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Slow dynamics at the smeared phase transition of randomly layered magnets SHELLIE HUETHER, RYAN KINNEY, THOMAS VOJTA, Dept. of Physics, University of Missouri-Rolla — We investigate a model for randomly layered magnets, viz. a three-dimensional Ising model with planar defects. The magnetic phase transition in this system is smeared because static long-range order can develop on isolated rare spatial regions. Here, we report large-scale kinetic Monte Carlo simulations of the dynamical behavior close to the smeared phase transition which we characterize by the spin (time) autocorrelation function. In the paramagnetic phase, its behavior is dominated by Griffiths effects similar to those in magnets with point defects. In the tail region of the smeared transition the dynamics is even slower: the autocorrelation function decays like a stretched exponential at intermediate times before approaching the exponentially small asymptotic value following a power law at late times. Our Monte-Carlo results are in good agreement with recent theoretical predictions based on optimal fluctuation theory.

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