Mon Replies: The analytic results[1,2] technically need not be exact for arbitrary dimension, comparisons with the simulations[3] are erroneous, and the bound $(D \le d)$ does not apply for solid-on-solid lattice models.

(1) The analytic results[1,2] consider a subset of the original height variables on sites that form a regular lattice with lattice constant L. The "analytic" excess area density is $A_a(L) \approx L^{-1} \langle |h_L| \rangle_a$, with $h_L \equiv h(0) - h(L)$. With the assumption $\langle |h_L| \rangle_a \approx aL^{Y_a}$ with $a > 0$, $A_a(L) \approx L^{-(1-Y_a)}$ and $D_a(d) = d - Y_a(d)$ follow. The Y_a were from scaling results[1,2] assuming $\langle |h_L| \rangle_a \approx \langle (h_L)^2 \rangle_a^{1/2}$, where $\langle (h_L)^2 \rangle^{1/2} \approx bL^{X_a}$ for large L, with $b > 0$. $X_a = \frac{1}{2}$ and 0 for $d = 2$ and 3, respectively. This actually obeys a Schwartz inequality, $\langle |h_L| \rangle_a \le \langle (h_L)^2 \rangle_a^{1/2}$, $aL^{Y_a} \le bL^{X_a}$, and $0 < a/b \le L^{X_a - Y_a}$. Since L must be large for scaling to hold, $Y_a < X_a$ or $Y_a = X_a$. For $d = 2$, $Y_a = X_a$ follows from exact results,[1,2] but for $d = 3$, nothing rigorous is known.

(2) The analytic calculations do not include the important feature that the column height differences in the simulations are measured in units of L. This neglect contributes to the disagreement between the analytic results and the simulations. Consider the distribution $P_L(|h_L|)$ and note that the analytic results assume

$$\langle |h_L| \rangle_a = \int_0^\infty |h_L| P_L(|h_L|) d|h_L|, \qquad (1)$$

but the simulations measure $|h_L|$ in units of L. This introduces truncations

$$\langle |h_L| \rangle_{\rm MC} = \sum_{i=1}^\infty i \int_{iL}^{(i+1)L} L P_L(|h_L|) d|h_L|. \qquad (2)$$

To show the consequences of these two different definitions, Eq. (2) has been evaluated numerically for a Gaussian, which is exact for $d = 2$ in the large-L limit. A width of $20L^{1/2}$ is used (see Fig. 1). The dots represent Eq. (2) and the dashed line is the predictions of Refs. 1 and 2 with a slope of $\frac{1}{2}$, fitted to the data at small L. The truncation is not expected to be important in the small-L limit and this is confirmed in Fig. 1. Deviations of the results with and without truncations become noticeable above $L = 5$ and increase with L. Note that for large L (the limit for which the analytic results are valid), the analytic results without truncations do not even describe the correct trends of the results with truncations.

The data between $L = 7$ to 100 can be roughly fitted with a slope of 0.408 (solid line in Fig. 1), consistent with the Monte Carlo results of 0.42 ± 0.06. The small L (<7) data do deviate from scaling, in contrast to the simulations. This may be attributed to the inaccuracy of the Gaussian approximation for small L. The large-L deviations from scaling are clearly present in both the simulations and Eq. (2), but absent in the predictions of Refs. 1 and 2. This supports the simulations; details will be considered elsewhere.

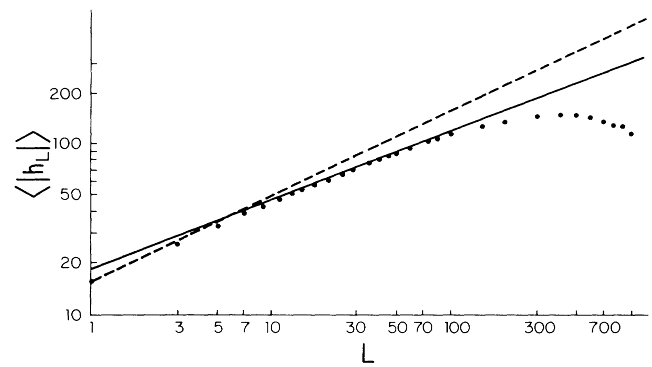

FIG. 1. A comparison of the scaling properties for $\langle |h_L| \rangle$ between the predictions of Refs. 1 and 2 (dashed line) and numerical solution of Eq. (2) (dots) for $d = 2$ (see text).

(3) The bound $D \le d$ does not apply here. The simplest reason is that a solid-on-solid lattice model is highly anisotropic.

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