

Abstract Submitted
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Possible Mechanisms in Atomic Force Microscope-Induced Nano-Oxidation Lithography (negative AFM tip case) in $\text{La}_{0.67}\text{Ba}_{0.33}\text{MnO}_{3-\delta}$ Thin Films on $\text{SrTiO}_3(001)$ ¹ GRACE YONG, Towson University, WILLIAM VANDERLINDE, Laboratory for Physical Sciences, E. KEVIN TANYI, Norfolk University, DAVID SCHAEFER, CHRISTOPHER STUMPF, RAJESWARI M. KOLAGANI, Towson University — In this paper, we present possible microscopic mechanisms for $\text{La}_{0.67}\text{Ba}_{0.33}\text{MnO}_{3-\delta}$ films that have been nano-oxidized by an AFM tip that is negatively biased with respect the sample. Further analysis of comparative EDS elemental profile for an unmodified film versus AFM (negative tip) modified films yield fresh insights. We can qualitatively explain many of the observations with electrochemical half reactions, electrochemical migration and electromigration.

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