

Abstract Submitted
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The effects of disorder and temperature on the glassy dynamics of the first-order spin-paramagnetic transition in ultrathin granular Al films¹ JOSEPH PRESTIGIACOMO, PHILIP ADAMS, Louisiana State University — We report an ongoing experimental study of the effects of disorder and temperature on the glassy dynamics of the first-order spin-paramagnetic transition in ultrathin granular Al films. The disorder of the films is gauged primarily by their proximity to the quantum sheet resistance $R_Q \approx 6.45 \text{ K}\Omega/\text{sq}$ at temperatures slightly above T_c . In general, thicker films with $R \ll R_Q$ achieve equilibrium almost entirely through avalanches in resistance while thinner films with $R \sim R_Q$ exhibit slow stretched-exponential relaxation with very few detectable avalanches. Preliminary observations indicate that increasing measurement temperatures to near the tricritical point has the effect of speeding up the relaxations, thereby reducing the time constants involved. Similarities between this system and other glassy systems will be discussed.

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