

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Fe Impurities in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ MICHAEL BOYER, UNURBAT ERDENEMUNKH, BRIAN KOOPMAN, LING FU, Clark University, KAMALESH CHATTERJEE, WILLIAM WISE, MIT, GENDA GU, Brookhaven National Laboratory, ERIC HUDSON, Pennsylvania State University — We present our low-temperature scanning tunneling microscopy (STM) measurements on magnetic Fe impurities intentionally doped in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ (BSCCO). Our high-energy-resolution spectral maps allow us to detail the effects Fe impurities have on the local density of states. Combining the results of our STM measurements with those of previously studied Zn and Ni impurities in BSCCO, we conclude that potential scattering of quasiparticles dominates magnetic scattering even for impurities with large magnetic moments. In addition, we show evidence that impurities act to locally suppress both superconducting and pseudogap states.

Michael Boyer
Clark University

Date submitted: 11 Nov 2016

Electronic form version 1.4