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Search for Proximity Effect in the Local Pairing Temperature of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ ¹ COLIN PARKER, AAKASH PUSHP, KENJIRO K. GOMES, ABHAY PASUPATHY, Department of Physics, Princeton University, GENDAGU, Brookhaven National Laboratory, SHIMPEI ONO, CRIEPI, Japan, YOICHI ANDO, ISIR, Osaka University, ALI YAZDANI, Department of Physics, Princeton University — The proximity effect is seen when a superconductor is in contact with a metal. The pairing gap in the superconductor is reduced near the interface while superconducting correlations are induced in the metal. Recent results in high- T_c superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ indicate that the pairing gap closes inhomogeneously in space, producing a unique state just above T_c in these compounds where non-superconducting regions are in contact with regions where the pairing gap can still be measured. We will present detailed scanning tunneling measurements that map the local density of states in the same area of the sample from the low temperature fully gapped regime to the high temperature regime where most gaps have closed. We find that the temperature that the gap closes locally is sensitive to the gaps in the surrounding region.

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