

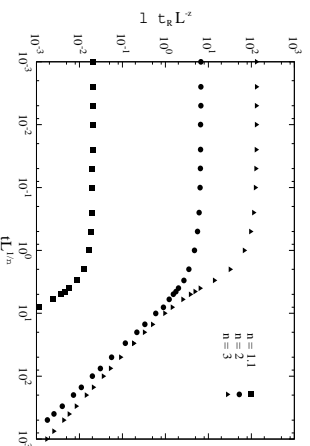
Dynamic Finite-size scaling in systems with short-range correlated quenched disorder

Elka Korutcheva¹, Hassan Chamati²

(1) Departamento de Física Fundamental, Universidad Nacional de Educación a Distancia, 28040 Madrid, Spain

(2) Institute of Solid State Physics, Bulgarian Academy of Sciences, 1784 Sofia, Bulgaria

We study the critical dynamics of hyper-cubic finite size system of size L in the presence of quenched short-range correlated disorder. By using the random T_c model A for the critical dynamics and the renormalization group method in the vicinity of the upper critical dimension $d = 4$, we derive in first order of $\epsilon = 4 - d$ the expression for the relaxation time. Its finite-size scaling behavior is discussed both analytically and numerically in details and is presented in the following figure for different values of the number of the components of the order parameter $n = 1, 1, 2, 3$, where the “random” fixed point is stable. It shows an universal behavior, which is independent on the microscopic details of the model.



Acknowledgments

This work is financially supported by Spanish Grant No.DGI.M.CyT.FIS2005-1729.

[1] P. Hohenberg and B. Halperin, Rev. Mod. Phys. **49**, 435 (1977).

[2] H. Chamati, E. Korutcheva and N.S. Tonchev, Phys. Rev. E **65**, 026129 (2002).