Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Dielectric Properties of Artificially Layered Ferroelectrics PAVLO ZUBKO, University College London, STEPHANIE FERNANDEZ-PENA, CELINE LICHTENSTEIGER, JEAN-MARC TRISCONE, University of Geneva — Over the past decade, superlattices composed of ferroelectric and paraelectric oxides have received a great deal of attention due to the rich physics arising from the complex electrostatic interactions in these materials, as well as the discovery of novel interface phenomena. The strong depolarizing fields induced by the presence of the paraelectric layers, lead to the formation of a stable structure of regular nanoscale domains, which dominate the functional properties of these artificially layered materials. The dielectric properties of PbTiO3-SrTiO3 superlattices were studied using impedance spectroscopy over a broad range of temperatures. A giant enhancement of the dielectric permittivity due to reversible motion of nanoscale domains was observed and domain-wall relaxation dynamics were studied as a function of ferroelectric and paraelectric layer thickness, temperature, and magnitude and frequency of the applied field.

Pavlo Zubko
University College London

Date submitted: 15 Nov 2013 Electronic form version 1.4