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Zero-temperature Glauber dynamics of a random-field Isng model on a Bethe lattice HIROKI OHTA, SHIN-ICHI SASA, Department of Pure and Applied Sciences, University of Tokyo — Zero-temperature Glauber dynamics of random-field Ising model has been investigated for some decades as a simple model for understanding intermittent behaviors of complex materials responding to an external field. It has been known that there is a critical point in the parameter space of this model, where an external magenetic field and a dispersion of random field are the parameters of the model. Until now, static properties related to this critical point under quasi-static operation have been studied extensively. However, dynamical behaviors under non quasi-static operation such as quenching, have not been known sufficiently in comparison with the static properties. In this presentation, we derive exactly an evolution equation for an order parameter that describes dynamical behaviors of zero temperature Glauber dynamics of random-field Ising model on a Bethe lattice under a quenched initial condition. By analyzing the obtained evolution equation, we determine the value of a critical exponent that characterizes slow dynamical behavior observed near the critical point.

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