

Anomalous Scaling Behaviors in a Rice-Pile Model with Two Different Driving Mechanisms

ZHANG Duan-Ming,¹ SUN Hong-Zhang,^{1,2} LI Zhi-Hua,¹ PAN Gui-Jun,^{1,3} YU Bo-Ming,¹ LI Rui,¹ and YIN Yan-Ping,¹

¹ Department of Physics, Huazhong University of Science and Technology, Wuhan 430074, China

² School of Science, Henan University of Science and Technology, Luoyang 471003, China

³ Department of Physics, Hubei University, Wuhan 430062, China

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Abstract: The moment analysis is applied to perform large scale simulations of the rice-pile model. We find that this model shows different scaling behavior depending on the driving mechanism used. With the noisy driving, the rice-pile model violates the finite-size scaling hypothesis, whereas, with fixed driving, it shows well defined avalanche exponents and displays good finite size scaling behavior for the avalanche size and time duration distributions.

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