Rundle *et al.* Reply There are three points to stress in our reply to the preceding Comment [1]. (1) We claim only that Boltzmann statistics describe slider block models in the mean-field (MF) limit. This claim has been checked in three different ways. First, we fit the data for block energy distributions to a Boltzmann form [2]. Second, we calculated the energy fluctuation metric [3] to check ergodicity [4]. We found that the system tended toward ergodicity as the MF limit was approached. Finally, in the MF limit we derived an Ito-Langevin equation that describes the temporal evolution of the system [5]. The result, predictions of which have been verified via simulation, is that there is a free energy (Lyapunov) functional that drives the temporal evolution and shows that steady states are free energy minima. (2) In the MF limit thermodynamic quantities can be calculated by ignoring correlations. Hence, blocks can be treated as independent. The probability then that a system has an energy E is $P(E) = \Pi_i\{P'(E_i')\}$, where E_i' is the energy of block i, $E = \Sigma_i E_i'$, and $P'(E_i')$ is the probability that block i has energy E'. The fact that $P'(E_i') = \rho'(E_i')e^{-\beta E_i'}$, where $\rho'(E_i')$ is the block density of states, guarantees that $P(E) = \rho(E)e^{-\beta E}$. Clearly, $\rho(E)$ is a complicated function of the $\rho'(E_i')$, but is independent of the temperature if $\rho'(E_i')$ is also. (3) The key subtraction in [2] is not the zero point energy as stated in [1] but the term $\frac{\delta F(\psi)}{\delta\psi}|_{\psi=\psi_0}$, the Langevin driving force evaluated at the steady state value of ψ. In the MF limit it is simple to prove [5,6] the theorem that this is zero. Its magnitude is a measure of how "far" the simulated system is from MF. Hence, we expect the curvature in Fig. 1 of Ref. [1] if this term is not subtracted, but that the curvature will lessen as the system approaches MF. In Fig. 1, we plot data from two models that approach MF, with this term subtracted as in [1]. Clearly we obtain a straight line.

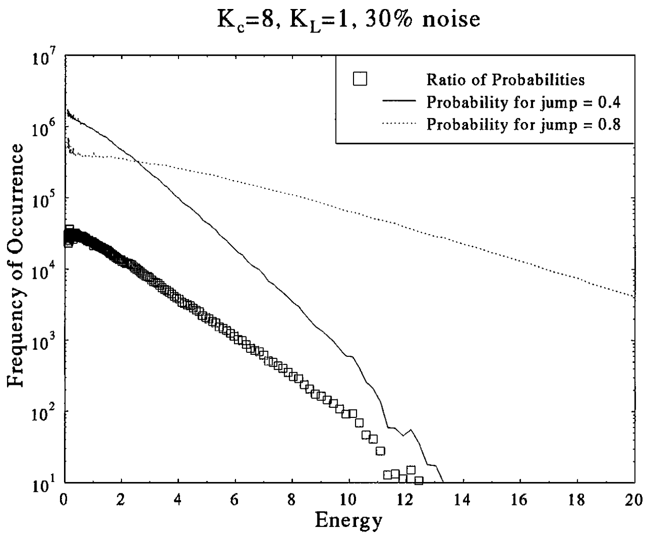

FIG. 1. Comparison of $P_1(E)$ for model 1 (solid line, $K_C = 8, K_L = 1, W = 0.3, \text{jump} = 0.4$) and $P_2(E)$ model 2 (dotted line, $K_C = 8, K_L = 1, W = 0.3, \text{jump} = 0.8$). Also plotted is $\ln(P_1/P_2)$ against E (squares).

In summary, we have obtained equilibrium in the MF limit of this model in three separate ways, and stand by our results.

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