

Standard Model in a Nutshell

errata

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The following items have been identified as errors in the current (1st) edition of **The Standard Model in a Nutshell**. If you find anything additional, the author would appreciate you contacting him at goldberg@drexel.edu.

Errors in numbered equations:

- Page 53, eq. 3.20: The expression outside the parentheses should be, $\dot{\phi}_{b \neq a}$
- Page 134, eq. 7.11: In the denominator in the first line, the factors of energy under the radical are missing a factor of 8.
- Page 135, eq. 7.13: The factors of 2π are misplaced. They should read:

$$\delta^{(4)}(p) \rightarrow \frac{VT}{(2\pi)^4}; \quad d^{(3)}(\vec{p}) \rightarrow \frac{V}{(2\pi)^3}$$

- Page 151, part 4: The final t-channel amplitude should read:

$$\mathcal{A}_t = -\frac{\lambda^2}{2p_0(p_0 \cos \theta + E_2)}$$

Errors in derivations:

- Page 52, Example 3.3: In the 3rd unnumbered equation, the subscripts in the second brackets should have subscripts of \vec{q} .
- Page 136, Example 7.1: There is a missing factor of 1/2 (the S-factor) in the two steps of the derivation (the equations immediately following “Solution”). However, the final result (eq. 7.16) is correct, with the factor re-instated.
- Page 145, final unnumbered equation: There should be no 2π in the numerator.

Typos and other potential clarifications:

- Page 40, Problem 2.2, part b: “minimizes” \rightarrow “extremizes”
- Page 51, derivation including equation 3.18 and beyond: The products in the quadratic terms have 4-vectors in the exponentials, but the dirac delta relationship in equation 3.18 is only true for 3-vectors. In principle, there should be a factor of $e^{i(E_p \pm E_q)t}$ remaining. However, this term is a constant, 1, if $E_p = E_q$ (minus sign), but oscillates away for the plus sign. Thus, the term is ignored entirely.

- Page 141, Figure 7.8: The impact parameter, b , is not identified in the text, and may be confusing to some readers.
- Page 148, §7.3, 1st par: “down” → “done”
- Page 154, 1. External Lines: The convention in the book has fermion spins without parentheses. $u_{(s)}$ here is written with parentheses, which may be confusing to some readers.
- Page 183, Problem 8.7c: Mismatched parentheses.
- Page 184, top figure: The center image is NOT of the Nobel laureate Steven Weinberg.
- Page 184, top figure: “Salam” → “Salaam”
- Page 226, Problem 10.1: You may treat this as a two-body decay under similar assumptions to those made by Fermi in his initial estimates of the weak decay.