Memory and aging effect in hierarchical spin orderings of stage-2 CoCl₂ graphite intercalation compound MASATSUGU SUZUKI, ITSUKO SUZUKI, SUNY-Binghamton, MOTOHIRO MATSUURA, Fukui University of Technology — Stage-2 CoCl₂ graphite intercalation compound undergoes two magnetic phase transitions at $T_{cl} (= 7.0$ K) and $T_{cu} (= 8.9$ K). The aging dynamics of this compound is studied near $T_{cl}$ and $T_{cu}$. The intermediate state between $T_{cl}$ and $T_{cu}$ is characterized by a spin glass phase extending over ferromagnetic islands. A genuine thermoremanent magnetization (TRM) measurement indicates that the memory of the specific spin configurations imprinted at temperatures between $T_{cl}$ and $T_{cu}$ during the field-cooled (FC) aging protocol can be recalled when the system is re-heated at a constant heating rate. The zero-field cooled (ZFC) and TRM magnetization is examined in a series of heating and reheating process. The magnetization shows both characteristic memory and rejuvenation effects. The time ($t$) dependence of the relaxation rate $S_{ZFC}(t) = (1/H) dM_{ZFC}(t)/dt$ after the ZFC aging protocol with a wait time $t_w$, exhibits two peaks at characteristic times $t_{cr1}$ and $t_{cr2}$ between $T_{cl}$ and $T_{cu}$. An aging process is revealed as the strong $t_w$ dependence of $t_{cr2}$. The observed aging and memory effect is discussed in terms of the droplet model.

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Date submitted: 22 Nov 2005

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