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

**P.S. Bhupal Dev**[a] **and Apostolos Pilaftsis**[a,b]

[a] *Consortium for Fundamental Physics, School of Physics and Astronomy,*
*University of Manchester,*
*Manchester, M13 9PL, United Kingdom*
[b] *CERN, Department of Physics, Theory Division,*
*CH-1211 Geneva 23, Switzerland*

*E-mail:* bhupal.dev@manchester.ac.uk,
apostolos.pilaftsis@manchester.ac.uk

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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.

- Eq. (2.10) in ref. [1] should be

$$-\mathcal{L}_Y^q = \bar{Q}_L(h_1^u\widetilde{\Phi}_1 + h_2^u\widetilde{\Phi}_2)u_R + \bar{Q}_L(h_1^d\Phi_1 + h_2^d\Phi_2)d_R$$

$$= (\bar{u}_L\,,\,\bar{d}_L)\,\left(\widetilde{\Phi}_1\,,\,\widetilde{\Phi}_2\,,\Phi_1\,,\,\Phi_2\right)\mathcal{H}\begin{pmatrix} u_R \\ d_R \end{pmatrix},$$

- In eq. (B.9), 3rd line, 2nd parenthesis should have an overall negative sign, i.e. $-\left(20g_3^2 + \frac{45}{8}g_2^2 + \frac{85}{24}g'^2\right)y_t^2$.

- 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 $+6y_t^2y_b^4$.

- 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 $+6y_b^2y_t^4$.

- 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 superfluos parentheses before the braces should be removed, i.e. $-2\left\{2\lambda_3^2 + \lambda_4^2 + 4\lambda_1(3\lambda_3 + \lambda_4) + \lambda_5^2 + 4\lambda_6^2 + 8\lambda_6\lambda_7\right\}(3y_b^2 + y_\tau^2)$.

- In eq. (B.13), last line, the brace for $-\frac{9}{2}\lambda_4$ term should end after $y_\tau^4$.

- 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 $-36\lambda_3\lambda_6$.

# 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] [INSPIRE].

[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] [INSPIRE].