

Evidence for Correlation between Spin and Charge Dynamics in $\text{La}_2\text{Cu}_{1-x}\text{Li}_x\text{O}_4$

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Study on the hole-doped $\text{La}_2\text{Cu}_{1-x}\text{Li}_x\text{O}_4$ has attracted a lot of interest partially because of such interesting phenomena as quantum critical point, spin glass and charge glass, which may have significant bearing on the superconducting mechanism of the high- T_c cuprates. Measurement of the ac magnetic susceptibility of $\text{La}_2\text{Cu}_{1-x}\text{Li}_x\text{O}_4$ at $x=0.023$ revealed a spin-glass behavior, where the spin freezing temperature T_{SG} varies as a function of the applied frequency. Direct comparison between T_{SG} and T_{CG} , the charge freezing temperature, suggests that spin and charge degrees of freedom are correlated in this strongly correlated hole-doped cuprate.

Keywords: High- T_c cuprates, Spin glass, Charge glass