

Abstract Submitted
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Fabrication

and characterization of complex oxide $RENiO_3/LaAlO_3$ superlattices M. KAREEV, University of Arkansas, Fayetteville, J.W. FREELAND, Advance Photon Source, Argonne National Lab., J. LIU, University of Arkansas, Fayetteville, B. KIRBY, NIST, Center for Neutron Research, B. KEIMER, Max Planck Institute for Solid State Research, J. CHAKHALIAN, University of Arkansas, Fayetteville — Nowadays there has been growing interest to synthesis of atomically thin complex oxide superlattices which can result in novel electronic and magnetic properties at the interface. Here we report on digital synthesis of single unit cell nickel based heterostructures of $RENiO_3/LaAlO_3$ ($RE = La, Nd$ and Pr) superlattices on $SrTiO_3$ and $LaAlO_3$ by laser MBE. RHEED analysis, grazing angle XRD and AFM imaging have confirmed the high quality of the epitaxially grown superlattices. The magnetic and electronic properties of the superlattices have been elucidated by polarized X-ray spectroscopies, which show a non-trivial evolution of magnetism and charge of the LNO layer with increasing LNO layer thickness. The work has been supported by U.S. DOD-ARO under Contract No. 0402-17291.

M. Kareev
University of Arkansas, Fayetteville

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