Ferroelectric field effect transistors on silicon\textsuperscript{1} GUANGLEI CHENG, CHENG CEN, University of Pittsburgh, MAITRI WARUSAWITHANA, Florida State University, DARRELL SCHLOM, Cornell University, JEREMY LEVY, University of Pittsburgh — The discovery of ferroelectricity in strained SrTiO\textsubscript{3} films grown directly on silicon substrates opens the possibility for a variety of devices that exploit direct field effects in this hybrid system. We report the fabrication and characterization of ferroelectric field effect transistors (FeFET) formed by coherently strained SrTiO\textsubscript{3} grown on silicon-on-insulator substrates. We observe persistent channel conductance changes of 85\% at large gate bias voltages. A preference for one polarization state is also observed, consistent with a predicted\textsuperscript{2} permanent interface dipole at the SrTiO\textsubscript{3}/silicon interface.

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