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NMR spin echo measurements of sliding spin density wave repinning in $(TMTSF)_2PF_6$[1] W.G. CLARK, UCLA Physics and Astronomy, M.E. HANSON, SAP Labs, LLC., ERNEST W.H. WONG, Varian Inc. — We report the repinning rate of sliding spin density waves (SDW's) in $(TMTSF)_2PF_6$ obtained from proton spin echo measurements. This method provides a local measurement of the square of the magnitude of the SDW velocity averaged over the sample as a function of time after the electric field responsible for the SDW sliding is reduced to below its depinning value. It shows a slow decay of the SDW current which we attribute to the corresponding adjustment of the SDW phase to the pinning centers and relaxation of the strain of the sliding SDW. Above the temperature $T \sim 4$ K, a thermally activated behavior for the characteristic decay time is observed whose activation energy of 22 ± 3 K is close to the single electron excitation gap. This indicates that above 4 K, the repining rate is dominated by thermally excited electrons. Below 4 K, a much weaker T-dependence is observed suggesting that tunneling may become the dominant repinning mechanism at lower T.

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