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Anomalous magnetic relaxation in 2D layered organic-based magnet $[Fe(TCNE)(NCMe)_2][FeCl_4]$[1] JUNG-WOO YOO, V. N. PRIGODIN, Department of Physics, The Ohio State University, K. I. POKHODNYA, JOEL S. MILLER, Department of Chemistry, University of Utah, A. J. EPSTEIN, Department of Physics and Chemistry, The Ohio State University — The magnetic relaxation of the 2D organic-based magnet [Fe(TCNE) $(NCMe)_2$][$FeCl_4$] was explored using both static and dynamic measurements. Static $M(H,T)$ studies showed that the ferrimagnetic order between the spins in Fe^{2+} ($S = 2$) and the spin in $(TCNE)^-$ ($S = 1/2$) occurs principally within the plane of $[Fe(TCNE)(NCMe)_2]^+$ layers, with no magnetic coupling to the $S = 5/2$ of the $[FeCl_4]^-$, which is located between layers [1]. The DC magnetic relaxation in ZFC states shows the memory effects similar to that observed in superparamagnetic systems. This reflects the weak magnetic coupling between the layers enabling the bistable nature between FC and ZFC states [1]. The memory effects disappear when the system is cooled in field supporting bistable nature of interlayer coupling. The dynamic susceptibility near the critical T shows two relaxation processes the possible origins of which will be discussed.
[1] K. I. Pokhodnya, *et al.* J. Am. Chem. Soc., **118**, 12844 (2006).

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Jung-Woo Yoo
Physics Department, The Ohio State University

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