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**Atomic Scale Imaging of Quasiparticle Lifetimes in Bi2Sr2CaCu2O8+d**[1] J.W. ALLDREDGE, JINHO LEE, Cornell University, K. MCELROY, University of Colorado at Boulder, K. FUJITA, University of Tokyo, M. WANG, J.A. SLEZAK, Cornell University, H. EISAKI, AIST -Tskuba, S. UCHIDA, J.C. DAVIS, Cornell University — Using a d-wave superconductor model with the addition of a $\Gamma_1 + \Gamma_2$*Energy term we are able to relate the observed quasiparticle spectrum to two $\Gamma$ parameters which give us the quaisparticle lifetime on the atomic scale. The quasiparticle lifetime is related to classic impurity atoms (zinc) as well as local suppression of the superconducity at low dopings. The quasiparticle lifetime is shown to change both in spatial distribution and in value as a function of doping. We compare our measured lifetimes to ARPES data and to residual conductance measurements.

[1]CCMR, CTC

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