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Studies of Surface morphology and Atomic Force Microscope-induced Surface Modifications in Calcium Manganese Oxide (CaMnO) Thin Films[1] ANTHONY JOHNSON, CACIE HART, ADEEL CHAUDHRY, BRIDGET LAWSON, NATALIE FERRONE, SAMUEL NEUBAUER, DAVID HOUSTON, RAJESWARI KOLAGANI, DAVID SCHAEFER, Towson University — CaMnOis a material of interest for applications as a catalyst for renewable energy applications. 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 are studying the influence of strain and oxygen stoichiometry variations on surface morphology as revealed by atomic force microscopy. Our previous work in epitaxial thin films of the hole doped manganite nanoscale has demonstrated surface modifications induced by a voltage-biased AFM tip. Such surface modifications have been shown to be associated with changes in cation and oxygen stoichiometry. We will report results of similar studies on strained CaMnOthin films; relevant for understanding the surface mobility of oxygen vacancies.

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