

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Spin dynamics of the field-induced spin density wave phases in $(\text{TMTSF})_2\text{ClO}_4$ in tilted magnetic fields¹ L.L. LUMATA, J.S. BROOKS, A.P. REYES, P.L. KUHNS, Department of Physics and National High Magnetic Field Laboratory, Florida State University, S.E. BROWN, Department of Physics, UCLA, H.B. CUI, Department of Physics and National High Magnetic Field Laboratory, Florida State University, J.-I. YAMADA, Department of Material Science, University of Hyogo — The spin dynamics of the different subphases of the field-induced spin density wave (FISDW) ground state in $(\text{TMTSF})_2\text{ClO}_4$ was investigated using simultaneous ^{77}Se nuclear magnetic resonance (NMR) and electrical transport. The metallic and FISDW phases were accessed by rotating the sample along its most conducting axis in a constant magnetic field H and constant temperature. At a fixed field of 30 T and constant temperature 1.47K, we report observation of divergence in the spin-lattice relaxation rate $1/T_1$ at angles corresponding to $H_{\perp} = H\cos(\theta) \sim 6.4\text{T}$, 15.9T , and 26T FISDW phase transitions. There is a gradual increase in $1/T_1$ in the 2nd-order/FISDW cascade region and a nearly metallic-like behavior deep in the final reentrant SDW phase is observed. RF enhancements in the metallic and FISDW phases were also measured. The details will be discussed.

¹Work supported in part by NSF-DMR 0602859; NHMFL supported by the NSF and the State of Florida.

Lloyd Lumata
NHMFL/FSU

Date submitted: 03 Dec 2007

Electronic form version 1.4