

Abstract Submitted
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Stripe Glass from Competing Short and Long Range Interactions

GERGELY ZIMANYI, CHRIS PIKE, RICHARD SCALETTAR, Physics Department, UC Davis — We investigate a film of dipoles oriented perpendicular to the film. The system's behavior is related to inhomogeneous non-Fermi liquid states, recently studied by Kivelson and Spivak and by Schmalian and Wolynes. The competition of short range ferromagnetic and long range antiferromagnetic interactions causes the formation of stripes. The system has an ordered stripe-crystal phase. However, this phase is avoided unless an extremely slow annealing protocol is utilized. Without any quenched disorder during normal annealing protocols the frustrated competing interactions self-generate a stripe-glass state. The stripe glass exhibits aging, manifesting itself in waiting-time dependent correlations. A scaling analysis of the aging is presented. The long time behavior shows stretched exponential behavior, the relaxation time surprisingly exhibiting a simple activated form. Dynamical inhomogeneities are identified, both frozen domains and instantaneous crystallites.

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