ERRATA

Erratum: “Violation of the Factorization Theorem in Large-Angle Radiative Bhabha Scattering” [Zh. Éksp. Teor. Fiz. 115, 392 (1999); JETP 88, 213 (1999)]

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Factor $-1/2$ was lost in the contribution of box diagrams. Quantity Δ_B in Eq. (22) should read

$$\Delta_B = \frac{1}{F} \left[(\Phi + \Phi_P) \ln \frac{uu_1}{ss_1} + (\Phi_Q + \Phi_R) \ln \frac{uu_1}{tt_1} \right].$$

Operations $\hat{P}$, $\hat{Q}$, and $\hat{R}$ were applied to vertex contributions incorrectly. Quantity $\Delta_G + \Delta_{\Gamma\Pi}$, which appears in Eq. (23), should be defined as

$$\Delta_G + \Delta_{\Gamma\Pi} = \frac{1}{F} \left[(\Phi + \Phi_P) \ln \frac{s^2}{tt_1} + (\Phi_Q + \Phi_R) \ln \frac{s}{s_1} \right].$$

To analyze the corrected result of our calculations, we rewrite the soft photon contribution from Eq. (29) in the form

$$\delta^{\text{soft}} = \frac{\alpha}{\pi} \left\{ (L_s - 1) \left[4 \ln \frac{m}{\lambda} + 2 \ln \frac{\Delta\varepsilon}{\varepsilon} + \ln \frac{\Delta\varepsilon}{\varepsilon'_1} + \ln \frac{\Delta\varepsilon}{\varepsilon'_2} \right] + L_s^2 + L_s \ln \frac{tt_1 s_1}{uu_1 s} + \mathcal{O}(1) \right\}.$$

Expression (31) should be therefore rewritten as

$$d\delta^{\text{soft+virt}} = d\sigma_0 \frac{\alpha}{\pi} \left[L_s \left(\ln \frac{(\Delta\varepsilon)^4}{\varepsilon_2 \varepsilon'_1 \varepsilon'_2} + \Delta_L \right) + \Delta(y_1, y_2, c_1, c_2) \right],$$

$$\Delta_L = 3.$$

This formula is in agreement with the predictions of the renormalization group approach presented in Eq. (35). Thus, the factorization of the leading logarithmic contributions in radiative Bhabha scattering does hold. It is worth mentioning that the contribution of vacuum polarization to radiative Bhabha scattering, which was omitted in Eqs. (31), can be taken from paper [8].

The above changes in the formulas lead to a change in Table 1: $\Delta_L = 3$ remains constant, and the values of $\Delta(y_1, y_2, c_1, c_2)$ are -8.89 , 2.00 , -1.47 , and 7.80 for points 1, 2, 3, and 4, respectively.