Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Isotope Effect on Electron-Phonon Coupling in Multiband Superconductor MgB2 DAIXIANG MOU, VALENTIN TAUFOUR, YUN WU, LUNAN HUANG, SERGUEI BUD'KO, PAUL CANFIELD, ADAM KAMINSKI, Division of Materials Science and Engineering, Ames Laboratory — We systematically investigate the isotope effect of electron-phonon coupling in multi-band superconductor MgB_2 by laser based Angle Resolved Photoemission Spectroscopy. The kink structure around 70 meV on two σ bands, which is caused by electron coupling to E_{2g} phonon mode, is shifted to higher binding energy in $Mg^{10}B_2$ than that in $Mg^{11}B_2$. The measured shifting energy of 3.5 meV is consistent with theoretical calculation based on harmonic phonon in MgB_2. Our temperature dependent measurement also indicates the isotope effect of kink structure is not dependent on superconducting transition.

Daixiang Mou
Division of Materials Science and Engineering, Ames Laboratory

Date submitted: 17 Dec 2015 Electronic form version 1.4