

Temperature Dependence of Magnetization at Zero Applied Magnetic Field in Nearly Two Dimensional Ferromagnets

Chomsin S. Widodo and Muneaki Fujii

Department of Physics, Kumamoto University, Kurokami 2-39-1, Kumamoto, Japan

NMR measurement have been made at low temperatures on the crystal structure of K_2CuF_4 and $(\text{C}_3\text{H}_7\text{NH}_3)_2\text{CuCl}_4$ at zero applied magnetic field. ^{63}Cu , ^{65}Cu and ^{35}Cl NMR have been used to measure spontaneous magnetization at the temperature range 2 K down to 30 mK. We have made the NMR experiments using a ^3He - ^4He dilution refrigerator by conventional pulsed NMR method without external magnetic field. The magnetization at zero applied magnetic field in the nearly two-dimensional ferromagnet K_2CuF_4 of the experimental data is in a good agreement with Yamaji-Kondo theory and $\theta_c=0.3$, which is applied the double-time Green's function method incorporated with Tyablikov's decoupling. For temperature 1.1 K down to 0.26 K, the spontaneous magnetization of $(\text{C}_3\text{H}_7\text{NH}_3)_2\text{CuCl}_4$ is support $(t \log t')$ -formalism from the spin wave theory.