

Spin-Gap and Disorder

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It has been indicated that the disorder in the spin-Peierls systems can lead to the coexistence of two long range orders in the ground states, the dimerization and the antiferromagnetism, and that there exists a dual structure in the magnetic excitation spectrum, i.e. gapped mode and low-lying mode, in such ground states. Based on this understanding a proposal is made for the possible cause of the destruction of the spin-gap of the NMR rate without any effects on the NMR shift in YBCO (248) high temperature superconducting oxides.

KEYWORDS: spin-gap, disorder, spin-Peierls, quantum nucleation, antiferromagnetism, coexistent states, phase Hamiltonian, dual structure