Erratum

Erratum: Lattice fermions and θ vacuums
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For the diligent readers who want to check our calculations, please notice that in the Appendix the formulas (A1), (A3)−(A6), and (A9) should read as follows:

$$\langle X^a(x)\rangle = r\,\mathrm{tr} \sum_{\epsilon=\pm 1}\sum_{\mu} e^{i\theta\gamma_5} i\gamma_5 [\, G_A(x,x+\epsilon ae_\mu) U_\mu^*(x) + G_A(x+\epsilon ae_\mu,x) U_\mu(x) - 2G_A(x,x)$$

$$- G_0(x,x+\epsilon ae_\mu) - G_0(x+\epsilon ae_\mu,x) + 2G_0(x,x)\,]\ , \tag{A1}$$

$$D_{A\mu} = \frac{i}{a}\sin ap_\mu + \frac{i}{2}[A_\mu^a \cos ap_\mu + \cos ap_\mu (A_\mu^a)^*]$$

$$+ \frac{1}{2}[-A_\mu^a \sin ap_\mu + \sin ap_\mu (A_\mu^a)^*]\quad [A_\mu^a = (1/ia)(U_\mu - 1)]\ , \tag{A3}$$

$$R_A = -\frac{r}{a}\sum_\mu (1-\cos ap_\mu) - \frac{r}{2}\sum_\mu [A_\mu^a \sin ap_\mu + \sin ap_\mu (A_\mu^a)^*] + \frac{ir}{2}\sum_\mu [A_\mu^a \cos ap_\mu - \cos ap_\mu (A_\mu^a)^*]\ , \tag{A4}$$

$$D_{A\mu} = \frac{1}{2a}(U_\mu T_\mu - T_\mu^* U_\mu^*)\ , \tag{A5}$$

$$R_A = \frac{r}{2a}\sum_\mu U_\mu T_\mu + T_\mu^* U_\mu^* - 2)\ , \tag{A6}$$

$$\frac{1}{i}\langle X^a(x)\rangle = 2\,\mathrm{Re}\,\mathrm{Tr}\{\delta_x e^{i\theta\gamma_5} R_A \tilde{G}_A \gamma_5 (1 - ([R_A,\slashed{D}_A]e^{i\theta\gamma_5}\tilde{G}_A)^2)^{-1}([R_A,\slashed{D}_A]e^{i\theta\gamma_5}\tilde{G}_A \slashed{D}_A + R_A e^{-i\theta\gamma_5} + M)\}\ . \tag{A9}$$