

Abstract Submitted  
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**A second metastable spin-ordered state on ferrimagnetic single crystal  $\text{Cu}_2\text{OSeO}_3$**  CHIH CHIEH CHOU, C.L. HUANG, K.F. TSENG, S. MUKHERJEE, J.L. HER, Y.H. MATSUDA, K. KINDO, H. BERGER, H.D. YANG — DC and AC susceptibilities were executed on ferrimagnetic single crystal  $\text{Cu}_2\text{OSeO}_3$  under magnetic field ( $H$ ) and hydrostatic pressure ( $P$ ) circumstance. With increasing  $H$ , the ferrimagnetic transition at  $T_C \sim 60$  K tends to a higher temperature. Furthermore, the  $T_C$  rises with a linear slope and magnetization is enhanced with increasing  $P$ . Features of the ladder shown in the  $M$  vs.  $H$  curve or the peak observed in the  $dM/dH$  vs.  $H$  curve are noted at  $H_{SF} \sim 0.5$  kOe, exhibiting a competing ordered state in magnetic fields below  $T_C$ . Remarkably, another shoulder is observed at  $\sim 1$  kOe in the  $dM/dH$  vs.  $H$  curve, revealing a metastable spin ordered state in  $\text{Cu}_2\text{OSeO}_3$ . In addition, the novel state is retained and enhanced by applied pressure. However, at  $H$  up to 55 T, there is no more observable slope change in magnetization. These magnetic properties suggest a complex spin orientation in the spin-frustrated system  $\text{Cu}_2\text{OSeO}_3$ .

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