Erratum: Maximally symmetric two Higgs doublet model with natural standard model alignment

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Abstract: Here we correct some typesetting errors in ref. [1]. These corrections have been implemented in the latest version of [1] on arXiv and the corrected equations have also been reproduced in ref. [2] for the reader’s convenience. We clarify that all numerical results presented in ref. [1] remain unaffected by these typographic errors.

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• Eq. (2.10) in ref. [1] should be

\[-\mathcal{L}^\lambda_4 = \tilde{Q}_L(h^\nu_1 \tilde{\Phi}_1 + h^\nu_2 \tilde{\Phi}_2)u_R + \tilde{Q}_L(h^\nu_1 \tilde{\Phi}_1 + h^\nu_2 \tilde{\Phi}_2)d_R
\]

\[= (\bar{u}_L, \bar{d}_L) \left( \tilde{\Phi}_1, \tilde{\Phi}_2, \Phi_1, \Phi_2 \right) \mathcal{H} \left( \frac{u_R}{d_R} \right), \]

• In eq. (B.9), 3rd line, 2nd parenthesis should have an overall negative sign, i.e.

\[- (20g_3^2 + \frac{45}{8}g_2^2 + \frac{85}{24}g'^2) y_t^2. \]

• In eq. (B.10), 6th line, the first term, i.e. \(-20\lambda_1 \lambda_3^2\), which is redundant with the 5th term, should be removed.

• In eq. (B.10), last line, the 3rd last term should be +6\(y_t^2 y_b^2\).

• In eq. (B.11), 6th line, the first term, i.e. \(-20\lambda_2 \lambda_3^2\), which is redundant with the 5th term, should be removed.

• In eq. (B.11), 6th line, the 6th term should be 3\(\lambda_4\) instead of 3\(\lambda_3\).

• In eq. (B.11), second last line, last term should be +6\(y_b^2 y_t^4\).

• In eq. (B.12), 10th line, 4th term should be \(-5(3g_2^2 + 5g'^2)\lambda_3\).

• In eq. (B.12), 11th line should have a leading factor of 2 and the superfluous parentheses before the braces should be removed, i.e.

\[-2 \left\{ 2\lambda_3^2 + \lambda_4^2 + 4\lambda_1(3\lambda_3 + \lambda_4) + \lambda_5^2 + 4\lambda_6^2 + 8\lambda_6\lambda_7 \right\} (3y_b^2 + y_t^2). \]

• In eq. (B.13), last line, the brace for \(-\frac{2}{3} \lambda_4\) term should end after \(y_t^4\).

• In eq. (B.14), 7th line, last term, the coefficient of \(\lambda_5 \lambda_6 \lambda_7\) should be 42 instead of 37.

• In eq. (B.14), 9th line, the coefficient of second term should be \(\frac{45}{4}\) instead of \(\frac{45}{2}\).

• In eq. (B.15), 4th line, 2nd term should be \(-\lambda_2^2\).

• In eq. (B.15), 8th line, 1st term, \(\lambda_4\) should be removed. Similarly, the \(\lambda_4\) after \(14(\lambda_1 + \lambda_2 + 2\lambda_3)\) should be removed.

• In eq. (B.15), 2nd last line, inside 2nd parenthesis, the 1st term should be 24\(\lambda_1\).

• In eq. (B.16), 4th line, the coefficient of the first group of terms should be \(-36\lambda_3 \lambda_6\).

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References

[1] P.S. Bhupal Dev and A. Pilaftsis, *Maximally symmetric two Higgs doublet model with natural Standard Model alignment*, JHEP 12 (2014) 024 [arXiv:1408.3405] [nSPIRE].

[2] P.S. Bhupal Dev and A. Pilaftsis, *Looking for new naturally aligned Higgs doublets at the LHC*, PoS(PLANCK 2015)105 [arXiv:1510.08790] [nSPIRE].