

**Lee and Stanley Reply:** The preceding Comment<sup>1</sup> on our paper<sup>2</sup> represents an important contribution. Indeed, Ref. 1 is complementary to Ref. 2: Ref. 1 is a calculation on a single large cluster, while Ref. 2 represents an average over all possible configurations.

However, the observant reader may notice that the “energy” of Ref. 1 (cf. Fig. 1 of Ref. 1) falls considerably below the energy of our calculation [cf. Fig. 5(a) of Ref. 2]. Hence at first sight it may appear that Refs. 1 and 2 cannot *both* be correct. Our purpose here is to resolve this paradox and show that in fact both Refs. 1 and 2 are correct. The key lies in the fact that Ref. 1 concerns a single large cluster, and so the predictions are those of a “typical” cluster. On the other hand, Ref. 2 concerns an average over all possible diffusion-limited aggregations (DLA) configurations. Normally in physics when one averages over all possible configurations, one finds *less* singular behavior. However, here this is not the case. The reason is that by considering every possible DLA configuration, we include in our ensemble clusters with the remarkable property that although their probability of occurrence is extremely small, their contribution is extremely large. Therefore, we expect substantial difference between the  $\beta$ th moment of Refs. 1 and 2 for sufficiently negative  $\beta$ , and this expectation is reflected in the comparison of the energy plots.

A more delicate question is the value of “critical tem-

perature”  $\beta_c$  below which the multifractal formalism breaks down. Because of the small size of the clusters considered in Ref. 2, no precise estimate of  $\beta_c$  in the  $L \rightarrow \infty$  limit could be given. Although there is no reason for the two problems to have the same value of  $\beta_c$ , we note that our estimate is *consistent* with the estimate  $\beta_c \approx -0.4$  of Ref. 1.

We note, in conclusion, that Ref. 1 addresses the general question, “Is there a phase transition in the multifractal spectrum of a *typical* DLA aggregate?” Havlin *et al.* provide the first *direct* calculation to answer this question.

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<sup>1</sup>S. Havlin, B. Trus, A. Bunde, and H. E. Roman, preceding Comment, Phys. Rev. Lett. **63**, 1189 (1989).

<sup>2</sup>J. Lee and H. E. Stanley, Phys. Rev. Lett. **61**, 2945 (1988); a more complete discussion appears in J. Lee, P. Alstrøm, and H. E. Stanley, Phys. Rev. A **39**, 6545 (1989).