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A Realistic Model Calculation on Manganite Superlattice CHUNGWEI LIN, CLAUDE EDERER, ANDREW MILLIS, Columbia University — We present a realistic model calculation for (0,0,1) $(LaMnO_3)_m$ $(SrMnO_3)_n$ superlattices. In this model, the superlattice is defined by the long-range Coulomb interaction generated by different ion charges of La (3+) and Sr (2+). The electronic degree of freedom contains two Manganese-Oxygen hybridized e_g bands coupled to localized Mn t_{2g} spins and to Jahn-Teller phonon modes, and the most general on-site electron-electron interactions within those e_g bands. We will show how charge reconstruction, structural constraints and the symmetry breaking induced by the superlattice affect the orbital and magnetic orders. This work is supported by DMR-0213574.

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