

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

ARPES and spin ARPES measurements of nonmagnetic centrosymmetric crystal LaBiOS₂ JUSTIN WAUGH, XIAOQING ZHOU, HAOXIANG LI, THOMAS NUMMY, STEPHEN PARHAM, QIHANG LIU, XIUWEN ZHANG, Univ of Colorado - Boulder, JASMINKA TERZIC, University of Kentucky, XIANGDE ZHU, Chinese Academy of Sciences, GANG CAO, University of Kentucky, ALEX ZUNGER, DANIEL DESSAU, Univ of Colorado - Boulder — Spin polarized bands are traditionally expected to exist only under global bulk symmetry breaking. LaBiOS₂ has a centrosymmetric structure thus expected to have no spin polarization. However, it is predicted to have local inversion-asymmetric structure, leading to spin polarization localized on the individual BiS₂ sublayers. This spin polarization theoretically presents itself in energetically doubly degenerate bands that are spatially separated on different BiS₂ layers. We measured ARPES and spin ARPES on the inversion-symmetric bulk crystal LaBiOS₂ in search of such a hidden spin polarization. Our measurements show band structure to have qualitative agreement with DFT calculations. We additionally observe spin polarization in the valence band and will discuss its spin orientation in this talk. This work is supported by NSF DMREF project 1334170.

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Date submitted: 14 Nov 2014

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