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**Effect of Charge Inhomogeneity on the Diagonal Incommensurate Spin Correlations in  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$**  MASAOKI MATSUDA, Japan Atomic Energy Agency, MASAKI FUJITA, KAZUYOSHI YAMADA, IMR, Tohoku Univ. — Neutron-scattering experiments are performed on Zn and Ni doped  $\text{La}_{1.95}\text{Sr}_{0.05}\text{CuO}_4$  to study the impurity effect on the diagonal incommensurate spin correlations. Zn doping reduces the incommensurability and enhances the correlation length just slightly. On the other hand, Ni doping quickly destroys the incommensurability and restores N'eel ordering, indicating a strong effect on hole localization. This suggests that Ni and hole form a strongly bound state with the Zhang-Rice character, in which effective valence and spin number are trivalent and 1/2, respectively. Although it is expected that doped Ni with effective spin 1/2 does not disturb the magnetic interactions so much, the magnetic correlations are disordered considerably. This suggests that the charge inhomogeneity, caused by the random distribution of effectively trivalent Ni, disturbs the stripe formation and the magnetic correlations become disordered. This result supports the diagonal stripe state and probably rules out the spiral state, caused by the magnetic frustration, in lightly-doped  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ .

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