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Signatures of Enhanced Ordering Temperatures in Digital Superlattices of (LaMnO3)m/(SrMnO3)2m[1] A. BHATTACHARYA, CNM & MSD, Argonne National Laboratory, S. J. MAY, MSD, Argonne National Laboratory, L. ROBERTSON, HFIR, Oak Ridge National Laboratory, P. RYAN, APS, Argonne National Laboratory, X. ZHAI, J. N. ECKSTEIN, Department of Physics, UIUC, S. D. BADER, CNM & MSD, Argonne National Laboratory — Digital superlattices of (LaMnO3)m/(SrMnO3)2m , for integers m = 1 - 4 have been synthesized with ozone assisted oxide MBE. These superlattices are ordered analogues of La1/3Sr2/3MnO3, an antiferromagnetic insulator. Signatures of enhanced ordering temperatures have been observed in transport and magnetic measurements. We interpret this in terms of the effects of enhanced A-site order on dx2-y2 orbital occupancy. We shall also present evidence in support of our findings with x-ray and neutron scattering.

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