Abstract Submitted
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Fermi surface reconstruction in e-doped cuprates: IR Hall measurements in underdoped $Pr_{2-x}Ce_xCuO_4$[1] D.C. SCHMADEL, G.S. JENKINS, H.D. DREW, R.L. GREENE, Center for Nanophysics and Advanced Materials, University of Maryland at College Park, P. FOURNIER, Universite de Sherbrooke — The complex IR Hall angle is measured in PCCO at doping levels ranging from 10% to 15% at low optical excitation energy (10 meV). A precipitous decrease in Hall mass with a decrease in doping level in the underdoped regime is strong evidence of Fermi surface reconstruction and pocket formation, an observation consistent with ARPES and optical spectroscopy measurements. The data over the entire underdoped region is consistent with the predicted IR Hall response based upon ARPES data and Boltzmann theory. The temperature dependence of the Hall mass indicate a gradual roll-over from small pockets to the large unreconstructed Fermi surface expected in overdoped PCCO.

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D. C. Schmadel
Center for Nanophysics and Advanced Materials,
University of Maryland at College Park

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