

Abstract Submitted  
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**Surface reconstruction of Y-doped HoMnO<sub>3</sub> and LuMnO<sub>3</sub>**<sup>1</sup> RELJA VASIC, Physics Department, NC State University, Raleigh, NC, JERZY T. SADOWSKI, Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, NY 11973, JOHN E. (JACK) ROWE, Physics Department, NC State University, Raleigh, NC, S.W. CHEONG, Y.J. CHOI, Department of Physics and Astronomy, Rutgers, H.D. ZHOU, C. R. WIEBE, Condensed Matter Group/ Experimental, Florida State University, NHMFL FSU — We investigate (0001) surfaces of several hexagonal perovskites by low-energy electron diffraction (LEED) to determine the surface periodicity which is different from the bulk materials. Our LEED studies were conducted at the BNL-CFN using a normal incidence geometry with a LEEM/LEED apparatus from room temperature to 1200 °C and with an electron energy in the range of 15eV to 200eV. Diffraction patterns showed features of bulk terminated periodicity and a 3×3 surface reconstruction. Possible origins for this surface structure are discussed and comparisons are made with surface studies of other complex oxides. The temperature dependence of the data is also used to estimate the surface Debye temperature of these manganates. Additional diffraction patterns of cleaved or polished (1010) surfaces showed bulk terminated periodicity corresponding to a real space 11.4Å × 10.5Å unit mesh.

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John Rowe  
Physics Department, NC State University, Raleigh, NC

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