

Abstract Submitted
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Two distinct electronic sites in the Cu-O plane of the (La, Sr)CuO(4) pseudogap state ROBERT SMITH, PHILIP KUHNS, ARNEIL REYES, GREGORY BOEBINGER, NHMFL/FSU — At intense magnetic fields (30 T) ^{17}O NMR exhibits two distinct signatures for planar oxygen sites instead of the singular site expected from the identical lattice symmetry at oxygen sites in the copper-oxygen plane for underdoped, orthorhombic $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$. Analysis of Knight shift, linewidth, quadrupolar splitting and spectral asymmetry indicates that roughly 75% of the planar oxygens evidence antiferromagnetically- correlated nearest neighbor Cu moments at temperatures below ~ 30 K, consistent with previous reports. A second planar oxygen site first observed in this study shows that there are mobile holes on roughly 25% of the planar oxygen sites that (a) suppress magnetism for all $T < 300\text{K}$ and (b) show a Knight shift that drops to zero below ~ 60 K, evidencing pair formation at a temperature well above the superconducting transition temperature (~ 4 K at 30 T) and more than twice the superconducting transition temperature at zero magnetic field.

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