

Abstract Submitted
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Infrared conductivity of BaFe₂As₂ superconductors: Effects of in-plane and out-of-plane doping R.P.S.M. LOBO, LPEM, ESPCI, CNRS, Paris, France, Y.M. DAI, B. XU, B. SHEN, H.H. WEN, X.G. QIU, IOP, Chinese Academy of Sciences, Beijing, China — We measured the *in-plane* optical conductivity of a nearly optimally doped ($T_c = 39.1$ K) single crystal of Ba_{0.6}K_{0.4}Fe₂As₂. Upon entering the superconducting state the optical conductivity vanishes below ~ 20 meV, indicating a fully gapped system. A model with two different isotropic gaps is required to describe the optical response of this material. The temperature dependence of the gaps indicate a strong interband interaction, but no impurity scattering induced pair breaking is present. This contrasts to the large residual conductivity observed in optimally doped Ba(Fe_{1-x}Co_x)₂As₂ and strongly supports an s_{\pm} gap symmetry for both compounds.

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