Abstract Submitted
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Evolution of the in-plane resistivity anisotropy in isovalenly substituted Ba($Fe_{1-x}Ru_x$)$_2As_2$ ERICK C. BLOMBERG, M.A. TANATAR, S. RAN, S.L. BUD'KO, P.C. CANFIELD, R. PROZOROV, The Ames Laboratory, Ames, IA 50011, USA, A. THALER, University of Illinois, Urbana-Champaign, IL, 61801, USA — Recent studies of electronic anisotropy in iron-based superconductors have revealed a dramatic asymmetry between electron and hole doped compounds [1]. A natural question is: What effect would isovalent substitution have? The $BaFe_2As_2$ system shows little change in its Fermi surface and carrier concentration upon Ru-doping, even at the levels far beyond the point of total suppression of the AFM state, making it a valuable system to compare against the hole and electron doped system. Here we study in-plane resistivity anisotropy in detwinned single crystals of Ba($Fe_{1-x}Ru_x$)$_2As_2$. Polarized optical imaging was used to confirm detwinning. A quantitative comparison of our new results with the isovalently substituted $BaFe_2(As_{1-x}P_x)_2$ [2] system, as well as the charge doped Ba($Fe_{1-x}Co_x$)$_2As_2$ and $Ba_{1-x}K_xFe_2As_2$ systems will be discussed. This work was supported by the Department of Energy Office of Science, Basic Energy Sciences under Contract No. DE-AC02-O7CH11358.

[1] E. C. Blomberg, *et al,*. Nat. Comm. **4**, 1914 (2013).
[2] H-.H. Kuo, *et al.*, Phys. Rev. B **86**, 134507 (2012).

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