

Dynamical magnetic susceptibility in the optimum doped LSCO with $T_c = 37$ K

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Inelastic neutron scattering results in the superconducting state at 10 K of $\text{La}_{1.85}\text{Sr}_{0.15}\text{CuO}_4$ with $T_c = 37$ K are presented. A large amount of the data taking with the multi angle PSD system of the chopper spectrometer, MARI were analyzed through a complex procedure of the instrumental correction. We could conclude that the incommensurate magnetic scattering centered $(\pi, \pi \pm \delta)$ and $(\pi \pm \delta, \pi)$ with $\delta = 0.12$ rlu persists in high energies as much as 50 meV showing energy independent δ . Then, the incommensurate feature becomes unambiguous in higher energies, but the dynamical magnetic susceptibility $\chi''(\mathbf{q}_{2D}, \omega)$ extends considerably to higher energies, compared with the recent results of the superconducting YBCO.

KEYWORDS: dynamical magnetic susceptibility, inelastic neutron scattering, optimum doped LSCO, TOF measurement, incommensurate structure