Errata

page 33

- In eqs. (3.37) and (3.38), and in the text line afterwards: for the velocity, instead of "ϑ" (3 times):

$$v$$

page 35

- Eq. (3.53):

$$\begin{aligned}\overline{|b|^2} &= |A|^2 + |B|^2 \frac{1}{4} I(I+1) \\ &= \frac{1}{2I+1}\left[(I+1)|b^{(+)}|^2 + I|b^{(-)}|^2\right]\end{aligned}$$

(brackets in the "exponents": $b^{(+)}$ and $b^{(+)}$)

page 38

- Eq. (3.69):

$$H = c\vec{\alpha}\left(\vec{p} - \frac{e}{c}\vec{A}\right) + \beta mc^2 + e\phi$$

(e instead of ℓ)

- Eq. (3.70):

$$\vec{\alpha} = \begin{pmatrix} 0 & \vec{\sigma} \\ \vec{\sigma} & 0 \end{pmatrix} \qquad \beta = \begin{pmatrix} \mathbf{1} & 0 \\ 0 & -\mathbf{1} \end{pmatrix}$$

(no arrow on β)

page 39

- Eq. (3.79):

$$\vec{j} = \frac{i\hbar}{2m}\left(\varphi\vec{\nabla}\varphi^* - \varphi^*\vec{\nabla}\varphi\right) - \frac{e}{mc}\vec{A}\varphi^*\varphi + \frac{\hbar}{2m}\vec{\nabla}\wedge(\varphi^*\vec{\sigma}\varphi)$$

(a "2" too much)

page 41

- Eq. (3.92):

$$\langle\beta,\vec{k}'\lambda'|T^{(1)}|\alpha,\vec{k}\lambda\rangle = \frac{Ze^2}{mc^2}\frac{1}{(2\pi)^3}\frac{2\pi\hbar c^2}{\sqrt{\omega\omega'}}\vec{\varepsilon}^{(\lambda')}(\vec{k}')\vec{\varepsilon}^{(\lambda)}(\vec{k})\delta_{\alpha\beta}$$

(a "G" too much)

- Eq. (3.93):

$$\langle \beta, \vec{k}'\lambda'|T^{(2)}|\alpha, \vec{k}\lambda\rangle = -\frac{e^2}{(mc)^2}\frac{1}{(2\pi)^3}\frac{2\pi\hbar c^2}{\sqrt{\omega\omega'}} \times$$
$$\times \sum_\nu \left[\frac{\langle\beta|\vec{P}\cdot\vec{\varepsilon}'|\nu\rangle\langle\nu|\vec{P}\cdot\vec{\varepsilon}|\alpha\rangle}{E_\nu - E_\alpha - \hbar\omega} + \frac{\langle\beta|\vec{P}\cdot\vec{\varepsilon}|\nu\rangle\langle\nu|\vec{P}\cdot\vec{\varepsilon}'|\alpha\rangle}{E_\nu - E_\alpha + \hbar\omega'}\right]$$

(a "′" too much)

- Eq. (3.96):

$$\frac{1}{m}\vec{P} = \frac{1}{m}\sum_j \vec{p}_j = \frac{1}{i\hbar}[\vec{D}, H_0]$$

(lower case j)

page 42

- Eq. (3.98):

$$\frac{d\sigma}{d\Omega} = \left(\frac{e}{c}\right)^4 \omega\omega'^3 \left|\sum_\nu \left[\frac{\langle\beta|\vec{D}\cdot\vec{\varepsilon}'|\nu\rangle\langle\nu|\vec{D}\cdot\vec{\varepsilon}|\alpha\rangle}{E_\nu - E_\alpha - \hbar\omega} + \frac{\langle\beta|\vec{D}\cdot\vec{\varepsilon}|\nu\rangle\langle\nu|\vec{D}\cdot\vec{\varepsilon}'|\alpha\rangle}{E_\nu - E_\alpha + \hbar\omega'}\right]\right|^2$$

($+\hbar\omega'$ instead of $-\hbar\omega'$)

page 45

- In the text line after eq. (3.116):

$$I = \tfrac{Z^2e^2}{2a_0}$$

(a is not index of 2)

page 46

- First equation:

$$\xi = \frac{Ze^2}{\hbar v} \ll 1$$

(v instead of ϑ)

page 49

- Eq. (3.133):

$$-\frac{\gamma_N}{2}\mu_N\frac{e}{2m_ec}\left(\vec{p}_e\cdot\frac{\vec{\sigma}_N\wedge\vec{x}}{|\vec{x}|^3} + \frac{\vec{\sigma}_N\wedge\vec{x}}{|\vec{x}|^3}\cdot\vec{p}_e\right)$$

(N is index of γ)

- Eq. (3.134):

$$-\frac{\gamma_N}{2}\mu_N 2\mu_B\vec{\sigma}_N\cdot\vec{\nabla}\wedge\frac{\vec{s}_e\wedge\vec{x}}{|\vec{x}|^3}$$

(N is index of γ)

page 50

- Eq. (3.139):

$$\vec{Q}_\perp = \sum_j e^{i\vec{\kappa}\vec{x}_j}\left[\hat{\vec{\kappa}} \wedge \left(\vec{s}_j \wedge \hat{\vec{\kappa}}\right) - \frac{i}{\hbar\kappa}\hat{\vec{\kappa}} \wedge \vec{p}_j\right]$$

(κ instead of k, 5 times)

- Eq. (3.140):

$$\begin{aligned} \sum_j e^{i\vec{\kappa}\vec{x}_j}\vec{s}_j &= \int d^3x\, e^{i\vec{\kappa}\vec{x}} \sum_j \vec{s}_j \delta(\vec{x}-\vec{x}_j) \\ &= -\frac{1}{2\mu_B}\int d^3x\, e^{i\vec{\kappa}\vec{x}} \vec{M}_s(\vec{x}) \end{aligned}$$

(κ instead of k, 3 times)

- Eq. (3.142):

$$\begin{aligned} -\frac{m_e}{e}\int d^3x\, e^{i\vec{\kappa}\vec{x}}\vec{j}(\vec{x}) &= \frac{1}{2}\int d^3x\, e^{i\vec{\kappa}\vec{x}}\sum_j \left(\vec{p}_j\delta(\vec{x}-\vec{x}_j) + \delta(\vec{x}-\vec{x}_j)\vec{p}_j\right) \\ &= \frac{1}{2}\sum_j \left(\vec{p}_j e^{i\vec{\kappa}\vec{x}_j} + e^{i\vec{\kappa}\vec{x}_j}\vec{p}_j\right) \end{aligned}$$

(κ instead of k, 4 times)

page 51

- Eq. (3.147):

$$\begin{aligned} \vec{Q}_\perp &= \int d^3x\, e^{i\vec{\kappa}\vec{x}}\left\{-\frac{1}{2\mu_B}\hat{\vec{\kappa}} \wedge \left(\vec{M}_s(\vec{x}) \wedge \hat{\vec{\kappa}}\right) + \frac{im_e}{\hbar e}\frac{1}{\kappa}\hat{\vec{\kappa}} \wedge \left(-ic\vec{\kappa} \wedge \vec{M}_L(\vec{x})\right)\right\} \\ &= -\frac{1}{2\mu_B}\int d^3x\, e^{i\vec{\kappa}\vec{x}}\left(\hat{\vec{\kappa}} \wedge \vec{M}(\vec{x}) \wedge \hat{\vec{\kappa}}\right) \end{aligned}$$

(a missing "−")

- Eq. (3.150):

$$\vec{P}\cdot\vec{\varepsilon}\,' \longrightarrow \sum_j e^{-i\vec{k}'\vec{x}_j}\left[\vec{p}_j\cdot\vec{\varepsilon}\,' - i\hbar\left(\vec{k}' \wedge \vec{\varepsilon}\,'\right)\cdot\vec{s}_j\right]$$

(two missing "−")

page 53

- Eq. (3.154):

$$-i\frac{\hbar\omega}{mc^2}\langle\beta\vec{k}'|\sum_j e^{i\vec{\kappa}\vec{x}_j}\cdot\vec{s}_j|\alpha\vec{k}\rangle\left[\left(\hat{\vec{k}}' \wedge \vec{\varepsilon}\,'\right)\left(\hat{\vec{k}}'\cdot\vec{\varepsilon}\right) - \left(\hat{\vec{k}} \wedge \vec{\varepsilon}\right)\left(\hat{\vec{k}}\cdot\vec{\varepsilon}\,'\right) - \left(\hat{\vec{k}}' \wedge \vec{\varepsilon}\,'\right) \wedge \left(\hat{\vec{k}} \wedge \vec{\varepsilon}\right)\right]$$

(a missing "⟩")

- Text line after eq. (3.154):

$$(\text{where } \hat{\vec{k}} = \vec{k}/k \text{ and } \hat{\vec{k}}' = \vec{k}'/k').$$

(k instead of κ (twice); a "$'$" too much)

- Eq. (3.156):

$$\vec{B} = (\vec{\varepsilon}' \wedge \vec{\varepsilon}) + \left(\hat{\vec{k}}' \wedge \vec{\varepsilon}'\right)\left(\hat{\vec{k}}' \cdot \vec{\varepsilon}\right) - \left(\hat{\vec{k}} \wedge \vec{\varepsilon}\right)\left(\hat{\vec{k}} \cdot \vec{\varepsilon}'\right) - \left(\hat{\vec{k}}' \wedge \vec{\varepsilon}'\right) \wedge \left(\hat{\vec{k}} \wedge \vec{\varepsilon}\right)$$

($\wedge$ instead of Λ)

page 57

- In Table 3.2, the entry belonging to $\hat{O}$ and $\vec{p}\vec{A}$:

$$i\frac{\vec{\kappa} \wedge \vec{p}_j}{\hbar k^2}$$

(k instead of κ (only once))

page 62

- Eq. (4.7):

$$\frac{1}{2}\sum_{i\neq j} w\left(\vec{X}_i^0 - \vec{X}_j^0\right) + \frac{1}{2}\sum_{i\neq j}\sum_{\alpha,\beta}\frac{1}{2}\left(\xi_i^\alpha - \xi_j^\alpha\right)\left(\xi_i^\beta - \xi_j^\beta\right)\nabla_\alpha\nabla_\beta w$$

(w instead of ω)

- Eq. (4.9):

$$\frac{1}{4}\sum_{i\neq j}\sum_{\alpha,\beta}\left[\left(\xi_i^\alpha\xi_i^\beta + \xi_j^\alpha\xi_j^\beta\right) - \left(\xi_j^\alpha\xi_i^\beta + \xi_j^\beta\xi_i^\alpha\right)\right]\nabla_\alpha\nabla_\beta w$$

(w instead of ω)

page 63

- Eq. (4.16):

$$\varrho(\vec{x}) = \sum_i \delta(\vec{x} - \vec{x}_i) \rightarrow \varrho_{\vec{\kappa}} = \sum_j e^{-i\vec{\kappa}\vec{x}_j}$$

(second sum over j)

page 67

- Eq. (4.28):

$$\langle\vec{k}', \psi_f|H_i\left(\vec{\xi}, \{\vec{x}\}\right)|\vec{k}, \psi_i\rangle = \sum_{k=1}^{M}\langle\psi_f|\int d^3\xi\, e^{i\vec{\kappa}\vec{\xi}}V_{\text{el}}\left(\vec{\xi} - \vec{x}_k\right)|\psi_i\rangle$$

(lower case x)

page 72

- Eq. (4.63):

$$\left(\frac{d\sigma}{d\Omega dE_{k'}}\right)_{\rm coh} = N\frac{k'}{k}\frac{\sigma_{\rm coh}}{4\pi}S(\omega,\vec{\kappa})$$

("coh" instead of "inc" (twice); no index on S; κ instead of k (only once))

- Eq. (4.64):

$$S(\omega,\vec{\kappa}) = \frac{1}{2\pi\hbar N}\int_{-\infty}^{\infty} dt\, e^{-i\omega t}\sum_{j,\ell} Y_{j,\ell}(t,\vec{\kappa})$$

(κ instead of k)

page 73

- Eq. (4.65):

$$\left(\frac{d\sigma}{d\Omega dE_{k'}}\right)_{\rm inc} = N\frac{k'}{k}\frac{\sigma_{\rm inc}}{4\pi}S_{\rm inc}(\omega,\vec{\kappa})$$

(κ instead of k (only once))

- Eq. (4.66):

$$S_{\rm inc}(\omega,\vec{\kappa}) = \frac{1}{2\pi\hbar N}\int_{-\infty}^{\infty} dt\, e^{-i\omega t}\sum_{\ell} Y_{\ell,\ell}(t,\vec{\kappa})$$

(κ instead of k)

page 75

- Eq. (4.82):

$$\vec{X}_\ell = \ell_1\vec{e}_1 + \ell_2\vec{e}_2 + \ell_3\vec{e}_3, \quad \ell_j \in \mathbb{Z}$$

(missing comma; j instead of 1 (only once))

- Eq. (4.83):

$$\begin{aligned}\sum_\ell e^{-i\vec{\kappa}\vec{X}_\ell} &= \sum_{\ell_1,\ell_2,\ell_3}^{N_j-1} e^{-i\vec{\kappa}(\ell_1\vec{e}_1+\ell_2\vec{e}_2+\ell_3\vec{e}_3)} \\ &= \prod_{j=1}^{3}\left(\sum_{\ell_j=0}^{N_j-1} e^{-i\ell_j(\vec{\kappa}\vec{e}_j)}\right)\end{aligned}$$

(second line: $N_j - 1$ instead of N_{j-1})

page 76

- Eq. (4.96):

$$\left(\frac{1}{2\pi}\right)^3 \int d^3\kappa \sum_\ell F_\ell(\vec{\kappa})e^{-i\vec{\kappa}(\vec{x}-\vec{b}_\ell)}\left\langle e^{i\vec{\kappa}\vec{U}_\ell}\right\rangle_T$$

(arrow instead of bar on x)

page 79

- In the eighth last text line, instead of "parabloid":

paraboloid

page 82

- Eq. (4.127):

$$\exp\left\{-\left\langle\left[\vec{\kappa}\vec{U}\left(\vec{b}_j\right)\right]^2\right\rangle_T\right\}\cdot\exp\left\{\left\langle\vec{\kappa}\vec{U}\left(\vec{b}_j\right)\cdot\vec{\kappa}\vec{U}\left(\vec{b}_\ell,t\right)\right\rangle_T\right\}$$

(a "–" too much)

page 84

- Eq. (4.140):

$$C(\vec{x},t) = C^*(-\vec{x},-t)$$

($*$ is "exponent" of C)

page 85

- "4." is missing in front of all equation numbers

- Eq. (4.152):

$$\tilde{\Phi}_{\vec{\kappa}}(\omega) = -i\tanh\left(\frac{\beta}{2}\hbar\omega\right)\tilde{\Psi}_{\vec{\kappa}}(\omega)$$

(missing $\sim$)

page 86

- Eq. (4.154): "4." is missing in front of the equation number

- Eq. (4.158):

$$\left\langle O^\alpha_{\vec{\kappa}}(t)O^{\beta+}_{\vec{\kappa}}(0)\right\rangle_T = \left\langle O^{\beta+}_{\vec{\kappa}}(0)O^\alpha_{\vec{\kappa}}(t+i\hbar\beta)\right\rangle_T$$

(a comma too much)

- Eq. (4.162):

$$B^{\alpha\beta} = \frac{i}{2}(S^{\alpha\beta} - S^{\beta\alpha}) = -B^{\beta\alpha} \in \mathbb{R}$$

(two missing "–")

page 87

- Eq. (4.168):

$$\tilde{\Phi}^{\alpha\beta}(\vec{\kappa},\omega) = -\tilde{\Phi}^{\beta\alpha}(-\vec{\kappa},-\omega) \quad \text{and} \quad \tilde{\Phi}^{\alpha\beta*}(\vec{\kappa},\omega) = \tilde{\Phi}^{\alpha\beta}(-\vec{\kappa},-\omega)$$

(missing $\sim$)

page 88

- First equation:

$$\left\langle \vec{k}\chi;\lambda|\sigma^{\alpha}O^{\alpha}_{\vec{\kappa}}|\vec{k}'\chi';\lambda'\right\rangle \quad \text{and} \quad \left\langle \vec{k}\chi;\lambda|\varepsilon^{\alpha}O^{\alpha}_{\vec{\kappa}}|\vec{k}'\chi';\lambda'\right\rangle$$

(χ is not an index (twice))

- Eq. (4.174):

$$O^{\alpha}_{\vec{\kappa}}: \quad \vec{Q}_{\perp}(\vec{\kappa}) = \sum_j F_j(\vec{\kappa})e^{i\vec{\kappa}\vec{x}_j}\left[\hat{\vec{\kappa}}\wedge\left(\vec{s}_j\wedge\hat{\vec{\kappa}}\right) - \frac{i}{\hbar\kappa}\left(\hat{\vec{\kappa}}\wedge\vec{p}_j\right)\right]$$

(j is index of x)

- Eq. (4.175):

$$O^{\alpha}_{\vec{\kappa}}: \quad \vec{J}(\vec{k}) = \sum_j F_j(\vec{k})e^{i\vec{k}\vec{x}_j}\left[\vec{p}_j - i\hbar\left(\vec{k}\wedge\vec{s}_j\right)\right]$$

(j is index of x)

- Eq. (4.176):

$$\sum_{\chi\chi'} p_{\chi}\sum_{\lambda\lambda'} p_{\lambda}\left\langle \vec{k}\chi;\lambda|\sigma^{\alpha}O^{\alpha}_{\vec{\kappa}}(0)|\vec{k}'\chi';\lambda'\right\rangle\left\langle \vec{k}'\chi';\lambda'|\sigma^{\beta}O^{\beta}_{-\vec{\kappa}}(t)|\vec{k}\chi;\lambda\right\rangle$$
$$= \mathrm{Tr}_{\chi}\left\{\varrho^{(i)}_{\chi}\mathrm{Sp}_{\lambda}\left[\varrho^{(i)}_{\lambda}\left(\sigma^{\alpha}Q^{\alpha}_{\perp}(\vec{\kappa},0)\right)\left(\sigma^{\beta}Q^{\beta}_{\perp}(-\vec{\kappa},t)\right)\right]\right\}$$

(first line: λ is index of p; second line: χ instead of x as index of ϱ)

page 89

- Eq. (4.183):

$$\vec{Q}_{\perp} = \hat{\vec{\kappa}}\wedge\left(\vec{Q}\wedge\hat{\vec{\kappa}}\right) = \vec{Q} - \hat{\vec{\kappa}}\left(\hat{\vec{\kappa}}\vec{Q}\right), \qquad \hat{\vec{\kappa}} = \frac{\vec{\kappa}}{|\vec{\kappa}|}$$

($\wedge$ instead of Λ)

page 90

- Eq. (4.185):

$$i\vec{P}\left\langle \vec{Q}_{\perp i}\wedge\vec{Q}_{\perp j}(t)\right\rangle_T = \sum_{\alpha,\beta} iG^{\alpha\beta}\left(\vec{P},\hat{\vec{\kappa}}\right)\left\langle Q^{\alpha}_i Q^{\beta}_j(t)\right\rangle_T$$

(missing arrow on P)

- Eq. (4.190):

$$\vec{Q}_{\perp}(\vec{\kappa}) = \frac{1}{2}gF(\vec{\kappa})\sum_j e^{i\vec{\kappa}\vec{X}_j}\left[\hat{\vec{\kappa}}\wedge\left(\vec{S}_j\wedge\hat{\vec{\kappa}}\right)\right]$$

(j is index of X)

page 91

- In the second text line after eq. (4.191):

$$\vec{M} = \frac{1}{N}\sum_i \langle \vec{S}_i \rangle_T$$

(T is index of $\langle\rangle$)

- Eq. (4.192):

$$\frac{1}{N}(\hat{\vec{\kappa}} \cdot \vec{P}) \sum_{i,j} \sin\left[\vec{\kappa}\left(\vec{X}_i - \vec{X}_j\right)\right] \hat{\vec{\kappa}} \langle \vec{S}_i \wedge \vec{S}_j \rangle_T$$

(missing $\hat{}$ on κ (only once))

page 94

- In the right table, instead of "$\hat{\vec{k}} \wedge \hat{\vec{k}}'$"

$$\hat{\vec{k}}' \wedge \hat{\vec{k}}$$

page 95

- Text line after eq. (4.212):

Here $n(\vec{\kappa}) = \sum_j e^{i\vec{\kappa}\vec{x}_j}$,

(j is index of x)

- Eq. (4.216):

$$\frac{\gamma_N}{2}\frac{e^2}{mc^2}\left(\vec{\sigma}_N \cdot \vec{Q}_\perp\right) \qquad (\gamma_N = -3.82)$$

(N is index of γ)

page 96

- In the first text line, instead of "(4.125)":

(4.215)

- Eq. (4.220):

$$\vec{P}^{(f)} \cdot \frac{d\sigma}{d\Omega} = \mathrm{Tr}\left(\varrho^{(i)} M \vec{\sigma} M^+\right)$$

($\vec{\sigma}$ instead of $\vec{\varrho}$)

- Eq. (4.221):

$$\mathrm{Tr}\left[\frac{1}{2}(\mathbf{1} + \vec{\sigma}\vec{P})\mathrm{Sp}\left(\frac{e^{-\beta H_0}}{Z} M M^+\right)\right] = \frac{1}{2}\mathrm{Tr}\left[(\mathbf{1} + \vec{\sigma}\vec{P})\langle M M^+ \rangle_T\right]$$

($-\beta H_0$ is exponent of e)

page 97

- Eq. (4.226):

$$\sum_{\vec{\ell},\vec{d},\vec{\ell}',\vec{d}'} e^{i\vec{\kappa}\left(\vec{X}_{\vec{\ell},\vec{d}}-\vec{X}_{\vec{\ell}',\vec{d}'}\right)}\vec{P}^{(i)}\times$$
$$\times\left\{|\bar{A}_{\vec{d}}|^2+\delta_{\vec{\ell}\vec{\ell}'}\delta_{\vec{d}\vec{d}'}\left[\left(\overline{|A_{\vec{d}}|^2}-|\bar{A}_{\vec{d}}|^2\right)-\frac{1}{12}\overline{|B_{\vec{d}}|^2 I_{\vec{d}}(I_{\vec{d}}+1)}\right]\right\}$$

($\overline{|A_{\vec{d}}|^2}$ instead of $\overline{|A_{\vec{d}}|}^2$)

page 100

- Item 1), instead of "$H_{\rm CF}\gg H_{\rm SO}$":

$$H_{\rm CF}\ll H_{\rm SO}$$

- Item 2), instead of "$H_{\rm CR}\gg H_{\rm SO}$":

$$H_{\rm CF}\gg H_{\rm SO}$$

page 102

- Eq. (4.253):

$$\frac{\gamma_N}{2}\frac{e^2}{mc^2}\left(\vec{\sigma}\cdot\vec{Q}_\perp^{(D)}\right)$$

(N is index of γ)

- Eq. (4.254):

$$M=A+\frac{\gamma_N}{2}\frac{e^2}{mc^2}\left(\vec{\sigma}\cdot\vec{Q}_\perp^{(D)}\right)$$

(N is index of γ)

page 103

- Eq. (4.256):

$$\frac{d\sigma}{d\Omega}:\quad \mathrm{Tr}\left[\varrho\left(A\vec{\sigma}\vec{Q}_\perp^{+}+\vec{\sigma}\vec{Q}_\perp A^{+}\right)\right]=2\mathrm{Re}\left\langle A\vec{P}^{(i)}\vec{Q}_\perp^{+}\right\rangle_T$$

(missing "+")

- Eq. (4.258):

$$\begin{aligned}\langle A\rangle &= \sum_{\vec{\ell},\vec{d}}\bar{b}_{\vec{d}}e^{i\vec{\kappa}\vec{X}_{\vec{\ell},\vec{d}}}=\sum_{\vec{\ell}}e^{i\vec{\kappa}\vec{\ell}}\sum_{\vec{d}}\bar{b}_{\vec{d}}e^{i\vec{\kappa}\vec{d}}\\ &= \sum_{\vec{\ell}}e^{i\vec{\kappa}\vec{\ell}}F_N(\vec{\kappa})\end{aligned}$$

(first line: alignement)

- Eq. (4.259):
$$F_N(\vec{\kappa}) = \sum_{\vec{d}} \bar{b}_{\vec{d}} e^{i\vec{\kappa}\vec{d}} e^{-W_{\vec{d}}(\vec{\kappa})}$$

(the $(\vec{\kappa})$ at the end belongs to $W_{\vec{d}}$)

- Eq. (4.262):
$$F_M(\vec{\kappa}) = \sum_{\vec{d}} \frac{1}{2} g_{\vec{d}} e^{i\vec{\kappa}\vec{d}} e^{-W_{\vec{d}}(\vec{\kappa})} F_{\vec{d}}(\vec{\kappa}) \left\langle \vec{S}_{\vec{d}} \right\rangle_T$$

($(\vec{\kappa})$ is not “exponent“ of $F_{\vec{d}}$)

- In the third text line after eq. (4.262):
$$F_{\vec{d}}(\vec{\kappa})$$

(no arrow on F)

page 104

- Eq. (4.263):
$$F_M(\vec{\kappa}) = \sum_{\vec{d}} \frac{1}{2} g_{\vec{d}} e^{i\vec{\kappa}\vec{d}} e^{-W_{\vec{d}}(\vec{\kappa})} F_{\vec{d}}(\vec{\kappa}) \left\langle S_{\vec{d}} \right\rangle_T (\mathrm{sign}.\sigma_{\vec{d}})$$

($(\vec{\kappa})$ is not “exponent“ of $F_{\vec{d}}$)

- At the end of the page: “,” instead of “.” after the bracket:

lattice),

page 105

- At the beginning of the page: lower case instead of upper case:

the nuclear...

page 106

- Eq. (4.276):
$$\begin{aligned} \frac{d\sigma}{d\Omega} &= \frac{1}{4}\left(\frac{\gamma}{2}\frac{e^2}{mc^2}\right)^2 \langle S\rangle^2 |F(\vec{\kappa})|^2 \times \\ &\times \left\{ \left[1 + \left(\hat{\vec{\kappa}}\hat{\vec{e}}_3\right)^2 + 2\left(\vec{P}^{(i)}\hat{\vec{\kappa}}\right)\left(\hat{\vec{\kappa}}\hat{\vec{e}}_3\right)\right] \left|\sum_{\vec{\ell}} e^{i(\vec{\kappa}+\vec{\varepsilon})\vec{\ell}}\right|^2 \right. \\ &\left. + \left[1 + \left(\hat{\vec{\kappa}}\hat{\vec{e}}_3\right)^2 - 2\left(\vec{P}^{(i)}\hat{\vec{\kappa}}\right)\left(\hat{\vec{\kappa}}\hat{\vec{e}}_3\right)\right] \left|\sum_{\vec{\ell}} e^{i(\vec{\kappa}-\vec{\varepsilon})\vec{\ell}}\right|^2 \right\} \end{aligned}$$

(second line: $\vec{\ell}$ below the sum; third line: missing “i”)

page 107

- Unnumbered equation:

$$\sum_{i,j} e^{-i\vec{k}'\vec{x}_i}\vec{\varepsilon}'\vec{p}_i e^{i\vec{k}\vec{x}_j}\vec{\varepsilon}\vec{p}_j = \sum_{i,j} e^{i\vec{k}\vec{x}_j - i\vec{k}'\vec{x}_i}\vec{\varepsilon}'\left(\vec{p}_i + \hbar\vec{k}\delta_{ij}\right)\vec{\varepsilon}\vec{p}_j$$

(a "−" too much)

page 108

- Eq. (4.283): "4." is missing in front of the equation number; and:

$$\begin{aligned}\left\langle \vec{L}(\vec{\kappa})\right\rangle_T &= \frac{-\kappa^2}{k^2}\cdot\frac{-1}{2\mu_B}\hat{\vec{\kappa}}\wedge\left(\int d^3x\, e^{i\vec{\kappa}\vec{x}}\left\langle \vec{M}_L(\vec{x})\right\rangle_T\right)\wedge\hat{\vec{\kappa}} \\ &= -2(1-\cos\vartheta)\frac{(2\pi)^3}{V_0}\hat{\vec{\kappa}}\wedge\left(\sum_{\vec{\tau}}\delta(\vec{\kappa}-\vec{\tau})\vec{F}_L(\vec{\tau})\right)\wedge\hat{\vec{\kappa}}\end{aligned}$$

(F_L instead of F_S)

page 109

- Eq. (4.285):

$$\langle U_2\rangle_T = -\eta(1-\cos\vartheta)\left(\hat{\vec{k}}+\hat{\vec{k}}'\right)\left(\vec{F}_L+\frac{1}{2}\vec{F}_S\right)$$

(a "+" instead of a "−")

- In the list, instead of "=plane" (4 times):

-plane

- Eq. (4.288):

$$\begin{aligned}\frac{d\sigma}{d\Omega} &= r_e^2\left\{\frac{1}{4}\left|(1+\cos\vartheta)F_c - 2i\eta\sin\vartheta\left((1-\cos\vartheta)F_L^\perp + F_S^\perp\right)\right|^2\right. \\ &\quad + \left(\sin^4\frac{\vartheta}{2}\right)\left[\eta^2\left|\left(\hat{\vec{k}}-\hat{\vec{k}}'\right)\vec{F}_S\right|^2 + \eta^2\left|\left(\hat{\vec{k}}+\hat{\vec{k}}'\right)\left(2\vec{F}_L+\vec{F}_S\right)\right|^2\right. \\ &\quad \left.\left. + \left|F_c + 2i\eta\sin\vartheta F_L^\perp\right|^2\right]\right\}\end{aligned}$$

(second line: a "+" instead of a "−")

page 110

- Eq. (4.290):

$$\begin{aligned}\frac{d\sigma}{d\Omega} &= r_e^2\left\{\frac{1}{2}(1+\cos^2\vartheta)|F_c|^2 + \eta\sin\vartheta(1+\cos\vartheta)\mathrm{Im}(F_c^*F_S^\perp)\right. \\ &\quad \left. +\eta\sin 2\vartheta(1-\cos\vartheta)\mathrm{Im}(F_c^*F_L^\perp)\right\}\end{aligned}$$

(first line: a "+" instead of a "−")

- Eq. (4.292):

$$2\langle U_3\rangle_T = F_c(\vec{\kappa})(1-\cos\vartheta)$$

(a missing T as index of $\langle\rangle$)

page 111

- Eq. (4.298):

$$\begin{aligned}\frac{d\sigma}{d\Omega}P_3^{(f)} &= P_3^{(i)}\left(\frac{d\sigma}{d\Omega}\right)_{\text{unpol}} + \\ &+2r_e^2\left\{\text{Re}(\langle V\rangle_T^*\langle U_3\rangle_T)+\text{Im}(\langle U_1\rangle_T^*\langle U_2\rangle_T)-P_3^{(i)}\left(|\langle U_1\rangle_T|^2+|\langle U_2\rangle_T|^2\right)\right\}\end{aligned}$$

(second line: no $*$ on $\langle U_3\rangle_T$)

page 114

- Eq. (4.312):

$$\begin{aligned}\mu(E) &= 4\pi^2 n_0 e^2 k\delta(E+E_\alpha-E_n)\Big\{P_1^{(i)}\text{Re}\,[D_x^*(D_y\cos\varphi-D_z\sin\varphi)] \\ &\quad -P_2^{(i)}\text{Im}\,[D_x^*(D_y\cos\varphi-D_z\sin\varphi)]+\frac{1}{2}\left(1+P_3^{(i)}\right)|D_x|^2 \\ &\quad +\frac{1}{2}\left(1-P_3^{(i)}\right)|D_y\cos\varphi-D_z\sin\varphi|^2\Big\}\end{aligned}$$

(missing final bracket "}")

page 115

- In the text line after eq. (4.314), instead of "$3j^-$ symbol":

3j-symbol

- Eq. (4.318):

$$\begin{aligned}\Delta\mu(E) &= -\frac{4\pi n_0}{k}\left\{\text{Im}f\left(E,P_2^{(i)}=+1\right)-\text{Im}f\left(E,P_2^{(i)}=-1\right)\right\} \\ &= 8\pi^2 n_0 e^2 k U_2\delta(E+E_\alpha-E_n)\end{aligned}$$

($P_2^{(i)}$ instead of P_2^i (twice))

page 116

- Eq. (4.320):

$$\begin{aligned}&\frac{1}{2}(1+\cos^2\vartheta)\big\langle n^+n(t)\big\rangle_T \\ &+i\frac{\eta}{2}\left(\hat{\vec{k}}\wedge\hat{\vec{k}}'\right)\left[\cos\vartheta\big\langle n^+\vec{L}(t)-\vec{L}^+n(t)\big\rangle_T-(1+\cos\vartheta)\big\langle n^+\vec{S}(t)-\vec{S}^+n(t)\big\rangle_T\right] \\ &+\frac{\eta}{2}P_2^{(i)}\Bigg[\left(\hat{\vec{k}}\cos\vartheta+\hat{\vec{k}}'\right)(\cos\vartheta-1)\big\langle n^+\vec{S}(t)+\vec{S}^+n(t)\big\rangle_T \\ &\qquad +\left(\hat{\vec{k}}+\hat{\vec{k}}'\cos\vartheta\right)\big\langle n^+\vec{L}(t)+\vec{L}^+n(t)\big\rangle_T\Bigg]\end{aligned}$$

(last line: missing "+"; and alignement)

page 117

- Eq. (4.321):

$$\Gamma_{\alpha\beta}(\vec{x},t) = \frac{1}{N}\sum_{\vec{\ell},\vec{\ell}'}\int d^3x' \left\langle \delta\left(\vec{x}+\vec{X}_{\vec{\ell}}-\vec{x}'\right) S^{\alpha}_{\vec{\ell}} \cdot \delta\left(\vec{x}'-\vec{X}_{\vec{\ell}'}(t)\right) S^{\beta}_{\vec{\ell}'}(t)\right\rangle_T$$

(a "−" instead of a "+")

- Eq. (4.322):

$$\Gamma_{\alpha\beta}(\vec{x},t) = \frac{1}{N}\sum_{\vec{\ell},\vec{\ell}'}\left\langle S^{\alpha}_{\vec{\ell}} S^{\beta}_{\vec{\ell}'}(t)\right\rangle_T \int d^3x' \left\langle \delta\left(\vec{x}+\vec{X}_{\vec{\ell}}-\vec{x}'\right) \delta\left(\vec{x}'-\vec{X}_{\vec{\ell}'}(t)\right)\right\rangle_T$$

(a "−" instead of a "+")

page 118

- Eq. (4.332):

$$S^{z}_{\vec{\ell}}(S^{(+)}_{\vec{\ell}}|S'_{\vec{\ell}}\rangle) = (S'_{\vec{\ell}}+1)(S^{(+)}_{\vec{\ell}}|S'_{\vec{\ell}}\rangle)$$

($S^{(+)}_{\vec{\ell}}$ instead of $S_{\vec{\ell}}(+)$)

- In the text line after eq. (4.332): a "." is missing:

$$S'_{\vec{\ell}}+1. \text{ Hence}$$

- Eq. (4.336):

$$\left[a_{\vec{\ell}}, a^{+}_{\vec{\ell}'}\right] = \delta_{\vec{\ell}\vec{\ell}'}$$

(a "′" missing)

page 119

- Eq. (4.345):

$$E_{\vec{k}} = n_{\vec{k}}\hbar\omega_{\vec{k}}$$

(the last $\vec{k}$ is index of ω)

page 120

- Eq. (4.347):

$$S^{(\pm)}_{\vec{\ell}} = \frac{1}{N}\sum_{\vec{k}} e^{\pm i\vec{k}\vec{\ell}} S^{(\pm)}_{\vec{k}}$$

($S^{(\pm)}_{\vec{\ell}}$ instead of $S^{\pm}_{\vec{\ell}}$ (twice))

- In the text line after eq. (4.349):

$$[S^{(+)}_{\vec{k}}, S^{(-)}_{\vec{k}'}] = 2SN\delta_{\vec{k}\vec{k}'}$$

(a "′" missing)

page 121

- Eq. (4.360):

$$\Gamma_{\alpha\beta}(\vec{x},t) = \sum_{\vec{\ell}} \gamma^{\alpha\beta}(\vec{\ell},t) C_{\vec{\ell}}(\vec{x},t)$$

(the last $\vec{\ell}$ is index of C)

page 122

- Eqs. (4.362) and (4.363):

$$\begin{aligned} \left\langle S^{(-)}_{\vec{\ell}}(0) S^{(+)}_{\vec{\ell}'}(t) \right\rangle_T &= \frac{2S}{N} \sum_{\vec{q}} e^{-i\vec{q}(\vec{\ell}-\vec{\ell}')-i\omega_{\vec{q}}t} n_{\vec{q}} \\ \left\langle S^{(+)}_{\vec{\ell}}(0) S^{(-)}_{\vec{\ell}'}(t) \right\rangle_T &= \frac{2S}{N} \sum_{\vec{q}} e^{i\vec{q}(\vec{\ell}-\vec{\ell}')+i\omega_{\vec{q}}t} (n_{\vec{q}}+1) \end{aligned}$$

(first line: t is not exponent of $\vec{q}$; $n_{\vec{q}}$ does not belong to the exponent of e. second line: a "+" instead of a "−"; t is not exponent of $\vec{q}$; $(n_{\vec{q}}+1)$ does not belong to the exponent of e)

- Eq. (4.364):

$$\begin{aligned} \left(\frac{d^2\sigma}{d\Omega dE'} \right)^{(\pm)} &= r_0^2 \frac{k'}{k} \left(\frac{1}{2} g F(\vec{\kappa}) \right)^2 \left(1+\hat{\kappa}_z^2\right) e^{-2W(\vec{\kappa})} \frac{S}{2} \frac{(2\pi)^3}{V} \times \\ & \times \sum_{\vec{q},\vec{\tau}} \left(n_{\vec{q}} + \frac{1}{2} \pm \frac{1}{2} \right) \delta(\hbar\omega_{\vec{q}} \mp \hbar\omega) \delta(\vec{\kappa} \mp \vec{q} - \vec{\tau}) \end{aligned}$$

($(2\pi)^3$ instead of (2π))

- Eq. (4.366):

$$\begin{aligned} & \left\langle S^x_{\vec{\ell}}(0) S^x_{\vec{\ell}+\vec{r}}(t) \right\rangle_T = \left\langle S^y_{\vec{\ell}}(0) S^y_{\vec{\ell}+\vec{r}}(t) \right\rangle_T = \\ & = \frac{S}{2N} \sum_{\vec{q}} \left\{ (n_{\vec{q}}+1) e^{-i\vec{q}\vec{r}+i\omega_{\vec{q}}t} + n_{\vec{q}} e^{i\vec{q}\vec{r}-i\omega_{\vec{q}}t} \right\} \sim \frac{S}{N} \cos\left(\vec{q}\vec{r} - \omega_{\vec{q}}t\right) \end{aligned}$$

(size of the brackets {})

page 125

- In Ref.1: instead of "An-dover":

Andover

page 128

- Eq. (5.3):

$$\begin{aligned} H &= H^{(S)} + H^{(P)} + H_{int}(t) \\ &= H_0 + H_{int}(t) \end{aligned}$$

(first line: (t) is not index of H_{int})

- Third text line after eq. (5.5), deleting "and $H^{(S)}$,":

$\mathcal{H}^{(P)}$ and $\mathcal{H}^{(S)}$, which form a vector space:

page 129

- Eq. (5.16):

$$e^{iHt/\hbar} = e^{\frac{i}{\hbar}\int_{-\infty}^{t} H_{int}(\tau)d\tau} e^{i(H^{(P)}+H^{(S)})t/\hbar}$$

(a "−" too much)

- In the text line after eq. (5.17), instead of "$\hat{V}_i$":

$$V_i$$

- Eq. (5.18):

$$\varrho^{(P)}(t) = e^{-iH^{(P)}t/\hbar}\mathrm{Sp}_s\left\{e^{-\frac{i}{\hbar}\int_{-\infty}^{t} H_{int}(\tau)d\tau} P^{(i)} e^{\frac{i}{\hbar}\int_{-\infty}^{t} H_{int}(\tau)d\tau}\right\} e^{iH^{(P)}t/\hbar}$$

(a "−" too much)

page 131

- Eq. (5.26):

$$\begin{aligned} \overline{W}_\alpha \overline{V}_\alpha &= \lim_{t\to\infty}\frac{1}{2\pi\hbar}\int_{-\infty}^{t} dt'\, e^{i(E_m^{(P)}-E_{m'}^{(P)})t'/\hbar} e^{i(E_n^{(S)}-E_{n'}^{(S)})t'/\hbar} W_\alpha V_\alpha \\ &= \delta\left(\hbar\omega + E_i^{(S)} - E_f^{(S)}\right) W_\alpha V_\alpha \end{aligned}$$

(alignement)

page 133

- Eq. (5.37):

$$\begin{aligned} &\partial_t \varrho^{(P)}(t) - \frac{i}{\hbar}\left[\varrho^{(P)}, H^{(P)}\right] = \\ &\quad = -\frac{1}{\hbar^2} e^{-iH^{(P)}t/\hbar}\mathrm{Sp}_s\Big\{\int_{-\infty}^{t} d\tau' \left[H_{int}(t), \left[H_{int}(\tau'), P^{(i)}\right]\right]\Big\} e^{iH^{(P)}t/\hbar} \end{aligned}$$

(a "−" too much)

page 135

- Eq. (5.53):

$$B_{iknm} = -B_{nmik} = \sum_{\ell} c^{\ell}_{in} s^{\ell}_{km}$$

(B_{nmik} instead of A_{ikmn})

page 136

- Eq. (5.61):

$$\sum_{\nu\nu'} \mathrm{Sp}_s \left(\tilde{M}_{\mu\mu';\nu\nu'} \varrho^{(S)}_{equ} \right) \varrho^{(P)}_{\nu\nu'} = \sum_{\nu\nu'} \langle \tilde{M}_{\mu\mu';\nu\nu'} \rangle_T \varrho^{(P)}_{\nu\nu'}$$

(T is index of $\langle\rangle$)

page 140

- Eq. (5.88):

$$\begin{aligned} p_1(\tau) + p_2(\tau) &= \text{const.} = 1 \\ p_1(\tau) - p_2(\tau) &= A e^{-2W\tau} \end{aligned}$$

(second line: τ is not exponent of W)

page 141

- In the eighth text line after eq. (5.94), instead of "$\bar{\mu}_e(\vec{x}_i)$":

$$\vec{\mu}_e(\vec{x}_i)$$

page 144

- Eq. (5.117):

$$\varrho^{pol} = \sum_{i,j} \chi_{ij} \left(\frac{\omega}{c} k_i A_j - k_i k_j \Phi \right)$$

(k_j instead of A_j (only once))

page 147

- Eq. (5.140):

$$\varrho^{(S)}(t) = e^{-iH^{(S)}t/\hbar} \mathrm{Sp}_p \left\{ e^{-\frac{i}{\hbar}\int_{-\infty}^{t} H_{int}(\tau)d\tau} P^{(i)} e^{\frac{i}{\hbar}\int_{-\infty}^{t} H_{int}(\tau)d\tau} \right\} e^{iH^{(S)}t/\hbar}$$

(a "$-$" too much)

page 149

- Eq. (5.153):

$$\tilde{K}^{\alpha\beta} = \frac{1}{\hbar} \int_{-\infty}^{\infty} d\omega' \sum_{n,m} \delta(\omega' - \omega_m + \omega_n) \frac{e^{-\beta(\hbar\omega_n - F)}}{\omega' - \omega + i\varepsilon} (1 - e^{-\beta\hbar\omega'}) \langle n | J^{\alpha}_{\vec{\kappa}} | m \rangle \langle m | J^{\beta}_{-\vec{\kappa}} | n \rangle$$

($\sum_{n,m}$ before $\delta()$, not afterwards)

page 150

- Eq. (5.162):

$$-g\langle Q\rangle_T\delta\Lambda + g\beta\langle\Delta H\Delta Q\rangle_T\delta\Lambda - \langle\Delta H\Delta H\rangle_T\delta\beta$$

("⟨⟩" instead of "()")

page 151

- Eq. (5.165):

$$\frac{1}{2\pi}\int_{-\infty}^{\infty} dt\, e^{-i\omega t}\langle Q_{\vec{\kappa}}(0)Q_{-\vec{\kappa}}(t) + Q_{-\vec{\kappa}}(t)Q_{\vec{\kappa}}(0)\rangle_T = \langle Q_{\vec{\kappa}}^2(\omega)\rangle_T$$

(without the brackets "{}")

- Eq. (5.167):

$$-\frac{\hbar}{\pi}\int_0^{\infty} d\omega\,\mathrm{Im}\tilde{K}(\vec{\kappa},\omega)\coth\left(\frac{\hbar\omega}{2k_BT}\right) = \hbar\int_0^{\infty} d\omega\, S(\vec{\kappa},\omega)(1+e^{-\hbar\omega/k_BT})$$

(on κ: arrow instead of tilde (twice))

page 155

- Eq. (5.183):

$$K^{[\alpha\beta]} = \frac{i}{2}(K^{\alpha\beta} - K^{\beta\alpha})$$

("[ ]" instead of "{}")

- Eq. (5.186):

$$\sum_{n,m} e^{-\beta(\hbar\omega_n - F)}(1 - e^{-\beta\hbar\omega_{mn}})\cdot\langle n|J|m\rangle\langle m|J^+|n\rangle\delta(\omega-\omega_{mn})$$

(mn are indices of ω)

page 157

- In the forth text line after the figure:

$$\tilde{K}(\omega + i\varepsilon) = \tilde{K}^*(\omega - i\varepsilon)$$

($*$ is "exponent" of K)

page 158

- In the text line after eq. (5.195):

$$\tilde{K}^*(\omega) = \tilde{K}(-\omega)$$

($*$ is "exponent" of K)

page 159

- Eq. (5.203):

$$\Phi_{\vec{\kappa}}(t) = i\int_{-\infty}^{\infty} d\omega\, e^{i\omega t}[1 - e^{-\beta\hbar\omega}]S(\vec{\kappa},\omega)$$

($\vec{\kappa}$ is index of Φ)

page 160

- Eq. (5.207):

$$[\varrho_{\vec{\kappa}}, H] = i\hbar\dot{\varrho}_{\vec{\kappa}} = -\hbar\sum_i e^{i\vec{\kappa}\vec{x}_i}\left(\frac{\vec{\kappa}\vec{p}_i}{m} + \hbar\frac{\kappa^2}{2m}\right)$$

($\vec{\kappa}$ is not index of i)

- Eq. (5.208):

$$[[\varrho_{\vec{\kappa}}, H], \varrho_{\vec{\kappa}}^{+}] = \frac{N_e\hbar^2\kappa^2}{m}$$

($\vec{\kappa}$ is index of the first ϱ; "+" is exponent of the second ϱ)

- Eq. (5.210):

$$\frac{1}{\hbar}\sum_n \omega_{n0}|\langle 0|\varrho_{\vec{\kappa}}|n\rangle|^2$$

(0 is index of ω, together with n: ω_{n0})

page 161

- Eq. (5.217):

$$\sum_{\vec{\kappa}} \frac{4\pi Z e^2}{\kappa^2}\varrho_{\vec{\kappa}} e^{i\vec{\kappa}\vec{X}}$$

($\vec{\kappa}$ is not index of i)

- Eq. (5.222):

$$\begin{aligned} W &= \sum_{\vec{\kappa}}\int_0^{\infty} d(\hbar\omega) W(\vec{\kappa},\omega)\delta(\omega - \vec{\kappa}\vec{V}) \\ &= -\frac{Z^2e^2}{\pi^2}\int\frac{d^3\kappa}{\kappa^2}\int_0^{\infty} d\omega \mathrm{Im}\left(\frac{1}{\varepsilon^{(L)}(\vec{\kappa},\omega)}\right)\delta(\omega - \vec{\kappa}\vec{V}) \end{aligned}$$

(first line, below the sum: arrow on $\vec{\kappa}$)

page 162

- Eq. (5.226):

$$\ddot{\varrho}_{\vec{\kappa}} = \sum_i e^{i\vec{\kappa}\vec{x}_i}\left(\frac{\vec{\kappa}\vec{p}_i}{m} + \frac{\hbar\kappa^2}{2m}\right)^2 + \frac{2\pi e^2}{\hbar}\left[\sum_i e^{i\vec{\kappa}\vec{x}_i}\frac{\vec{\kappa}\vec{p}_i}{m}, \sum_{\vec{q}}\frac{\varrho_{\vec{q}}^{+}\varrho_{\vec{q}} - N}{q^2}\right]$$

(missing "=")

- Eq. (5.228):

$$-4\pi e^2 \frac{N}{m} \varrho_{\vec{\kappa}} = -\omega_p^2 \varrho_{\vec{\kappa}}$$

(missing "–")

page 163

- Eq. (5.229):

$$\ddot{\varrho}_{\vec{\kappa}} + \omega_p^2 \varrho_{\vec{\kappa}} = \sum_i e^{i\vec{\kappa}\vec{x}_i} \left(\frac{\vec{\kappa}\vec{p}_i}{m} + \frac{\hbar\kappa^2}{2m} \right)^2 - \frac{4\pi e^2}{m} \sum_{\vec{q}\neq\vec{\kappa}} (\vec{\kappa}\cdot\vec{q}) \frac{\varrho_{\vec{\kappa}-\vec{q}}\varrho_{\vec{q}}}{q^2}$$

(missing "=")

- In the fifth text line after eq. (5.229):

$$O(\kappa^2 V_F^2 \varrho_{\vec{\kappa}})$$

($\vec{\kappa}$ is index of ϱ)

- Eq. (5.119):

$$\varepsilon^{(L)}(\vec{k},\omega) = 1 - \frac{4\pi e^2}{k^2} \kappa^{(L)}(\vec{k},\omega)$$

(a "–" instead of "+")

page 164

- Eq. (5.236):

$$\Phi(\vec{k},\omega) = \frac{\Phi_{ext}(\vec{k},\omega)}{\varepsilon^{(L)}(\vec{k},\omega)}$$

(missing "=")

- Eq. (5.240):

$$\begin{aligned} \tilde{K}^{(L)}(\vec{k},\omega) &= \kappa^{(L)}(\vec{k},\omega) + \kappa^{(L)}(\vec{k},\omega) V(\vec{k}) \kappa^{(L)}(\vec{k},\omega) + \cdots \\ &= \kappa^{(L)}(\vec{k},\omega) + \kappa^{(L)}(\vec{k},\omega) V(\vec{k}) \tilde{K}^{(L)}(\vec{k},\omega) \end{aligned}$$

(second line: $\kappa^{(L)}$ instead of $k^{(L)}$)

page 167

- In the text, instead of "$\varepsilon^{(L)}(\vec{\kappa},\omega)$" (3 times):

$$\varepsilon^{(T)}(\vec{\kappa},\omega)$$

- Eq. (5.247):

$$\vec{J}(\vec{\kappa}) = \sum_i \left(\frac{\vec{p}_i}{m} + \frac{\hbar\vec{\kappa}}{2m} \right) e^{i\vec{\kappa}\vec{x}_i} - \frac{e}{mc} \vec{A}_{\vec{\kappa}}(t) N_e$$

($\vec{\kappa}$ instead of $\vec{k}$; last $\vec{\kappa}$ is index of $\vec{A}$)

- Eq. (5.248):

$$\kappa^{(T)}(\vec{\kappa}, \omega) = \frac{1}{\hbar} \sum_n |\langle 0|\vec{\varepsilon}\vec{j}\,|n\rangle|^2 \left\{ \frac{1}{\omega - \omega_{n0} + i\eta} - \frac{1}{\omega + \omega_{n0} + i\eta} \right\} + \frac{N}{m}$$

(without last bracket ")")

page 168

- Eq. (5.249):

$$\varepsilon^{(T)}(\vec{\kappa}, \omega) = 1 - \frac{\omega_p^2}{\omega^2} - \frac{8\pi e^2}{\hbar\omega^2} \sum_n |\langle 0|\vec{\varepsilon}\vec{j}(\vec{\kappa}, \omega)|n\rangle|^2 \omega_{n0} \left\{ 2P\frac{1}{\omega^2 - \omega_{n0}^2} - i\pi\delta(\omega^2 - \omega_{n0}^2) \right\}$$

(at the end: $\delta(\omega^2 - \omega_{n0}^2)$)

page 169

- In the text line after eq. (5.255): instead of "(5.252)":

(5.212)

page 170

- Eq. (5.257):

$$\vec{\nabla} \wedge \vec{B} = \frac{\varepsilon}{c}\partial_t \vec{E} + \frac{4\pi\sigma}{c}\vec{E}$$

($\wedge$ instead of Λ)

page 171

- Eq. (5.265):

$$\eta = \frac{\mathrm{Re}(\vec{J}^* \vec{E})}{|\vec{E}|^2} = 2n\kappa\frac{\omega}{c}$$

(n instead of π)

page 173

- In Ref.6: instead of "Noziéres":

Nozières

page 176

- Eq. (A.8):

$$\psi(\vec{x}) = e^{i\vec{k}\vec{x}} - \frac{m}{2\pi\hbar^2} \int_{\mathbb{R}^3} d^3y \frac{e^{ik|\vec{x}-\vec{y}|}}{|\vec{x}-\vec{y}|} V(\vec{y})\psi(\vec{y}),$$

(a missing "−")

- Eq. (A.10):

$$f(\vec{k}',\vec{k}) = \frac{-m}{2\pi\hbar^2}\int_{\mathbb{R}^3} d^3y e^{-i\vec{k}'\vec{y}}V(\vec{y})\psi(\vec{y})$$

(a "−" too much)

page 185

- Eq. (A.84):

$$U(t,t') = 1 - i\int_{t'}^{t} d\tau V_I(\tau)U(\tau,t')$$

($U(\tau,t')$ instead of $U(t,t')$)

page 186

- Eq. (A.87):

$$\begin{aligned}\langle\chi|S|\varphi\rangle &= \langle\chi|\Omega_-^+\Omega_+|\varphi\rangle \\ &= \lim_{\substack{t\to\infty \\ t'\to-\infty}} \langle\chi|(e^{iH_0t}e^{-iHt})(e^{iHt'}e^{-iH_0t'})|\varphi\rangle \\ &= \langle\chi|U_I(+\infty,-\infty)|\varphi\rangle\end{aligned}$$

(t' is exponent of e, together with iH: $e^{iHt'}$)

- Eq. (A.90):

$$\int_\Omega d^3k' \left|\langle\beta,\vec{k}'|(S-1)|\psi_\alpha,\varphi_i\rangle\right|^2, \qquad \text{where}$$

(size of "⟨⟩")

page 187

- Eq. (A.98):

$$\begin{gathered}\tfrac{d\sigma}{d\Omega} = \tfrac{(2\pi)^4\omega'^2}{c^4\hbar^2}\left|\langle\beta,\vec{k}'|T|\alpha,\vec{k}_i\rangle\right|^2 \\ E_\beta + \hbar\omega' = E_\alpha + \hbar\omega\end{gathered}$$

(the second line is missing)

page 189

- Eq. (A.107):

$$\mathrm{Sp}\left\{\mathrm{Tr}\left(F\tilde{\varrho}^{(i)}F^+\right)\right\} = \mathrm{Tr}\left(\varrho^{(i)}\mathrm{Sp}(F\varrho_\alpha F^+)\right) = \mathrm{Tr}\left(\varrho^{(i)}\langle FF^+\rangle_T\right)$$

($\varrho^{(i)}$ instead of ϱ^i)

- Eq. (A.108):

$$\frac{d\sigma}{d\Omega} = \mathrm{Sp}\left(\mathrm{Tr}\tilde{\varrho}^{(f)}\right) = \mathrm{Tr}\left(\varrho^{(i)}\langle FF^+\rangle_T\right)$$

(Sp instead of SP)

- Eq. (A.109):

$$\vec{P}^{(f)} = \frac{\mathrm{Sp}[\mathrm{Tr}(\vec{\sigma}\tilde{\varrho}^{(f)})]}{\mathrm{Sp}[\mathrm{Tr}(\tilde{\varrho}^{(f)})]} = \langle\vec{\sigma}\rangle_{\mathrm{out}}$$

(Sp instead of SP (twice))

page 190

- Eq. (A.115):

$$\begin{aligned}\langle V^+\vec{U}\rangle_T &+ \langle\vec{U}^+V\rangle_T - i\langle\vec{U}^+\wedge\vec{U}\rangle_T \\ &+ \vec{P}^{(i)}\langle VV^+ - \vec{U}\vec{U}^+\rangle_T + \langle\vec{U}^+(\vec{U}\cdot\vec{P}^{(i)})\rangle_T + \langle(\vec{U}^+\cdot\vec{P}^{(i)})\vec{U}\rangle_T \\ &+ i\langle V^+(\vec{U}\wedge\vec{P}^{(i)})\rangle_T + i\langle(\vec{P}^{(i)}\wedge\vec{U}^+)V\rangle_T\end{aligned}$$

(no arrow on the last V)

page 193

- Eq. (B.15):

$$\overline{\left|\sum_{j=1}^{Z} e^{-i\vec{q}\vec{x}_j}\right|^2} = \int d^3x_1\ldots d^3x_Z\, w(\vec{x}_1,\ldots,\vec{x}_Z)\left|\sum_{j=1}^{Z} e^{-i\vec{q}\vec{x}_j}\right|^2 = F^2_{\mathrm{inel}}(\vec{q})$$

($\overline{\left|\sum_{j=1}^{Z} e^{-i\vec{q}\vec{x}_j}\right|^2}$ instead of $\overline{\left|\sum_{j=1}^{Z} e^{-i\vec{q}\vec{x}_j}\right|}^2$)

page 194

- In the text line after eq. (B.20): instead of "Figure B.2":

Figure B.1

page 204

- Eq. (D.3):

$$\vec{M}_L(\vec{x}) = -\frac{\mu_B}{4\pi^3}\int d^3\kappa\,\frac{1}{x}\int_x^\infty d\xi\, e^{-i\vec{\kappa}(\xi\hat{\vec{x}})}\Pi(\vec{\kappa})$$

(a missing "−")

- Eq. (D.4):

$$\Pi(\vec{\kappa}) = \frac{1}{2}\sum_j\left[e^{i\vec{\kappa}\vec{x}_j}\vec{\ell}_j + \vec{\ell}_j e^{i\vec{\kappa}\vec{x}_j}\right]$$

(a "−" too much)

- Eq. (D.6):

$$\vec{\Lambda}(\vec{\kappa}) = \frac{1}{2}\sum_j\left[h(\vec{\kappa}\vec{x}_j)\vec{\ell}_j + \vec{\ell}_j h(\vec{\kappa}\vec{x}_j)\right]$$

(without big "()")

- Eq. (D.8):

$$\vec{Q}_{\perp}^{(L)}(\vec{\kappa}) = \frac{-i}{\hbar\kappa^2} e^{i\vec{\kappa}\vec{x}} (\vec{\kappa} \wedge \vec{p}) = \frac{m}{i\hbar^2\kappa^2} \left[H, (\vec{\kappa} \wedge \vec{x}) \frac{1}{s} (e^{is} - 1) \right] + \frac{1}{2} \hat{\vec{\kappa}} \wedge \left(\vec{\Lambda}(\vec{\kappa}) \wedge \hat{\vec{\kappa}} \right)$$

(no arrow on κ^2)

- Before last unnumbered equation:

$$\hat{\vec{\kappa}} \wedge \left(\vec{s} \wedge \hat{\vec{\kappa}} \right) \quad \text{and} \quad \hat{\vec{\kappa}} \wedge \left(\vec{\Lambda} \wedge \hat{\vec{\kappa}} \right) \sim \hat{\vec{\kappa}} \wedge \left(\vec{\ell} \wedge \hat{\vec{\kappa}} \right)$$

(first eq.: $\wedge$ instead of Λ; second eq.: $\vec{\Lambda}$ instead of the "void arrow"; $\wedge$ is not index of $\vec{\ell}$)

page 205

- Eq. (D.10):

$$e^{i\vec{\kappa}\vec{x}} = 4\pi \sum_{L=0}^{\infty} \sum_{M=-L}^{L} (i)^L Y_L^{M*} \left(\hat{\vec{\kappa}} \right) Y_L^M \left(\hat{\vec{x}} \right) j_L(\kappa r) \qquad (r = |\vec{x}|)$$

(last L is index of j)

- Eq. (D.12):

$$\begin{aligned} Y_\ell^m \left(\hat{\vec{x}} \right) Y_{\ell'}^{m'} \left(\hat{\vec{x}} \right) &= \sum_{L=0}^{\infty} \sum_{M=-L}^{L} \left[\frac{(2\ell+1)(2\ell'+1)(2L+1)}{4\pi} \right]^{1/2} Y_L^{M*} \left(\hat{\vec{x}} \right) \times \\ &\times \begin{pmatrix} \ell & \ell' & L \\ m & m' & M \end{pmatrix} \begin{pmatrix} \ell & \ell' & L \\ 0 & 0 & 0 \end{pmatrix} \end{aligned}$$

(alignement)

- Eq. (D.14):

$$\begin{aligned} \langle \ell m s m_s | s_q Y_L^M | \ell' m' s m_s' \rangle &= (-1)^{(\ell - m + s - m_s)} \begin{pmatrix} s & 1 & s \\ -m_s & q & m_s' \end{pmatrix} \times \\ &\times \begin{pmatrix} \ell & L & \ell' \\ -m & M & m' \end{pmatrix} \langle s \| s_q \| s \rangle \langle \ell \| Y_L \| \ell' \rangle \end{aligned}$$

(second line: a "=" too much)

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- Eq. (D.25):

$$\begin{aligned} &\langle \ell m | \Lambda_q(\vec{\kappa}) | \ell' m' \rangle = \\ &= 2\pi \sum_{L,M} (i)^L Y_L^{M*} \left(\hat{\vec{\kappa}} \right) \langle \ell m | g_L(\kappa r) \left[\ell_q Y_L^M \left(\hat{\vec{x}} \right) + Y_L^M \left(\hat{\vec{x}} \right) \ell_q \right] | \ell' m' \rangle \end{aligned}$$

(second line: size of $\langle\rangle$)

- Eq. (D.28):

$$
\begin{aligned}
&\langle \ell m|\Lambda_q(\vec{\kappa})|\ell m'\rangle = \\
&= \sqrt{\pi}\sum_{L,M}\sum_{L',M'}(i)^L Y_L^{M*}\left(\hat{\vec{\kappa}}\right)\langle g_L\rangle_{\ell\ell}(2\ell+1)\sqrt{\ell(\ell+1)}\times \\
&\times\left(1+(-1)^{1+L+L'}\right)(-1)^m[\ell,L,L']^{1/2}\langle 1qLM|L'M'\rangle\times \\
&\times\begin{pmatrix}\ell & L & \ell\\ 0 & 0 & 0\end{pmatrix}\begin{pmatrix}\ell & \ell & L'\\ -m & m' & M'\end{pmatrix}\begin{Bmatrix}\ell & \ell & L'\\ L & 1 & \ell\end{Bmatrix},
\end{aligned}
$$

(in the {}-brackets: 1 instead of ℓ (only once))

- Eq. (D.29):

$$\langle \ell m s m_s|\Lambda_q(\vec{\kappa})|\ell m' s m_s'\rangle = \{\langle j_0\rangle_{\ell\ell}+\langle j_2\rangle_{\ell\ell}\}\langle \ell m|\ell_q|\ell m'\rangle\delta_{m_s m_s'}$$

(ℓ instead of ℓ' (twice))

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- Eq. (D.39):

$$Y_L^0\left(\hat{\vec{\kappa}}\right) = \left(\frac{2L+1}{4\pi}\right)^{1/2} P_L(\cos\vartheta) \quad \text{with} \quad P_L(\cos\vartheta)\big|_{\vartheta=0} = P_L(1) = 1$$

(a missing "=")

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- Eq. (D.44):

$$
\begin{aligned}
&\langle \ell m s m_s|\vec{Q}_\perp^{(D)}(\vec{\kappa})|\ell m' s m_s'\rangle = \\
&= \langle \ell m s m_s|\hat{\vec{\kappa}}\wedge\left\{\left[\langle j_0\rangle\vec{s}+\frac{1}{2}(\langle j_0\rangle+\langle j_2\rangle)\vec{\ell}\right]\wedge\hat{\vec{\kappa}}\right\}|\ell m' s m_s'\rangle,
\end{aligned}
$$

(first line: no ˆ on the first $\vec{\kappa}$; second line: ˆ on the last $\vec{\kappa}$)

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- Eq. (F.7):

$$\varrho'(\vec{x}) = \varrho(-\vec{x})$$

(no "′" on the second ϱ)

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- In the first text line:

$$\Theta i = -i\Theta,$$

(i is not index of Θ)

- Eq. (F.28):

$$\langle \vec{p}'|S|\vec{p}\rangle = \langle -\vec{p}|S| - \vec{p}'\rangle$$

(a missing "−")

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- Eq. (G.6):

$$\mathrm{Im}\, \tilde{G}_{ij}(\omega) = -\frac{\pi\delta_{ij}}{2M\Omega_0}\left[\delta(\omega - \Omega_0) - \delta(\omega + \Omega_0)\right]$$

(a missing "−")

- Eq. (G.9):

$$\sum_\nu [h(\omega_\nu)a^+ A_\nu + h^*(\omega_\nu)aA_\nu^+]$$

(A instead of V)

- Eq. (G.10):

$$i\partial_t G = \delta(t)\langle[a, a^+]\rangle_T - i\Theta(t)\langle\big[[a(t), H], a^+\big]\rangle_T$$

(a "⟩" too much)

- Eq. (G.12):

$$A_\nu(t) = A_\nu(0)e^{-i\omega_\nu t} - ih^*(\omega_\nu)e^{-i\omega_\nu t}\int_0^t a(\tau)e^{i\omega_\nu \tau}d\tau$$

(in the last exponent: a "−" too much; τ instead of t)