Letter to Editorial Board

Let us correct the mistake in paper [1]. Indeed the quantity c for $\Sigma_c = 0$ is equal to

$$c = 3\Sigma_s(\nu\Sigma_f - \Sigma_a) = 3\Sigma_s\Sigma_f(\nu - 1)$$

where $\Sigma_a = \Sigma_f + \Sigma_c$. Let us replace Σ_c by $(\Sigma_c + \tau/v)$. Then we obtain

$$\hat{c} = 3\Sigma_s\left(\Sigma_f(\nu - 1) - \frac{\tau}{v}\right).$$

After making the calculations which are similar to [1] we have

$$\tilde{\Phi}(r) = \frac{\mathrm{sh}(F\sqrt{\gamma} + (\alpha u - r\sqrt{\gamma})\sqrt{3\Sigma_s})}{4\pi r \mathrm{sh}(F\sqrt{\gamma} + \alpha u\sqrt{3\Sigma_s})}, \quad J(0,\tau) = P\Big(h \cdot f(A,\tau) - f(-A,\tau)\Big).$$

Here P is a constant, $A = (R - R_0)\sqrt{3\Sigma_s}$, $F = R\sqrt{3\Sigma_s}$, $h = \exp(2\alpha u\sqrt{3\Sigma_s})$, $\gamma = \tau/v - \Sigma_f(\nu - 1)$,

$$f(A,\tau) = \frac{\Big(\exp(A\sqrt{\gamma}) - 1\Big)\exp(F\sqrt{\gamma})}{u\Big(h\exp(2F\sqrt{\gamma}) - 1\Big)}, \qquad u = \frac{\sqrt{\gamma}}{\Sigma + \Sigma_f(\nu - 1) + \gamma}.$$

The derivatives of the functions f and u with respect to τ are equal to

$$u' = u\left(\frac{1}{2\gamma} - \frac{u}{\sqrt{\gamma}}\right), \quad u'' = -\frac{u}{\gamma}\left(\frac{1}{4\gamma} + 2u'\sqrt{\gamma}\right),$$

$$u^{(3)} = \frac{u}{\gamma}\left(\frac{3}{8\gamma^2} + \frac{3u}{4\gamma\sqrt{\gamma}} + 4uu'\right),$$

$$f' = \left(\frac{F + A}{2\sqrt{\gamma}} - \frac{u'}{u}\right) f + \frac{f\exp(2F\sqrt{\gamma})}{h\exp(2F\sqrt{\gamma}) - 1}\left(\frac{A\exp(-F\sqrt{\gamma})}{2u \cdot f\sqrt{\gamma}} - h' - \frac{hF}{\sqrt{\gamma}}\right).$$

The results of computations are presented in Table 1.

Table 1. The results of τ^* computations

m	$R_0 = R/5$		$R_0 = R/3$	
	$J^{(m)}/P$	τ^*_m	$J^{(m)}/P$	τ^*_m
1	−8.98020	0.0141	−6.27551	0.0508
2	114.788	0.0035	89.3796	0.0196
3	−2172.52	0.0015	−1772.54	0.0087
4	54543.0	0.0007	45499.0	0.0042

References

[1] G.Z. Lotova, Calculations of time constant of particle breeding by Monte Carlo method using parametric derivatives, NCC Bulletin, series "Computer Science", issue 2, 1993, 1–11.

G. Z. Lotova, 15.06.1994.