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***in situ* studied correlated oxide $LaNiO_3$ ultra thin film by angle resolved photoemission spectroscopy** H.K. YOO, Seoul National University, Y.J. CHANG, Advanced Light Source (ALS), LBNL & Fritz-Haber-Institut, K.S. KIM, L. MORESCHINI, Advanced Light Source (ALS), LBNL, D.W. JEONG, Y.S. KIM, Seoul National University, A. BOSTWICK, E. ROTENBERG, Advanced Light Source (ALS), LBNL, T.W. NOH, Seoul National University — Recently, $R$NiO$_3$ ($R$: rare earth) attracted increasing attention due to the possible realization of the electronic band structure similar to the high-temperature superconductor cuprates. Among them, $LaNiO_3$ based heterostructures have shown various fascinating physical properties such as dimensionality controlled electronic phase transitions. Theoretical works on confined $LaNiO_3$ through heterostructuring predicted cuprate-like band structure and magnetic properties. Here, we reports *in-situ* angle resolved photoemission spectroscopy results on the $LaNiO_3$ films grown by pulsed laser deposition method. We carefully controlled the thickness of $LaNiO_3$ films from one to 30 unit cells and measured the thickness dependent band dispersions. First, we will discuss the strong electronic correlation effect in bulk-like band structure of thick $LaNiO_3$ films comparing to the previously reported LDA+DMFT calculation. Moreover, we will discuss the thickness dependent band structure. As decreasing the film thickness, we observed the charge redistribution of two Ni $e_g$ orbitals at the Fermi surface. The origins of thickness dependent electronic structure will be discussed.

H. K. Yoo
Seoul National University

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