Abstract Submitted
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Evidence of Fermi surface reconstruction in $Pr_{2-x}Ce_xCuO_4$: Far IR Hall measurements in electron doped cuprates[1] G.S. JENKINS, D.C. SCHMADEL, P. BACH, R.L. GREENE, H.D. DREW, University of Maryland at College Park, CNAM, UNIVERSITY OF MARYLAND AT COLLEGE PARK TEAM — The Hall Effect is measured at far infrared frequencies (24-85 1/cm) in $Pr_{2-x}Ce_xCuO_4$ films as a function of temperature from 5K to 300K and electron doping levels ranging from severely underdoped ($x = 0.10$) to overdoped ($x = 0.19$). In underdoped PCCO, the doping and temperature dependence of the complex Hall angle is found to be consistent with a simple Drude model with an associated reduction of the Hall mass in comparison with optimal doping. The mass reduction is consistent with Fermi surface reconstruction and the formation of small electron pockets. In overdoped PCCO, evidence for both electron and hole contributions to σ_{xy} is observed even at low temperatures, a contradistinctive result compared with the DC Hall Effect in PCCO as well as the behavior observed in IR Hall measurements in $La_{2-x}Sr_xCuO_4$. These data suggest interactions through the exchange of incoherent zone corner magnons.

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