Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Electronic Structure of Sr_2RhO_4 investigated by ARPES SEUNGHYEOK LEE, BUM-JOON KIM, JAEJUN YU, SE-JUNG OH, School of Physics and Center for Strongly Correlated Materials Research, Seoul National University, Seoul, Korea, CHANGYUNG KIM, Institute of Physics and Applied Physics, Yonsei University, Seoul, Korea, I. NAGAI, S.I. IKEDA, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki 305-8568, Japan
— We investigated the electronic structure of 4d-transition metal oxides $Sr_2RhO_4$by high-resolution ARPES(angle-resolved photoemission spectroscopy) and compared the results with density-functional electronic structure calculation. Sr_2RhO_4has the same crystal structure with $Sr_2RuO_4$and just one more electron than Sr_2RuO_4 in 4d orbitals. But ARPES data reveal very different Fermi surface from that expected in the simple rigid-band picture, and especially the electronic structure related to the d_{xy} band-the full occupation and missing at Fermi surface of the d_{xy} band- is qualitatively different from Sr_2RuO_4. This turns out to be due to the fact that RhO_6 octahedra are rotated about the c-axis. We will discuss how the rotation of octahedra change the electronic structure by comparing the ARPES experimental results with density-functional electronic structure calculation in real crystal structure of Sr_2RhO_4.

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Date submitted: 03 Dec 2005 Electronic form version 1.4