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Dynamics of the Random Ising Model with Long-Range Interaction

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Abstract: Critical dynamics of the random Ising model with long-range interaction decaying as $r^{-(d+\sigma)}$ (where d is the dimensionality) is studied by the theoretic renormalization-group approach. The system is released to an evolution within a model A dynamics. Asymptotic scaling laws are studied in a frame of the expansion in $\varepsilon=2\sigma-d$. In dimensions $d<2\sigma$, the dynamic exponent z is calculated to the second order in $(\varepsilon)^{1/2}$ at the random fixed point.

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Key words: Ising model, critical dynamics, long-range interaction, quenched impurities

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