
The following is a list of known corrections to the version published as Physics Reports 494, 1, (2010). If you have one of the arXiv versions, please refer instead to the list of corrections available at

http://www.niu.edu/spmartin/spinors

This list was last updated April 3, 2019. Please send any further corrections or suggestions to: dreiner@th.physik.uni-bonn.de or haber@scipp.ucsc.edu or spmartin@niu.edu.

• page 8, line before equation (2.29): “Hence, Eq. (2.27)” should be replaced by “Hence, Eqs. (2.27) and (2.28)”.  

• page 8, In footnote 11: Remove the parenthetical remark, “[i.e., omitting the asterisk in \((V^\ast)_{\dot{\alpha}\dot{\beta}}\).” Then, at the very end of this footnote, replace \(V_{\alpha\dot{\beta}} = V_{\dot{\alpha}\beta}\) with \(V_{\alpha\dot{\beta}} = V_{\dot{\beta}\alpha}\).  

• page 8: Remove footnote 12.

• page 8, eq. (2.34): In the second of the three equations, replace \((V^\ast)_{\dot{\alpha}\dot{\beta}} \equiv (V_{\alpha\dot{\beta}})^\ast\) with \((V^\ast)_{\alpha\dot{\beta}} \equiv (V_{\alpha\dot{\beta}})^\ast\). In the third of the three equations, remove the last equality; the correct equation should read: \((V^\dagger)_{\alpha\dot{\beta}} \equiv (V_{\beta\dot{\alpha}})^\ast\).  

• page 9, eq. (3.25): Replace \((W^T)_{\alpha\beta} \equiv W_{\beta\alpha}\) with \((W^T)_{\beta\alpha} \equiv W_{\alpha\beta}\).  

• page 10, following eq. (2.52). Move eqs. (2.53) and (2.54) to appear just above the paragraph that begins “Computations of cross sections...” Add the following additional text (immediately following “…we shall not employ it here” which is now modified to “…we shall not make use of it here”):

“Products of three or more sigma matrices can be reduced to sums of terms involving at most two sigma matrices by employing the identities,”

Eqs. (2.53) and (2.54) should now follow this new text and end the paragraph.

• page 17, at the very top of the page: Remove the text:

“where \(\sqrt{p\cdot\sigma}\) and \(\sqrt{p\cdot\bar{\sigma}}\) are defined either by eqs. (2.109) and (2.110) or by eqs. (2.113) and (2.114), respectively (as mandated by the spinor index structure).”

Then move footnotemark 24, which should now appear on p. 16 just above eq. (3.1.19). The footnotemark should appear at the end of the sentence, “The resulting undotted spinor wave functions are given by:”

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• page 32, Figure 4.3.4(d): Replace $-i(G_2)^{ij}\sigma_{\mu\alpha\beta}$ with $-i(G_2)^{ij}\sigma_{\mu\alpha\beta}$. That is, remove the bar from the sigma matrix with lowered undotted and dotted indices.

• page 35, footnote 47: Replace “and explained in Ref. [154]” with “and explained in footnote 1 of Ref. [154].”

• page 106, equation (B.1.2): For $\delta \dot{\alpha} \dot{\beta}$, substitute $\delta \dot{\alpha} \dot{\beta}$. Also, the remark about this set being a Kronecker product should be ignored; this will be corrected and clarified in a future arXiv version (v6).

• page 108, footnote 91: Change “Appendix B” to “Appendix A”. (Here, the Appendix being referred to is in Bailin’s book reference [77].)

• page 109, equation (B.1.31): Both of the $\sigma$'s on the right side should have bars.

• page 117: In eq. (C.3.15), replace $\gamma(-\hat{p}) = -\pi + \phi_p$ with $\gamma(-\hat{p}) = -\phi_p - \pi$.

• page 117 in equation (C.3.16): replace the comma with a semicolon. Likewise, in the text just above this equation, replace $p^\mu = (E, \vec{p})$ with $p^\mu = (E ; \vec{p})$.

• page 117, eqs. (C.3.23)–(C.3.26) contain a number of typographical errors. Each of the equations contains an extra overall minus sign following each of the two equal signs. In addition, factors of $\chi_\lambda$ and $\chi_{-\lambda}$ should be interchanged (twice in each equation). The corrected equations read:

\begin{align*}
x^\alpha(-\vec{p}, -\lambda) &= -y^\dagger_\beta(\vec{p}, \lambda) \xi_\lambda \bar{\sigma}^{0\beta\alpha} = -2\lambda \omega_\lambda \xi_\lambda \chi^\dagger_{-\lambda}(\hat{p}) , \tag{C.3.23} \\
y^{\dagger\alpha}(-\vec{p}, -\lambda) &= -x^\dagger_\beta(\vec{p}, \lambda) \xi_{-\lambda} \sigma^{0\beta\alpha} = -\omega_{-\lambda} \xi_{-\lambda} \chi^\dagger_{\lambda}(\hat{p}) , \tag{C.3.24} \\
x^{\dagger\alpha}(-\vec{p}, -\lambda) &= -y^{\dagger}_\beta(\vec{p}, \lambda) \xi_{-\lambda} \sigma^{0\beta\alpha} = -\omega_{-\lambda} \xi_{-\lambda} \chi^\dagger_{\lambda}(\hat{p}) , \tag{C.3.25} \\
y^{\dagger\alpha}(-\vec{p}, -\lambda) &= -x^{\dagger}_\beta(\vec{p}, \lambda) \xi_{\lambda} \sigma^{0\beta\alpha} = 2\lambda \omega_{-\lambda} \xi_{\lambda} \chi^\dagger_{-\lambda}(\hat{p}) . \tag{C.3.26}
\end{align*}

• page 119, first sentence of the last paragraph of text, the words “the derivation of” should be removed.

• page 123, line after equation (D.4.9): “If follows” should be “It follows”.

• page 128, Equation numbers (F.12) and (F.13) have been removed (but the corresponding equations are left alone). Only one equation number should be used for the three line equation at the top of p. 128. After removing these (using \nonumber in the LaTeX file), the three line equation at the top of p. 128 will be numbered (F.12), and subsequent equations in Appendix F will be renumbered accordingly.

• page 131, equation (G.1.24) [which is now eq. (G.1.25)]: the period at the end of this equation should be replaced by a comma.
• page 135, equation (G.1.76): The subscript $M$ is missing from the fourth $\Psi$ from the left.

• page 147, equation (G.5.15): For consistency, the location of $\Phi$, $\Phi^\dagger$, $W_\mu$ and $W^\dagger_\mu$ have been moved from the front to the end of the corresponding bracketed quantity.

• page 152, second line of Section G.7: Replace “$\Psi_{\alpha i}$, where $\alpha$” with “$\Psi_{ai}$, where $a$”.

• page 152, below equation (G.7.2): Replace “four-component indices $\alpha$ and $\beta$” with “four-component indices $a$ and $b$”.

• page 154, just below eq. (H.24): Replace the first sentence with “where $\sqrt{p \cdot \sigma}$ and $\sqrt{p \cdot \bar{\sigma}}$ are defined by eqs. (2.107) and (2.108), respectively.”

• page 155, text below rq. (H.3.1). We correct some inconsistencies in tense. First, we replace “we used” with “we first make use of”. Next, we replace “evaluated” with “evaluate”.

• page 158, text below eq. (H.4.5). Replace “Eq. (H.4.1)–(G.4.15)” with “Eq. (H.4.1)–(H.4.4)”

• page 158 in eq. (H.4.6): in the equation for $v(-p, -\lambda)$, replace $\xi_\lambda(\hat{p})$ with $\xi_{-\lambda}(\hat{p})$.

• page 158 in eq. (H.4.7): both equations are missing an overall minus sign. The correct equation reads:

$$\bar{u}(-p, -\lambda) = -\bar{u}(p, \lambda) \gamma^0 \xi_{-\lambda}(\hat{p})$$

$$\bar{v}(-p, -\lambda) = -\bar{v}(p, \lambda) \gamma^0 \xi_\lambda(\hat{p})$$

• page 159, first line: replace (G.4.15) with (H.4.5).

• page 163 in footnote 156: change “one almost always finds...” with “one often finds...”

• page 165. In eqs. (I.2.44) and (I.2.45), and in the text between these two equations, replace $\epsilon$ with $\varepsilon$ (six times) and replace $k$, when appearing as an argument of $\varepsilon$, with $\vec{k}$ (six times).

• page 166: In eq. (I.2.51), replace $\gamma(-\hat{k}) = -\pi + \phi$ with $\gamma(-\hat{k}) = -\phi - \pi$.

• page 168: In eq. (I.2.76), replace $\gamma(-\hat{p}) = -\pi + \phi$ with $\gamma(-\hat{p}) = -\phi - \pi$.

• page 169: In eq. (I.2.78), replace $\gamma(-\hat{p}_{CM}) = -\pi + \phi$ with $\gamma(-\hat{p}_{CM}) = -\phi - \pi$.

• page 169: In footnote 162, replace $\gamma(-\hat{p}_{CM}) = -\pi + \phi$ with $\gamma(-\hat{p}_{CM}) = -\phi - \pi$.

• page 176, equation (J.2.20): The subscripts $j$ on each side of the equation should be $J$. 

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• page 180, Figure K.1.1 caption: This should say that “The repeated index $i$ is not summed.” (Not $j$.)

• page 180, Figure K.1.2 caption: This should say that “The repeated index $j$ is not summed.”