

Abstract Submitted  
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**Ferroelectric properties of BaTiO<sub>3</sub>/PbZr<sub>0.2</sub>Ti<sub>0.8</sub>O<sub>3</sub> bilayer thin film**<sup>1</sup> PAVEL SALEV, CHUN YANG, ALEXEI GRIGORIEV, The University of Tulsa — The thin film ferroelectric BaTiO<sub>3</sub>/PbZr<sub>0.2</sub>Ti<sub>0.8</sub>O<sub>3</sub> bilayer was epitaxially grown on SrRuO<sub>3</sub>/SrTiO<sub>3</sub> substrate by RF sputtering. Electrical measurements of polarization switching revealed two different switching regimes – a small ferroelectric hysteresis loop at low applied voltage and a larger loop at a high voltage. The measured dielectric permittivity corresponds to weak electrostatic coupling between two layers according to Landau-Ginsburg-Devonshire theory. This weak coupling may allow for independent polarization states to exist in individual layers. This can lead to stable head-to-head and tail-to-tail polarization domain configurations, which would explain the two switching regimes observed in electrical measurements. The compensation of polarization gradient across the interface can be explained by the enhancement of interface charge carrier density due to strong bending of electron energy bands.

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