

Abstract Submitted
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Effect of Disorder Outside the CuO_2 Planes on T_c of Copper Oxide Superconductors. KAZUHIRO FUJITA, Department of Advanced Materials Science, University of Tokyo, L.A.S.S.P. Department of Physics, Cornell University, KENJI KOJIMA, Department of Physics, University of Tokyo, HIROSHI EISAKI, Nanoelectronics Research Institute, National Institute for Advanced Industrial Science and Technology (AIST), SHIN-ICHI UCHIDA, Department of Physics, University of Tokyo, Department of Advanced Materials Science, University of Tokyo — The effect of disorder on the superconducting transition temperature T_c of cuprate superconductors is examined. Disorder is introduced into the cation sites in the plane adjacent to the CuO_2 planes of single-layer systems, $\text{Bi}_2\text{Sr}_{1.6}\text{Ln}_{0.4}\text{CuO}_{6+y}$. Disorder is controlled by changing rare earth (Ln) ions with a different ionic radius with the doped carrier density kept constant. We show that this type of disorder works as weak scatterers in contrast to the in-plane disorder produced by Zn, but remarkably reduces T_c , suggesting novel effects of disorder on high- T_c superconductivity.

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