Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

**Anisotropic superconducting gap distribution in the presence of spin density wave in Co-doped NaFeAs**[1] QINGQIN GE, ZIRONG YE, MIN XU, YAN ZHANG, JUAN JIANG, BINPING XIE, Fudan University, YU SONG, CHENGLIN ZHANG, The University of Tennessee, PENGCHENG DAI, The University of Tennessee and Chinese Academy of Sciences, DONGLAI FENG, Fudan University — The coexisting regime of spin density wave (SDW) and superconductivity in the iron pnictides represents a novel ground state. We have performed high resolution angle-resolved photoemission measurements on $NaFe_{1-x}Co_xAs$ ($x = 0.0175$) in this regime and revealed its distinctive electronic structure, which provides some microscopic understandings of its behavior. The SDW signature and the superconducting gap are observed on the same bands, illustrating the intrinsic nature of the coexistence. However, because the SDW and superconductivity are manifested in different parts of the band structure, their competition is non-exclusive. Particularly, we found that the gap distribution is anisotropic and nodeless, in contrast to the isotropic superconducting gap observed in an SDW-free $NaFe_{1-x}Co_xAs$ (x=0.045), which puts strong constraints on theory.

[1]This work is supported in part by the National Science Foundation of China and National Basic Research Program of China (973 Program) under the grant Nos. 2012CB921400, 2011CB921802, 2011CBA00112.

Qingqin Ge
Fudan University

Date submitted: 06 Nov 2012 Electronic form version 1.4