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Investigation of $CaMnO_3$ Epitaxial Thin Films by High Resolution X-ray Diffraction and Atomic Force Microscopy[1] GRACE YONG, TYLER GOEHRINGER, EVAN SCHULZ, E. KEVIN TANYI, DAVID SCHAEFER, RAJESWARI KOLAGANI, Towson University — $CaMnO_3$ is a perovskite material of interest for its catalytic properties. As the surface characteristics are important in determining the catalytic properties of thin films, we are investigating the structural and morphological characteristics of epitaxial films thin films grown by Pulsed Laser Deposition. Film structure and morphology are sensitive to variations in the deposition conditions such as the deposition oxygen pressure. We are characterizing the films using high resolution x-ray diffraction in the reflectivity mode (low angle measurements) and using Atomic Force Microscopy. We will study Kiessig fringes as a function of film growth conditions. The film thickness can be determined from the period of the fringes and roughness can be characterized by the angular range of the fringes. We will compare the surface roughness obtained by x-ray reflectivity with those obtained using AFM (atomic force microscopy).

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