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# 【734】Competition of Superconductivity and Spin-Density Wave Fluctuations around the Quantum Critical Point of $La_{2-x}Sr_xCuO_4$

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Correlated materials often exhibit co-existing or competing quantum phases. An open question is whether the dominant phase eliminates the other one prior to its emergence. Here, I present a high resolution time-of-flight neutron spectroscopy study on the low-energy incommensurate spin excitations of superconducting $La_{1.855}Sr_{0.145}CuO_4$. We find that the spin excitations observed above the superconducting transition temperature are suppressed by the emergence of a superconducting spin gap. Our results suggest that a dynamic competition between superconductivity and magnetism impedes the condensation of the spin-density wave fluctuations.

## Theoretical Work

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