Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Pump-probe experiment in LaMnO3/SrTiO3 superlattices and thin film PUREVDORJ MUNKHBAATAR, Department of Physics, Chonbuk National University, Republic of Korea, B. TSERMAA, Department of Geophysics, National university of Mongolia, Mongolia, J.S. KIM, Department of Physics, Chonbuk National University, Republic of Korea, W.S. CHOI, S.S.A. SEO, H.N. LEE, Oak Ridge National Laboratory, K. MYUNG-WHUN, Department of Physics, Chonbuk National University, Republic of Korea — We present the time dependent transmittance of LaMnO3 thin film and [(LaMnO3)n/(SrTiO3)8]20 (n=2 and 8) superlattices grown on SrTiO3 substrate. We used the laser pulse pump-probe technique. We observed two phonon oscillation in the LaMnO3 film at 8 THz and at 15 THz. In the superlattices, 8 THz mode seemed obliterated. The phonon oscillation damping time constant was also different. In LaMnO3 thin film, we could observe the oscillation until $\sim$ 1.5 ps. In the superlattices, the damping time constant was smaller: $\sim$ 0.7 ps for n=8 superlattice and $\sim$ 0.3 ps for n=2 superlattice. We will discuss number of phonon mode and the damping time constant in terms of the sample geometry and the electronic struncture.

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Date submitted: 17 Nov 2011 Electronic form version 1.4