

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Preparation of Atomically Flat SrTiO<sub>3</sub> Surfaces Using Non-acid Etching and Thermal Annealing Process** JOHN CONNELL, AMBROSE SEO, The University of Kentucky — The growth of epitaxial thin films and heterostructures requires atomically flat surfaces of substrates. So far chemical etching processes by acidic etchant have been widely used for the surface preparation of oxide substrates. Here we show that atomically flat surfaces of single crystalline SrTiO<sub>3</sub> substrates of both the (100) and (111) orientations can be prepared using non-acidic etching and thermal annealing techniques. Atomic force microscopy confirms the evolution of the surface of the substrates from rough to a step-terrace structure. Scanning tunneling microscopy shows that SrO segregation on the surface is removed by our etching process. This new technique replaces the use of acidic oxide etchant as the primary method for etching SrTiO<sub>3</sub> substrates.

John Connell  
The University of Kentucky

Date submitted: 20 Nov 2011

Electronic form version 1.4