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NMR study of Nb-deficient effect in NbB_2 T.H. SU, C.S. LUE, Department of Physics, National Cheng Kung University, Tainan 70101, Taiwan — Observations of the Nb-deficiency enhanced superconducting temperature (T_C) in NbB_2 have been reported. In order to provide experimental information for this effect, we have carried out the nuclear magnetic resonance (NMR) study of $Nb_{1-x}B_2$ (x = 0, 0.13, 0.20, and 0.26) in the normal state. From both ^{11}B and ^{93}Nb NMR spin-lattice relaxation rates, we can deduce the B-2p and Nb-3d partial Fermi-level density of states (DOS) for each individual composition. The result indicates that the B-2p and Nb-3d partial Fermi-level DOS increase with Nb deficient level. Such a tendency is consistent with the trend of the superconducting temperature, revealing that the observed T_C enhancement is strongly correlated to the increase of the Fermi-level DOS induced by the Nb deficiency.

T.H. Su

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