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**Bismuth Manganite Thin Film Characterization** DANIEL PAJEROWSKI, LISA KRAYER, BRUCE RAVEL, JULIE BORCHERS, National Institute of Standards and Technology, HYOUNG JEEN JEEN, Pusan National University, AMLAN BISWAS, University of Florida — We have performed detailed characterization of bismuth manganite (BMO) deposited via pulsed laser deposition onto crystalline strontium titanate. BMO is a ferromagnet that has a pseudo-perovskite structure. Actually, the structure deviates from perovskite depending upon growth conditions, and one important parameter is the oxygen content. Thin films of BMO are interesting because they can show ferroelectricity as well as ferromagnetism, but it is not entirely clear why. Another open question is why BMO films are reported to have much less magnetism than expected, based upon comparative measurements of BMO powders. Neutron reflectometry is useful to interrogate these issues because neutrons are sensitive to oxygen content and polarized neutrons can probe the depth dependence of magnetism. These neutron data are supported by high-resolution transmission electron microscopy, X-ray diffraction, and temperature dependent X-ray absorption studies. By considering these techniques in concert, a consistent model of the film is presented.

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