

Abstract Submitted
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Time-Resolved Observations of Soft Phonon Modes in Strained BaTiO₃/Si Heterostructures¹ CHENG CEN, JEREMY LEVY, Department of Physics and Astronomy, University of Pittsburgh, VENUGOPALAN VAITHYANATHAN, JAMES LETTIERI, WEI TIAN, DARRELL SCHLOM, Department of Material Science and Engineering, Pennsylvania State University, COS-MQC TEAM — Ferroelectric thin films such as BaTiO₃, grown on Si(100) substrates, have enormous potential for applications ranging from non-volatile random access memories to electro-optic gates for quantum information processing architectures. Optical techniques provide powerful means for obtaining time-resolved information about the ferroelectric soft mode in these materials. Using a two-color pump-probe arrangement, we observe THz-frequency soft modes in strained BaTiO₃/Si heterostructures grown by oxide-molecular beam epitaxy.

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