

Abstract Submitted
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Effect of Zn impurities on the superconducting state of high T_c cuprates.¹ A. GARG, University of California at Santa Cruz., A. KANIGEL, Technion - Israel Institute of Technology., M. RANDEIRA, N. TRIVEDI, The Ohio State University. — We study the effect of Zn impurities on the strongly correlated d-wave superconducting state. We solve the t - t' - J model in the presence of unitary scatterers, with the no-double-occupancy constraint imposed by Gutzwiller approximation and the disorder-induced inhomogeneity treated within the Bogoliubov-deGennes (BdG) approach. We study the effect of strong correlations on the quasibound states and its interplay with local moment formation. The density of mobile holes is reduced by the presence of unitary scatterers, resulting in a suppression of the superfluid density but a much weaker effect on the superconducting gap. We investigate the effect on spectral properties, such as the suppression of coherence peaks and low energy spectral weight in the density of states and contrast our results with our earlier study [1] that found protected low-energy excitations in the presence of Born scatterers. We compare our results with recent ARPES experiments [2] on Zn-doped Bi2212. [1] A. Garg, M. Randeria, and N. Trivedi, *Nature Phys.* **4**, 762 (2008). [2] A. Kanigel *et al.*, (unpublished).

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