

Incommensurate Magnetic Fluctuations in the Underdoped Copper Oxide Materials

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Abstract: The doping dependence of magnetic fluctuations in the underdoped copper oxide materials are studied within the t-J model. It is shown that away from the half-filling, the magnetic Bragg peaks from the dynamical spin structure factor spectrum $S(k, \omega)$ are incommensurate with the lattice. Although the incommensurability $\delta(x)$ is almost energy-independent, the dynamical spin susceptibility $\chi''(k, \omega)$ at the incommensurate wave vectors is changed dramatically with energies, which is consistent with the experiments.

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