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^{11}B Pulsed NMR Study of $DyNi_2B_2C$ Single Crystals MOOHEE LEE, SE-GEUN KWON, KIHYEOK KANG, Konkuk University, Republic of Korea, BEONGKI CHO, Gwangju Institute of Science and Technology, Republic of Korea — $DyNi_2B_2C$ is the only compound in the RNi_2B_2C (R = rare-earth) series where superconductivity at T_c˜6.2 K coexists with the antiferromagnetic ordering below the Nel temperatureT_N ˜10.3 K. ^{11}B pulsed NMR measurements were performed at 8.0056 T to investigate the local electronic structures and *4f* spin dynamics of $DyNi_2B_2C$ powders and single crystals. The spectrum for the single crystal showed three narrow resonance peaks at 295 K due to the nuclear Zeeman splitting of a nuclear spin $I = 3/2$ with quadrupolar perturbation. The ^{11}B NMR Knight shift of the single crystal was very large and highly anisotropic at $K = -0.60\%$ and $+0.27\%$ for the fields parallel and perpendicular, respectively, to the c-axis at 295 K. Considering the anisotropy of the Knight shift, we were able to simulate the ^{11}B NMR power pattern that agreed well with the measured spectrum. The linewidth was also large and anisotropic, and the linewidth value increased rapidly at low temperatures. The ^{11}B NMR shift and linewidth were found to be proportional to the magnetic susceptibility, indicating that the hyperfine field at the B site originates from the $4f$ spins of Dy. Above T_N, the values for $1/T_1$ and $1/T_2$ were very large, showing slight increases at low temperatures. Below T_N, the values of $1/T_1$ and $1/T_2$ were suppressed significantly because of the slowing of the $4f$spin fluctuation. This confirmed the huge change in Dy *4f* spin dynamics across the antiferromagnetic transition.

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