Erratum to: Emergent gauge bosons and dynamical symmetry breaking in a four-fermion Lifshitz model

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In this Erratum we correct some numerical coefficients for the low-energy effective action we obtained in our paper [1].

1. The Eq. (37) must be read as:

$$\begin{aligned} \mathcal{L}_{\text{eff}} = & \frac{g_I^2}{2} A_0 A^0 - \frac{\tilde{\alpha}_2}{2} \left(\partial_0 A_i \partial^0 A^i - \frac{6}{5} \partial_0 A_i \partial^i A^0 \right. \\ & \left. - \frac{6}{5} \partial_i A_0 \partial^0 A^i + \frac{36}{25} \partial_i A_0 \partial^i A^0 \right) \\ & - \frac{\tilde{\alpha}_5 m^4}{2} (\partial_i A_j \partial^i A^j - \partial_i A_j \partial^j A^i) \\ & - \frac{9\tilde{\alpha}_2}{50} \partial_i A_0 \partial^i A^0 - \frac{\tilde{\beta} m^4 e^2}{4} \left(A_i A^i - \frac{a_i a^i}{e^2} \right)^2, \end{aligned} \quad (37)$$

2. The Eqs. (41–44) must be read as:

$$A_0 \rightarrow \frac{5m\tilde{\alpha}_5^{1/4}}{6\tilde{\alpha}_2^{1/2}} A_0, \quad (41a)$$

$$A_i \rightarrow \frac{1}{m\tilde{\alpha}_5^{1/4}} A_i, \quad (41b)$$

$$\partial_0 \rightarrow \frac{m^2 \tilde{\alpha}_5^{1/4}}{\tilde{\alpha}_2^{1/2}} \partial_0, \quad (41c)$$

$$\partial_i \rightarrow \frac{1}{\tilde{\alpha}_5^{1/4}} \partial_i, \quad (41d)$$

$$\mathcal{L}_{\text{eff}} = -\frac{m^2}{4} F_{\mu\nu} F^{\mu\nu} - \frac{m^2}{8} (\partial_i A_0)^2 + \frac{g_I^2}{2} \frac{25m^2 \tilde{\alpha}_5^{1/2}}{36\tilde{\alpha}_2} A_0 A^0 - \frac{\tilde{\beta} m^2 e^2}{4\tilde{\alpha}_5} \left(A_i A^i - \frac{a_i a^i}{e^2} \right)^2. \quad (42)$$

$$\mathcal{L}_{\text{eff}} = -\frac{m^2}{4} F_{\mu\nu} F^{\mu\nu} - \frac{\tilde{\beta} m^2 e^2}{4\tilde{\alpha}_5} \left(A_i A^i - \frac{a_i a^i}{e^2} \right)^2, \quad (43)$$

$$\mathcal{L}_{\text{eff}} = -\frac{m^2}{2} F_{0i} F^{0i} + \frac{m^2}{4} F_{ij} F^{ij} - \frac{\tilde{\beta} m^2 e^2}{4|\tilde{\alpha}_5|} \left(A_i A^i - \frac{a_i a^i}{e^2} \right)^2. \quad (44)$$

None of physical conclusions of our paper are changed under these corrections.

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Reference

1. T. Mariz, R. Moreira, A. Yu. Petrov, Eur. Phys. J. C **79**, 550 (2019)

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