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Polaron effects on superexchange interaction: Isotope shifts of T_N , T_c , and T^* in layered copper oxides

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Abstract

A compact expression has been obtained for the superexchange coupling of magnetic ions via intermediate anions with regard to polaron effects on both magnetic ions and intermediate anions. This expression is used to analyze the main features of the behavior of isotope shifts for temperatures of three types in layered cuprates: the Neel temperatures (T_N), critical temperatures of transitions to a superconducting state (T_c), and characteristic temperatures of the pseudogap state of normal phases (T^*). © 2002 MAIK "Nauka/Interperiodica".

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