

**Errata for “The Stability of Matter in Quantum Mechanics”,
complete as of August 7, 2017.**

Page 22. In Eq. (2.1.60), the value 1.29×10^{-19} should be replaced by 1.29×10^{-21} .

Page 27. On lines 7-8 the optimal Sobolev constant in three dimensions is quoted as $S_3 = \frac{3}{4}(4\pi^2)^{2/3}$. This should be replaced by $S_3 = \frac{3}{4}(2\pi^2)^{2/3}$. This appears later in several places that, therefore, have to be modified – as follows below.

Page 40. In the second line, \mathbb{C}^{qN} should be replaced by \mathbb{C}^{q^N} .

Page 48. In Eq. (3.1.36), the last ε_k should be replaced by ε_j .

Page 49. In Eq. (3.1.39), the normalization factor $N^{-1/2}$ should be replaced by $N^{-1/2}[(N-1)!]^{-1}$.

Page 52. The remark in parenthesis after Eq. (3.2.5) is only accurate for bosons. For fermions, the corresponding energy would be $\sim -N^{1/3}M^2$.

Page 53. In the line preceding Eq. (3.2.7), it should read $\underline{R} \mapsto \underline{R}/\lambda$ instead of $\underline{R} \mapsto \lambda \underline{R}$.

Page 56. In the first displayed equation, it should say $\kappa \approx 7 \times 10^{-39}$.

Page 56. In Eq. (3.2.12), the coefficient of the last term $(\alpha Z - \kappa m_n^{-2})$ should be replaced by $(\alpha - \kappa m_n^{-2})$.

Page 59. In the second line of the footnote, the last factor $\mathcal{E}(\phi + \psi)$ should be replaced by $\mathcal{E}(\phi - \psi)$.

Page 60. In Proof of Corollary 3.1, the inequality $|\nabla f(x)| \geq |\nabla|f(x)||^2$ should be replaced by $|\nabla f(x)|^2 \geq |\nabla|f(x)||^2$.

Page 63. Two lines below Eq. (4.1.2), it should read “it suffices” instead of “is suffices”.

Page 68. On line 1 the n should be replaced by d . Thus, $L_{\gamma,d} > L_{\gamma,d}^{\text{cl}}$.

Page 68. In the 16th line, ‘which is less then $L_{\gamma,d}/L_{\gamma,d}^{\text{cl}}$ ’ should be replaced by ‘which is less than $L_{\gamma,d}/L_{\gamma,d}^{\text{cl}}$ ’.

Page 79. In the last displayed equation, V_0 should be replaced by V_- .

Page 104. In the 5th line from below, the reference ‘(5.4.4)’ should be replaced by ‘(5.4.6)’.

Page 120. The second line of (6.16.10) should read $1/r$ if $r \geq 1$ instead of $1/2$ if $r \geq 1$.

Page 123. In the 3rd line, the value of $K \geq (9/5)(4\pi^2)^{1/3} = \underline{3.065}$ should be replaced by “6.129”. Similar typo in the last line of the proof on page 125.

Page 165. In Eq. (9.2.2), $|\cdot|$ stands for the norm of a vector in $\mathbb{C}^3 \otimes \mathbb{C}^2$, and not for the norm of a vector in \mathbb{C}^2 , as incorrectly claimed in the subsequent line.

Page 168. Equation (9.4.3) should read

$$Z\alpha^2 \leq \frac{\pi}{4} \left(\frac{3}{4}\right)^{3/2}$$

Page 169. On line three, replace $\frac{\pi}{2}$ by $\frac{\pi}{4}$. Consequently, 19 160 has to be replaced by 9 580.

Page 170. In the unnumbered displayed inequalities on lines five and eight, replace $4\pi^2$ by $2\pi^2$. Consequently, in the last formula on the page, on line twelve, $\frac{\pi}{2\alpha}$ has to be replaced by $\frac{\pi}{4\alpha}$.

Page 173. In the displayed equation following Eq. (9.5.6), it should read $p + \sqrt{\alpha}A(x)$ instead of $p - \sqrt{\alpha}A(x)$ on the left.

Page 177. In the two equations following Eq. (9.5.11), the term $-2Z\alpha Mq$ should be replaced by $-2ZMq$.

Page 189. The inequality in line 2 of Lemma 10.2 should be $\frac{3\pi}{4} \leq \alpha_c < \infty$.

Page 190. In the third displayed equation, the constant on the right side should be

$$\frac{3}{16} \left(\frac{\pi}{2}\right)^{1/3}$$

The same applies to the fourth displayed equation. Finally, the last inequality in the proof of Lemma 10.2 should read $\alpha \leq \frac{3\pi}{4}$.

Page 194, line -2. Erase the subscript ψ on $\gamma_\psi^{(1)}$.

Page 208. In the fifth displayed equation, the second λ on the left should have a subscript 1, i.e., it should be replaced by λ_1 .

Page 224. In the 8th line, ‘smaller that’ should be replaced by ‘smaller than’.

Page 225. In Eq. (12.2.6) replace E_N by $E_0(N)$.

Page 227. In the 8th line, ‘there as a ψ ’ should be replaced by ‘there is a ψ ’.

Page 237. In Eq. (13.2.5), the summation in the second term should run over $L + 1 \leq j \leq N$, while in the last term it should run over $L + 1 \leq i < j \leq N$.

Page 251. In the second displayed equation, N_j should be replaced by M_j on the right side.

Page 281. In Ref. [44], the page range 1538–1545 should be replaced by 698–711.