

Abstract Submitted
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Infrared Spectroscopy on superconducting and non-superconducting iron pnictide compounds¹ C. MARTIN, XIAOXIANG XI, D. KOUKIS, K. MILLER, J.S. KIM, G.R. STEWART, D.B. TANNER, University of Florida, L.L. ZHAO, V. LEYVA, E. MOROSAN, Rice University — We performed infrared reflectivity measurements on single crystals of the hole-doped BaK-122 iron pnictide superconductor ($T_c \approx 33$ K) and on the non-superconducting compound CaFe_4As_3 . In BaK-122, similar to previous reports, we observed an increase in optical reflectance in the infrared below T_c , associated with the superconducting condensate. The non-superconducting CaFe_4As_3 shows two magnetic transitions: one associated with a spin density wave (SDW) transition at $T_N \approx 88$ K and another one at lower temperature ($T_2 \approx 26$ K), with unclear origin up to date. The change in measured reflectivity and in optical conductivity, obtained from Kramers-Kronig analysis, at the two transitions will be discussed in the framework of Drude and Lorentz models.

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