Effect of Pressure on the Atomic and Electronic Structure of Hexagonal YMnO$_3$.\textsuperscript{1} ZHIQIANG CHEN, TREVOR TYSON, New Jersey Institute of Technology, SUNGBAEK KIM, SANG-WOOK CHEONG, Rutgers University — The multiferroic hexagonal system YMnO$_3$ is known to possess a significant polarization at room temperature. To understand the mechanism behind the polarization, we conducted high pressure x-ray diffraction measurements for pressures between ambient and 20 GPa. The powder diffraction data were refined to obtain the atomic level structure as a function of pressure. The pressure dependence of resistivity at room temperature (for pressures up to $\sim$6 GPa) was determined. Complementary density functional calculations were conducted to correlate the changes in electronic structure and polarization with the observed changes in atomic structure with pressure.

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