Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Surface state van Hove singularity effect to bulk electron-bosonic mode coupling in Sr_2RuO_4 CHUL KIM, Insitute of Physics and Applied Physics, SEUNG RYONG PARK, C. S. LEEM, D. J. SONG, Y. K. KIM, S. K. CHOI, W. S. JUNG, Y. Y. KOH, W. S. KYUNG, G. R. HAN, H. Y. CHOI, Insitute of Physics and Applied Physics, Yonsei University, Y. YOSHIDA, Nanoelectronics Research Institute, AIST, R. G. MOORE, Stanford Synchrotron Radiation Lightsource, SLAC, CHANGYOUNG KIM, Insitute of Physics and Applied Physics, Yonsei University
— Discovery of spin triplet superconductivity in Sr_2RuO_4 brought attention to the electronic structure studies on the system, especially by using angle resolved photoemission (ARPES). There are three bands that cross the Fermi level. The system is particularly interesting because these bands have different orbitals with different characters such as dimensionality. Along the way, it was found that there are surface states due to RuO_6 octahedral rotation on the surface layer. RuO_6 octahedral rotation results in a dramatic change in the surface electronic structure such as van Hove singularity. By controlling temperatures, we can traverse or kill the van Hove singularity in the surface electronic states. Through comparison of measured bulk electronic structures at different temperatures, we elucidate the effect of surface state van Hove singularity to bulk electron-bosonic mode coupling. We will discuss the importance of the surface states in interpretation of bulk properties measured by ARPES.

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Date submitted: 20 Nov 2009 Electronic form version 1.4