

Abstract Submitted
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Ni-Impurity Effect in High- T_c Cuprates Studied by Neutron Scattering and XAFS Spectroscopy HARUHIRO HIRAKA, SHUICHI WAKIMOTO, MASAAKI MATSUDA, DAIJU MATSUMURA, YASUO NISHIHATA, JUN-ICHIRO MIZUKI, KAZUYOSHI YAMADA, Tohoku University — Neutron scattering experiments using $\text{La}_{2-x}\text{Sr}_x\text{Cu}_{1-y}\text{Ni}_y\text{O}_4$ clarified that the parallel spin-density modulations (SDMs) in the superconducting phase are susceptible to Ni, in the same way as the diagonal SDMs in the insulating spin-glass phase. Ni substitution reduces the mobile hole concentration from x down to $x - y$. Polarized XAFS measurements using Ni K -edge probe two types of Ni valence states; Ni^{2+} and $\text{Ni}^{(2+\alpha)+}$. It indicates that a strong hole localization occurs around Ni, resulting in an effective spin-1/2 value at Ni sites. Therefore, a charge dopant nature of Ni is most likely realized when $x \geq y$.

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