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Interfacial Control of Magnetic Properties at $LaMnO_3/LaNiO_3$ Interfaces MARTA GIBERT, University of Geneva, MICHEL VIRET, CEA Saclay, ALMUDENA TORRES-PARDO, Univeristy of Paris-Sud, Complutense University of Madrid, CINTHIA PIAMONTEZE, SLS-PSI, PAVLO ZUBKO, University of Geneva, University College London, NICOLAS JAOUEN, Synchrotron SOLEIL, JEAN-MARC TONNERRE, CNRS Institut Neel, ALEXANDRA MOUGIN, Univeristy of Paris-Sud, JENNIFER FOWLIE, SARA CATALANO, University of Geneva, ALEXANDRE GLOTER, ODILE STPHAN, Univeristy of Paris-Sud, JEAN-MARC TRISCONE, University of Geneva — The functional properties of oxide heterostructures ultimately rely on how the electronic and structural mismatches occurring at interfaces are accommodated by the chosen materials combination. We discuss here $LaMnO_3/LaNiO_3$ heterostructures, which display an intrinsic interface structural asymmetry depending on the growth sequence with the $LaMnO_3$-on-$LaNiO_3$ interface being sharper than the $LaNiO_3$-on-$LaMnO_3$ one, which exhibits 2-3 unit cells intermixing [1]. Using a variety of synchrotron-based techniques, we show that the degree of intermixing at the monolayer scale allows interface-driven properties such as charge transfer and the induced magnetic moment in the nickelate layer to be controlled. Further, our results demonstrate that the magnetic state of strained $LaMnO_3$ thin films dramatically depends on interface reconstructions. [1] Gibert *et al.,* NanoLetters in press.

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