

Comment on "Relaxation at the Angle of Repose"

The concept of self-organized criticality¹ applies to dynamical systems which exhibit spatial or temporal power-law correlations, not to systems which do not!

The experiments performed by Jaeger, Liu, and Nagel² are very interesting on their own rights. However, from a general perspective, the problem is not whether *their* sand dunes show self-organized criticality (although it would be nice and we are disappointed that they do not), but whether or not real systems showing " $1/f$ " noise or spatial self-similarity are at the self-organized critical point. The "sandpile picture" was included mostly for visualization, as was expressed several times. The theory is not primarily one of "granular systems" (actually it was first developed for a system of interacting torsion pendula).

The remark questioning the universality of the models, which goes beyond the scope of the experimental work reported, is perhaps misleading since no one has claimed that the exponents are universal.

We encourage experiments and further theoretical studies on the dynamics of some of the plentiful systems

in nature which do exhibit fractal structure or temporal power-law correlations.

Per Bak

Brookhaven National Laboratory
Upton, New York, 11973

Chao Tang

Institute for Theoretical Physics
University of California at Santa Barbara
Santa Barbara, California 93106

Kurt Wiesenfeld

Georgia Institute of Technology
Atlanta, Georgia 30332

Received 12 September 1988

PACS numbers: 46.10.+z, 05.40.+j, 05.70.Jk

¹P. Bak, C. Tang, and K. Wiesenfeld, Phys. Rev. Lett. **59**, 381 (1987), and **60**, 2347 (1988), and Phys. Rev. A **38**, 364 (1988), and J. Stat. Phys. **51**, 797 (1988).

²H. M. Jaeger, C. Liu, and S. R. Nagel, this issue, Phys. Rev. Lett. **61**, 40 (1988).