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## Spin-phonon interaction and the EPR linewidth in La<sub>2</sub>CuO<sub>4</sub> and related cuprates

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### Abstract

The spin-phonon interaction is derived for Cu<sup>2+</sup> ions strongly coupled by the Isotropic exchange interaction. It is shown that in a two-dimensional quantum Heisenberg antiferromagnetic this interaction due to its antisymmetric structure couples the phonon modes near the wave vectors  $(\pm\pi/a, \pm\pi/a)$  to the staggered magnetization. A contribution of the spin-phonon interaction to the EPR linewidth is calculated and its temperature dependence compared with other sources of the broadening. © 1999 Plenum Publishing Corporation.

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### Keywords

2D QHAF, Spin-phonon interaction, The EPR linewidth