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**Magnetic properties of  $\text{MnCr}_2\text{O}_4$  investigated by NMR** DONG YOUNG YOON, SOONCHIL LEE, Department of physics, Korea Advanced Institute of Science and Technology, YOON SEOK OH, KEE HOON KIM, Department of physics and astronomy, Seoul National University — We investigated the magnetic properties of spinel  $\text{MnCr}_2\text{O}_4$  by nuclear magnetic resonance (NMR) and superconducting quantum interference device (SQUID). The magnetization vs. temperature curves under zero field cooling and field cooling show the ferrimagnetic spiral structure below 20 K and the collinear ferrimagnet from 40 K to 20 K. The magnetization vs. time curve show the spin-glass-like behavior below 9 K. The canting angles of Mn and Cr spins at liquid He temperature are determined by NMR to be  $50^\circ$  and  $110^\circ$ , respectively. In the ferrimagnetic spiral state, the nuclear spin-spin relaxation rate steeply increases with increasing temperature above 12 K, which is expected to come from the fast fluctuation of electron spins. The NMR shows that the volume of the ferrimagnetic spiral domain decreases faster than the local magnetization as temperature increases. Furthermore, the domain volume shows the differences between cooling and warming processes. We depict that the ferrimagnetic spiral is embedded in the collinear ferrimagnet matrix.

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