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Point Contact Spectroscopy of Iron Pnictide: Probing Multigap Superconductors to Observe Energy Gaps of $Ba_{(1-x)}K_xFe_2As_2$.[1] LUKE CONOVER, SAMUEL BISCHE, OBERON WACKWITZ, JOSEPH LAMBERT, University of the Sciences, PENCHENG DAI, CHENGLIN ZHANG, YU SONG, GUOTAI TAN, Rice University , ROBERTO RAMOS, University of the Sciences — Multi-band superconductors, such as the iron pnictides, can exhibit multiple energy gaps depending on the crystal growth conditions and on which tunneling directions are made accessible by the sample fabrication process. The gaps are often anisotropic with respect to the crystal lattice, with some gaps predominantly conducting parallel or perpendicular to the c-axis of the lattice. Using point contact spectroscopy (PCS), it is possible to measure the energy gaps of various K-doped pnictides (x=0.33 and x=0.60) along the axes simultaneously at low temperatures. We describe our progress in measuring the energy gaps of iron pnictide single crystals (K-doped Ba-based 122 family) using PCS. Furthermore, we also discuss the effects of fritting, or electrically manipulating, the point contact for better resolution of the measured conductance of iron pnictide.

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