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Atomic

Force Microscope-induced Surface Modifications in CaMnO3 Thin Films¹ ANTHONY JOHNSON², SAMUAL NEUBAUER³, ADEEL CHAUDHRY⁴, CA-CIE HART⁵, BRIDGET LAWSON⁶, DAVID HOUSTON⁷, DAVID SCHAEFER⁸, GRACE YONG⁹, RAJESWARI KOLAGANI¹⁰, Department of Physics, Astronomy and Geosciences, Towson University — Our recent work on epitaxial thin films of this material has shown that films with a tensile lattice mismatch strain exhibit structural and electrical properties that indicate oxygen deficiency. We observe thickness dependent changes in surface morphology that are consistent with strain-induced oxygen vacancies. Morphology of strained films shows a time dependence suggesting progressive oxygenation, as revealed by Atomic Force Microscopy (AFM). We have also studied surface modifications in these films introduced by a voltage biased AFM tip. We will discuss then characteristics of such surface modifications as compared to our previous results in thin films of hole-doped manganites.

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²Undergraduate Student
³Undergraduate Student
⁴Undergraduate Student
⁵Undergraduate Student
⁶Undergraduate Student
⁷Undergraduate Student
⁸Undergraduate Student
⁹Undergraduate Student
⁹Undergraduate Student of Physics, Astronomy and Geosciences, Towson University

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