C-axis Transport Properties of DyNi$_2$B$_2$C

W.C. LEE, Dept. of Physics, Sookmyung Women’s Univ. — The resistivity along c-axis $\rho_c(H,T)$ of DyNi$_2$B$_2$C have been measured with the applied magnetic field $H$ perpendicular and parallel to c-axis, 0 kG $< H < 4$ kG, and temperature range 2K $< T < 300$K. From these, the superconducting upper critical field $H_{C2}(T)$ curves of DyNi$_2$B$_2$C for the c-axis were constructed for each magnetic fields and our $H_{C2}(T)$ curves from $\rho_c(H,T)$ measurement have been compared with those from previous known $\rho_{ab}(H,T)$ results. Since RNi$_2$N$_2$C ($R = $ non magnetic rare earth element) has isotropic electronic structure and properties, the anisotropy in $H_{C2}(T)$ curves of the magnetic DyNi$_2$N$_2$C, which has the superconducting transition temperature, $T_C$, is lower than the Néel temperatures, $T_N$, is thought to be originated from the anisotropic magnetic Dy$^{+3}$ sublattice.