetic structure change on the electric polarization in $HoMnO_3$ studied by measuring the polarization change as a function of the temperature and magnetic fields.

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