Abstract Submitted
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Orbital engineering near La_2NiO_4-La_2CuO_4 superlattice interfaces[1] S. SMADICI, J.C.T. LEE, J. MORALES, P. ABBAMONTE, University of Illinois at Urbana-Champaign, IL 61801, G. LOGVENOV, A. GOZAR, I. BOZOVIC, Brookhaven National Laboratory, NY 11973 — Orbital states of transition metal oxides present the opportunity of adjusting material properties to a specific purpose (orbital engineering). A comparison of the resonant soft x-ray reflectivity of La_2NiO_4-La_2CuO_4 superlattices at Ni L and Cu L edges shows different spatial distributions of the occupation of Ni $d_x2_{-y}2$ and $d_{3z}2_{-r}2$ orbitals in the LNO layers. This modulation of the Ni valence is possible through a pronounced modulation of the density of oxygen interstitial dopants within the structure which does not follow exactly the structure itself. This is the first observation of orbital engineering in a 214 oxide.

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