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Polarization reversal and backswitching kinetics in epitaxial ferroic thin films[1] JIANHENG LI, BRUCE WESSELS, Northwestern University — Polarization reversal and backswitching kinetics were investigated in epitaxial ferroelectric BaTiO3 thin films. Using the electro-optic effect to monitor domain dynamics, the dynamic response was measured as a function of bias pulse magnitude and temperature. The dynamics followed a Kohlrausch-Williams-Watts (KWW) stretched exponential function in time. From the measurements the activation field for polarization reversal and the activation energy for domain motion were determined. The measured activation energy of 6-12 kJ/mol is in good agreement with prior experiments on bulk material and recent theoretical calculations using molecular dynamics simulations.

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