

# Vortex Dynamics in Magnesium-diboride by $^{11}\text{B}$ NMR

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Vortex structure and dynamics for magnesium-diboride have been studied using pulsed NMR techniques. We have measured spectrum, shift, detuning frequency, and transverse relaxation rate  $1/T_2$  of  $^{11}\text{B}$  NMR for  $\text{MgB}_2$  powder down to 4 K from room temperature under 1.8 T of external magnetic field. In the superconducting state, the spectrum shows the characteristic field distribution with diamagnetic shift and broad linewidth due to the imperfect penetration of magnetic field.  $1/T_2$  results have a single peak with small change of the rate, contrary to the results of nickel borocarbides. Below 16 K, the shape of  $T_2$  decay changes from Lorentzian to Gaussian. It indicates that the thermal fluctuation is reduced as temperature decreases and the vortex motion is smaller than nickel borocarbides.

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