# Reprint corrections

**Chapter 1**

- Page 3 : The nucleus in the middle of the equation should be ${}^{18}_{9}F^{*}$ instead of ${}^{18}_{7}F^{*}$.
- Page 25, 3rd line: "…, at least over some range…"

**Chapter 2**

- Page 48, Eq. (2.42):

$$\sum_{l} \cdots$$

That is, in eq. (2.42) there is no index "*m*" in the sum.

- Page 52, Eq. (2.65):

$$e^{i\delta_l} \sin\delta_l = \cdots$$

That is, include $e^{i\delta_l}$ on the left hand side.

- Page 52, Eq. (2.66):

$$e^{i\delta_l} \sin\delta_l = \cdots$$

That is, include $e^{i\delta_l}$ on the left hand side.

- Page 53, Eq. (2.67):

$$e^{i\delta_l} \sin\delta_l = \cdots$$

That is, include $e^{i\delta_l}$ on the left hand side.

- Page 57, 2nd paragraph, 4th line: "… $2\delta_l(k\to 0)=3\pi$ for *l = 0* and …"

That is, insert a factor 2 before $\delta_l(k\to 0)$., in that line only.

- Page 59, before eq. (2.92):

"…, $\hat{n}_l(\rho)=\cos\rho$ and $\hat{n}'_l(\rho)=-\sin\rho$. Using …"

- Page 66, last line: " … and $\lim_{k\to 0}\delta_0(k\to 0)=3\pi/2.$"

That is, insert a "/2" after 3π.

- Page 67: change figure 2.8 because there is a factor 2 missing in the labe of the upper figure (new figure enclosed in a jpg file).
- Page 80, 3rd line:

"… 2.A. The s-wave phase shift (times 2) decreases …"

- Page 84, change figure 2.13 by new one (new figure enclosed in a jpg file)
- Page 84: last line of 1st paragraph: $2\delta_0(k\to 0)=3\pi.$

That is, insert a factor 2 before $\delta_0(k\to 0)$..

**Chapter 3**

- Page 108, eqs. (3.137) and (3.138):

$$u_l^J(k,r) \to \frac{i}{2}\left[e^{-i(kr-l\pi/2)} + \cdots\right]$$

$$= \frac{i}{2}\left[e^{-i(kr-l\pi/2)} + \cdots\right]$$

That is, change sign of the first exponentials inside brackets.

- Page 132, before eq. (3.232): "… given by equation (2.55), reduces to…"
- Page 133, after equation: " … square well of section 2.9 …"

**Chapter 4**

- Page 166, after eq. (4.92): "are the nuclear phase shifts for $j = l \pm \frac{1}{2}$."

That is, change *J* to *j* and insert a missing *l* on the right hand side.

- Page 192, replace figure 4.19 (there is a bar missing on top of one of the "*E*") (new figure enclosed in a jpg file).
- Page 198, after eq. (4.203): "… where $\nu = m\omega/\hbar$ and …".

**Chapter 5**

- Page 223, second paragraph: "… shown in figure 5.12."

That is, insert a "."

**Chapter 6**

- Page 291, third line: "… and $\frac{11^-}{2}$ states in the residual …"

That is, change superscript "+" to "-" in $\frac{11^-}{2}$.

- Page 330, exercise 5: in the table appearing in this exercise, change $^{93}$Ni to $^{93}$Nb.

**Chapter 7**

- Page 347: change label in figure 7.9, p. 347, last row: He → Fe (new figure enclosed in a jpg file)
- Page 361, eq. (7.63): On the right-hand side, replace $\left(\frac{m_{ab}}{\hbar^2 k}\right)$ by $\left(\frac{m_{ab}}{\hbar^2 k}\right)^{-1}$.
- Page 361, eq. (7.65): The power of the first term on the right is '2", instead of "2λ+1", i.e. $\left(\frac{E_\lambda}{\hbar c}\right)^2$.
- Page 399, eq. (7.144): insert a minus sign inside the exponential. That is, $\left[\cdots \exp\left(-\frac{\cdots}{\cdots}\right)\right]$

- Page 399, exercise 20, second equation:

$d + p \rightarrow {}^3He + \gamma$ ⋯ That is, insert a "+" sign.

Third equation

${}^3He + {}^3He \rightarrow {}^4He + p + p$ ⋯ That is, insert a "+" sign in the left hand side and another in the right hand side.

**Chapter 8**

- Page 430, eq. 8.114: insert a factor $1/k_{NN}$ before the integral on the right-hand side. that is
- $\chi_N(b) = \frac{1}{k_{NN}} \int_0^\infty dq\, q\, \tilde{\rho}_A(q)\, f_{NN}(q)\, \tilde{\rho}_B(q)\, J_0(qb)$
- Page 435, eq. (8.140): "if $k_{1,2} > k_F$" That is, insert a "," between subscript "12"
- Page 436, 3rd line: "… single-particle energy *e* in equation (8.142)." That is, change "$\epsilon$" to "*e*".
- Page 447, 2nd paragraph, 2nd line: "…factor $\gamma = \left(1 - v^2/c^2\right)^{-1/2}$ …". That is, change superscript "-1" to "-1/2".
- Page 465, ref. 1: "… Notes…"

**Index**

- Abrasion-ablation: change 408 to 409
- Antiparticles: delete 392
- Asymptotic freedom: delete 501 and 505. Insert 503
- β-decay: insert 215
- Baryonic number: delete 489. Insert 493
- Beauty: delete 496. Insert 498
- Beta decay: insert 215
- Charm: delete 499. Insert 497
- CNO: delete 351. Insert 341
- Detectors: delete 38. Insert 3
- Energy levels: Insert 202
- Energy-weighted sum rule: insert 319
- Hadrons: insert 491
- Hyperons: delete 491. Insert 495, 496
- Kaons: insert 495
- Leptonic number: delete 491. Insert 492
- Muon: insert 499
- Pion production: insert 490
- Skyrme interaction: delete 473. Insert 472
- Solar neutrino problem: delete 372. Insert 373
- Strangeness: delete 492. Insert 493
- Transport models: delete 487. Insert 467
- Vlasov equation: delete 481. Insert 479