

Anomalous Normal-State Magnetism Coupled to Superconductivity in $\text{YBa}_2\text{Cu}_3\text{O}_y$ and $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$

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We report high TF- μ SR measurements on $\text{YBa}_2\text{Cu}_3\text{O}_y$ and $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ single crystals that show a spatially inhomogeneous response to magnetic field for temperatures extending well above the bulk superconducting transition temperature T_c . The degree of the field inhomogeneity above T_c tracks the hole doping dependences of both T_c and the density of the superconducting carriers below T_c , and is therefore apparently coupled to superconductivity. Possible interpretations include: (i) spatially inhomogeneous remnants of superconductivity or, (ii) a field-induced modification of the anomalous magnetic order in $\text{YBa}_2\text{Cu}_3\text{O}_y$ near the pseudogap temperature T^* , first detected by ZF- μ SR [1], but now finally confirmed by polar Kerr effect [2] and polarized neutron diffraction measurements [3,4].

[1] J.E. Sonier et al., *Science* 292 (2001) 1692.

[2] J. Xia et al., *Phys. Rev. Lett.* 100 (2008) 127002.

[3] B. Fauque et al., *Phys. Rev. Lett.* 96 (2006) 197001.

[4] H. Mook et al., arXiv:0802.3620.