Erratum: Clustering of dark matter tracers: Renormalizing the bias parameters
[Phys. Rev. D 74, 103512 (2006)]

Patrick McDonald

In [1], a factor of 2 was missing from one term in Eqs. (10) and (16). The correct equations are:

$$P_g(k) = N_0 + \left[c_1^2 + c_1 c_3 \sigma^2 + \frac{68}{21} c_1 c_2 \sigma^2 \right] P(k) + \frac{1}{2} c_2^2 \int \frac{d^3\mathbf{q}}{(2\pi)^3} P(q) P(|\mathbf{k} - \mathbf{q}|)$$

$$+ 2 c_1 c_2 \int \frac{d^3\mathbf{q}}{(2\pi)^3} P(q) P(|\mathbf{k} - \mathbf{q}|) J_S^{(2)}(\mathbf{q}, \mathbf{k} - \mathbf{q}) + \ldots \tag{10}$$

and

$$P_g(k) = b_1^2 \left[P(k) + \frac{\tilde{b}_2^2}{2} \int \frac{d^3\mathbf{q}}{(2\pi)^3} P(q)[P(|\mathbf{k} - \mathbf{q}|) - P(q)] + 2\tilde{b}_2 \int \frac{d^3\mathbf{q}}{(2\pi)^3} P(q) P(|\mathbf{k} - \mathbf{q}|) J_S^{(2)}(\mathbf{q}, \mathbf{k} - \mathbf{q}) \right] + N. \tag{16}$$

Results change in detail but not the qualitative conclusions (see new versions of Figs. 1 and 2). Note that I have removed the smoothing kernels, $W(kR)$, from Eq. (10), because the term $\frac{68}{21} c_1 c_2 \sigma_W^2$ was incorrect. This term is k-independent only in
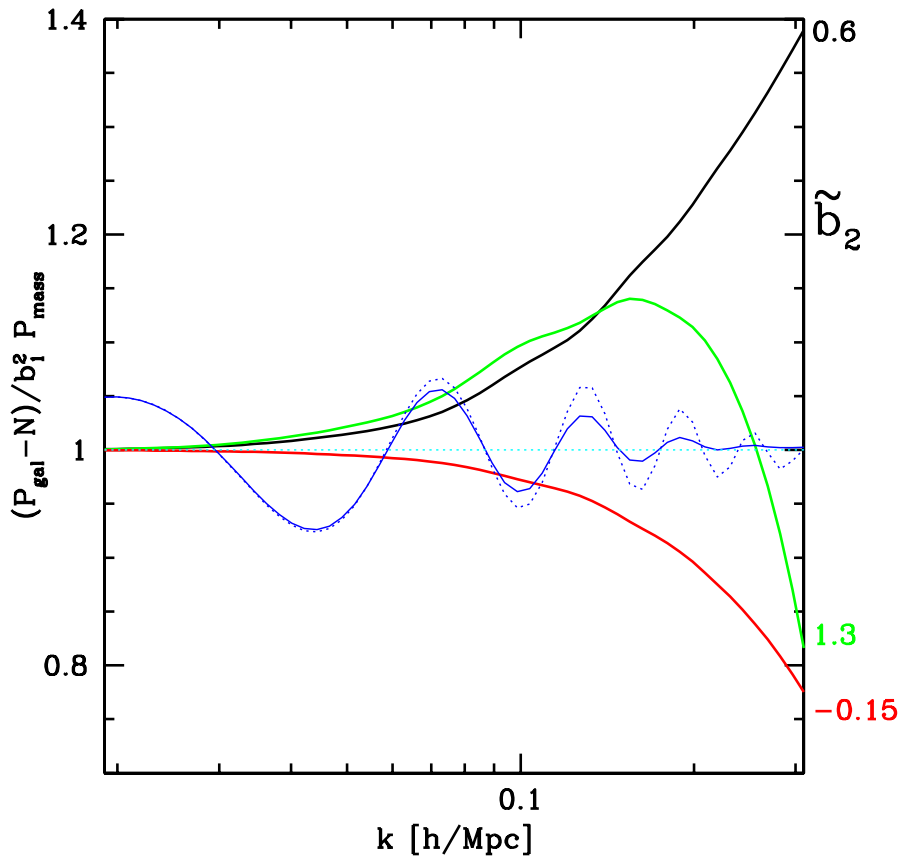

FIG. 1 (color online). Thick lines show $(P_g(k) - N)/b_1^2 P_{\text{mass}}(k)$ for $\tilde{b}_2 = 0.6$ (black), $\tilde{b}_2 = 1.3$ (green), and $\tilde{b}_2 = -0.15$ (red). For comparison, the thinner, blue, wiggly lines show the ratio of mass power in a realistic model to the power in a similar model with no baryonic acoustic oscillations (solid is nonlinear power, dotted is linear).
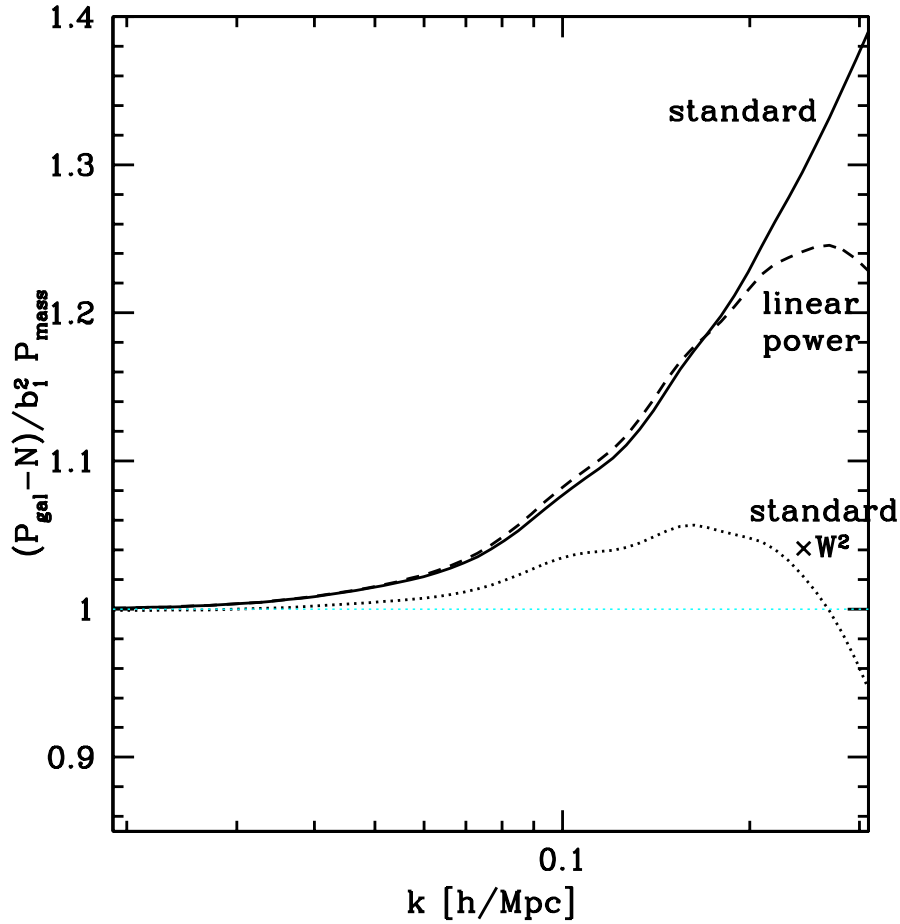
FIG. 2 (color online). $(P_g(k) - N)/b_1^2 P_{mass}(k)$ for $\tilde{b}_2 = 0.6$. The solid curve is my standard calculation, where the RG-corrected (nonlinear) mass power spectrum has been used to compute the bias terms. To show the lack of sensitivity to small scales, for the dashed curve the usual linear mass power, which becomes dramatically different from the RG power with increasing k, was used to compute the bias terms. The dotted curve shows the effect of a $2h^{-1}$ Mpc rms Gaussian smoothing applied to the result of the standard calculation.

the $R \to 0$ limit. Inclusion of smoothing was immaterial to the paper (see [2] for a different approach in which extreme smoothing is applied).

I thank Eiichiro Komatsu for pointing out this error.

[1] P. McDonald, Phys. Rev. D **74**, 103512 (2006).
[2] R. E. Smith, R. Scoccimarro, and R. K. Sheth, astro-ph/0609547.