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**Competing Degrees of Freedom in High Temperature Superconductor New Insights from Angle Resolved Photoemission Spectroscopy** G.-H. GWEON, Physics, UC, Berkeley and MSD, LBNL, S. Y. ZHOU, Physics, UC, Berkeley, J. GRAF, MSD, LBNL, M. C. WATSON, Physics, UC, Berkeley, T. SASAGAWA, H. TAKAGI, Dept. of Adv. Mat. Science, U. Tokyo and CREST, D.-H. LEE, A. LANZARA, Physics, UC, Berkeley and MSD, LBNL — A fundamental issue for the high temperature superconducting cuprates is how various degrees of freedom, e.g. lattice and spin, compete or cooperate as basic ingredients of the superconductivity. In this talk, I will address this issue based on the line shape analysis of angle resolved photoemission data obtained on the optimally doped $Bi_2Sr_2CaCu_2O_{8+\delta}$ high temperature superconductor. The momentum, energy, temperature and oxygen isotope mass dependence of the single particle spectral function will be analyzed. The important role of the lattice that we can learn primarily through the oxygen isotope mass dependence will be emphasized.

Gey-Hong Gweon

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