Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Kinetics of polarization switching in epitaxial BaTiO3 DAVID TOWNER[1], Northwestern University, BRUCE WESSELS — The kinetics of polarization switching in $BaTiO_3$ ferroelectric epitaxial thin films were studied using optical second harmonic generation (SHG). Epitaxial films were polydomain having both a and c variants. Upon application of a poling field the SHG signal increased according to the expression 1- exp-At^n . The rise is attributed to a time dependent increase in the fraction of aligned domains. The kinetic exponent n was of the order of 0.2 indicating fractal dimensionality. The observed kinetics are consistent with a model developed to describe the electro-optic and dielectric relaxation response of polydomain thin films with a continuous distribution of domain sizes (Hoerman PRB 65 2002).

[1]now at Intel

Bruce Wessels
Northwestern University

Date submitted: 01 Dec 2004 Electronic form version 1.4