

Abstract Submitted  
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**Investigation of the kinetic energy change in optimally-doped and overdoped  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$** <sup>1</sup> MINGHAN CHEN, D.B. TANNER, Department of Physics, University of Florida, Gainesville FL USA, G. HAMMERL, J. MANNHART, Experimentalphysik VI, Center for Electronic Correlations and Magnetism, Institute of Physics, Augsburg, Germany — Optimally-doped and overdoped thin films of the high temperature superconductor  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  (Y-123) with  $T_c=90$  K and 79 K, respectively, have been investigated by infrared spectroscopy. The films were highly ab-plane-oriented. In the normal state, the charge-transfer band weight is found to decrease further in the overdoped sample. This indicates the spectral weight of charge transfer band is transferred to the mid-infrared region, just as in the case of increasing doping in the under doped regime. Below  $T_c$ , the superfluid condensation is found in both optimally-doped and overdoped samples. In the optimally-doped sample, the kinetic energy does not change significantly. However, in comparison to the optimally-doped sample, the overdoped sample shows much smaller superfluid (or condensate) density . This result indicates it is difficult to decide the kinetic energy change in the overdoped samples.

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