Blumenfeld and Aharony Reply: In their Comment,[1] Fourcade and Tremblay (FT) note that under some assumptions, the breakdown of multifractality in diffusion-limited aggregation may appear already for positive moments of the growth probabilities $\{p_i\}$, i.e., for $M_q = \sum_i p_i^q$ with $q > 0$.

In our Letter,[2] we divided the growth sites into two groups, the unscreened sited, whose growth probabilities scale as powers of the linear scale L, and the screened ones, with small growth probabilities which decrease exponentially with L. For simplicity, we represented[2] the contributions of each of these regions to M_q by

$$M_q = Ap_c^q L^{d_x(q)} + BL^{-a(q)}, \tag{1}$$

with p_c exponentially small. The exponent $d_x(q)$ is the fractal dimension of the sites which dominate (in the steepest-descent sense) the partial sum $\sum_i p_i^q$ over the screened sites. It increases monotonically from $d_{\min}$ (for $q \to -\infty$) to the fractal dimension of all the screened sites, d_c (for $q \to 0$). Writing $\tau(q,L) = -\partial \ln M_q / \partial \ln L$, it is easy to see that

$$D_g = \lim_{L\to\infty} \lim_{q\to 0} [-\tau(q,L)] = \max[d_c, -a(0)], \tag{2a}$$

$$\lim_{q\to 0^+} \lim_{L\to\infty} [-\tau(q,L)] = -a(0), \tag{2b}$$

where D_g is the fractal dimension of the accessible perimeter. In Ref. 2, we assumed that $-a(0) > d_c$. We thus identified $D_g = -a(0)$. This also implied that the multifractal behavior always wins for all $q > 0$ [Eqs. (2a) and (2b) yield the same limits]. Assuming that the $a(q)$ and $d_x(q)$ are analytic near $q = 0$ [not to be confused with the measured $\tau(q)$], we found that for fixed large L, the first term in (1) dominates the second one for $q < q_c(L)$, with

$$q_c(L) \simeq \frac{|a(0)| - d_c}{\ln p_c / \ln L} \tag{3}$$

[see Eq. (12) in Ref. 2].

In Ref. 2, we also mentioned an alternative possibility, in which "the unprobed sites comprise a very large fraction" of the total mass, and suggested that this might explain why the observed D_g is lower than its actual value. An extreme way to follow this possibility is to assume the opposite inequality, i.e., $-a(0) < d_c$. This immediately yields $D_g = d_c$ and $q_c(L) > 0$, as found by FT. In fact, FT propose a specific scenario, based on a model they proposed[3] much before our Letter, which they call "self-similar overscreening," yielding this opposite inequality. In that scenario, practically *all* the growth sites are overscreened in the infinite-size limit. Our assumption implies that these screened sites form a *decreasing* fraction of the perimeter. Although this issue remains to be settled by future studies, we note the recent papers by Harris,[4] which argue that the weight of sites with exponentially small growth probabilities is negligibly small.

In their last paragraph, FT suggest that the difference between the two limits (2a) and (2b) may explain the too low value of D_g in measurements based on (2b). However, we note that even when $D_g = -a(0) > d_c$, Eq. (1) yields $M = AL^{d_c} + BL^{D_g}$, and the first term may represent a strong correction to scaling, yielding an effective exponent $-\tau_{\text{eff}} \simeq D_g - A(D_g - d_c)L^{d_c - D_g}/B$, with values below D_g.

In conclusion, both scenarios are, in principle, possible. A direct check may involve a careful measurement of the relative size of d_c and $|a(0)|$, and this remains to be settled.

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