Errata

Page 14: the line above Eqn. (1.2.27) should read:- " .... frame S_A obtained from S via ..."

Page 22: the equations (2.2.7) and (2.2.8) for the effect of a general Lorentz transformation are incorrect. The correct expressions are:

$$|\boldsymbol{p}\,;\lambda\rangle_{S^{l(\beta)}} = e^{i\lambda'\eta'}\, d_{\lambda'\,\lambda}(\theta_{Wick})\, e^{-i\lambda\eta}\, |\boldsymbol{p'};\ \lambda'\rangle \qquad (2.2.7)$$

where $\boldsymbol{p'} = l^{-1}\boldsymbol{p} \ = (p', \theta', \varphi')$, θ_{Wick} is given by (2.2.6), and η and η' are given by

$$\begin{aligned} \cos\eta &= \frac{\cos\theta_\beta \sin\theta - \sin\theta_\beta \cos\theta \cos(\varphi_\beta - \varphi)}{\sin\delta} \\ \sin\eta &= \frac{\sin\theta_\beta \sin(\varphi_\beta - \varphi)}{\sin\delta} \end{aligned} \qquad (2.2.8a)$$

and

$$\begin{aligned} \cos\eta' &= \frac{\cos\theta_\beta \sin\theta' + \sin\theta_\beta \cos\theta' \cos(\varphi_\beta - \varphi')}{\sin\delta'} \\ \sin\eta' &= \frac{\sin\theta_\beta \sin(\varphi_\beta - \varphi')}{\sin\delta'} \end{aligned} \qquad (2.2.8b)$$

where, as in (2.2.6), δ is the angle between $\boldsymbol{\beta}$ and $\boldsymbol{p}$, and δ' is the angle between $\boldsymbol{\beta}$ and $\boldsymbol{p'}$.

Page 119: Eqn. (5.6.12) should read:

$$\begin{aligned} \frac{d^2\sigma}{dt\,d\phi} \;=\; & \frac{1}{2\pi}\frac{d\sigma}{dt}\{1 + A^{(A)}(\mathscr{P}_y^A \cos\phi - \mathscr{P}_x^A \sin\phi) \\ & -A^{(B)}\,(\mathscr{P}_y^B \cos\phi - \mathscr{P}_x^B \sin\phi) \\ & +A_{xx}\,[\cos^2\phi\, \mathscr{P}_x^A\, \mathscr{P}_x^B + \sin^2\phi\, \mathscr{P}_y^A\, \mathscr{P}_y^B \\ & +\cos\phi\, \sin\phi\,(\mathscr{P}_x^A\, \mathscr{P}_y^B + \mathscr{P}_y^A\, \mathscr{P}_x^B)] \\ & -A_{yy}\,[\sin^2\phi\, \mathscr{P}_x^A\, \mathscr{P}_x^B + \cos^2\phi\, \mathscr{P}_y^A\, \mathscr{P}_y^B \\ & -\cos\phi\, \sin\phi\,(\mathscr{P}_x^A\, \mathscr{P}_y^B + \mathscr{P}_y^A\, \mathscr{P}_x^B)] \\ & -A_{zz}\,\mathscr{P}_z^A\, \mathscr{P}_z^B + A_{zx}\,\mathscr{P}_z^A(\cos\phi\, \mathscr{P}_x^B + \sin\phi\, \mathscr{P}_y^B) \\ & -A_{xz}\,\mathscr{P}_z^B(\cos\phi\, \mathscr{P}_x^A + \sin\phi\, \mathscr{P}_y^A)\} \end{aligned}$$

Page 121: Eqn. (5.6.20) should read:

$$
\begin{aligned}
t^{lL}_{mM}(C,D)\,\frac{d^2\sigma}{dt d\phi} \;=\;& \frac{1}{2\pi}\left[t^{lL}_{mM}(C,D)\frac{d\sigma}{dt}\right]_{unpol.}\\
&+\frac{1}{2\pi}\frac{d\sigma}{dt}\{\mathscr{P}^A_x[\cos\phi\,(X0|f)-\sin\phi\,(Y0|f)]\\
&+\tilde{\mathscr{P}}^B_x\,[\cos\phi\,(0X|f)+\sin\phi\,(0Y|f)]\\
&+\mathscr{P}^A_y\,[\cos\phi\,(Y0|f)+\sin\phi\,(X0|f)]\\
&+\tilde{\mathscr{P}}^B_y\,[\cos\phi\,(0Y|f)-\sin\phi\,(0X|f)]\\
&+\mathscr{P}^A_z\,(Z0|f)+\tilde{\mathscr{P}}^B_z\,(0Z|f)+\mathscr{P}^A_z\tilde{\mathscr{P}}^B_z\,(ZZ|f)\\
&+\mathscr{P}^A_x\tilde{\mathscr{P}}^B_x\,\big[\cos^2\phi\,(XX|f)-\sin^2\phi\,(YY|f)\\
&+\cos\phi\,\sin\phi\,\langle(XY|f)-(YX|f)\rangle\big]\\
&+\mathscr{P}^A_y\tilde{\mathscr{P}}^B_y\,\big[\cos^2\phi\,(YY|f)-\sin^2\phi\,(XX|f)\\
&+\cos\phi\,\sin\phi\,\langle(XY|f)-(YX|f)\rangle\big]\\
&\mathscr{P}^A_x\tilde{\mathscr{P}}^B_y\,\big[\cos^2\phi\,(XY|f)+\sin^2\phi\,(YX|f)\\
&-\cos\phi\,\sin\phi\,\langle(XX|f)+(YY|f)\rangle\big]\\
&\mathscr{P}^A_y\tilde{\mathscr{P}}^B_x\,\big[\cos^2\phi\,(YX|f)+\sin^2\phi\,(XY|f)\\
&+\cos\phi\,\sin\phi\,\langle(XX|f)+(YY|f)\rangle\big]\\
&+\mathscr{P}^A_x\tilde{\mathscr{P}}^B_z\,[\cos\phi\,(XZ|f)-\sin\phi\,(YZ|f)]\\
&+\mathscr{P}^A_z\tilde{\mathscr{P}}^B_x\,[\cos\phi\,(ZX|f)+\sin\phi\,(ZY|f)]\\
&+\mathscr{P}^A_y\tilde{\mathscr{P}}^B_z\,[\cos\phi\,(YZ|f)+\sin\phi\,(XZ|f)]\\
&+\mathscr{P}^A_z\tilde{\mathscr{P}}^B_y\,[\cos\phi\,(ZY|f)-\sin\phi\,(ZX|f)]\}
\end{aligned}
$$

Pages 173/174: for a particle on the closed orbit, the vector $\boldsymbol{n}(\theta)$ should more correctly be called $\boldsymbol{n}_0(\theta)$ to conform with current usage in the field. For a modern treatment of this topic, see G.H.Hoffstätter, *A modern view of high energy polarized proton beams* (Springer; to be published) and D.P.Barber, *Electron and proton spin polarization in storage rings—an introduction* , 15th Advanced ICFA Beam Dynamics Workshop: Quantum Aspects of Beam Dynamics, Monterey, California, January 1998, Ed. Pisin Chen. (World Scientific, 1999, p67)

Page 188, Eqn. (8.1.5): one factor of α should be removed from the last