ERRATA AND ADDITIONS, Nov. 2, 2000

p.5, right column, 6th line

Original text [L^2T2]

New text [L^2T^2]

p.7, before the reference

Original text (add a paragraph)

New text Relations between bending magnetic field B, momentum p, mean orbit radius R, and revolution frequency f:
Of the four quantities (B, p, R, f), only two can be independently chosen, yielding (γ_t is the transition gamma)

Variables	differential relation
(B, p, R)	$\frac{dp}{p} = \gamma_t^2 \frac{dR}{R} + \frac{dB}{B}$
(f, p, R)	$\frac{dp}{p} = \gamma^2 \frac{df}{f} + \gamma^2 \frac{dR}{R}$
(B, f, p)	$\frac{dB}{B} = \gamma_t^2 \frac{df}{f} + \frac{\gamma^2 - \gamma_t^2}{\gamma^2} \frac{dp}{p}$
(B, f, R)	$\frac{dB}{B} = \gamma^2 \frac{df}{f} + (\gamma^2 - \gamma_t^2) \frac{dR}{R}$

p.9, caption of Table 2

Original text (add a sentence)

New text $\Delta p/p$ is the full momentum spread of the beam.

p.9, Eq.(2)

Original text $\Phi_0 = \frac{E_d T_0 W^2 |\eta|}{\beta p \Lambda}$ (2)

New text $\Phi_0 = \frac{E_d T_0 W^2 |\eta|}{\beta^2 E \Lambda}$ (2)

p.9, 10-th line from bottom

Original text (add a sentence)

New text For FNAL Accumulator, $\eta = 0.02, E_d \approx 10$ MeV, $E = 8.9$ GeV.

p.11, right column, 8th line

Original text (add a paragraph)

New text

In an attempt to overcome the space charge engendered limitation to beam current in the classical betatron, the concept of the "Modified Betatron" was developed. In the Modified Betatron, a torroidal field and strong focusing both are added to the normal, weak focusing, vertical (mirror) field of the classical betatron. By this means, a beam of about 1 kA has been accelerated to 20 MeV [4].

[4] C.A. Kapetanakos et al, Phys. Fluids B5 (1993) 2295

p.12, last entry of Table 1

Original text $E_{\rm cm} = 1000$ GeV

New text $E_{\rm cm} = 1800$ GeV

p.18, left column, Eq.(1)

Original text $... = \frac{eB_u\lambda_u}{2\pi m_e c^2} \quad (1)$

New text $... = \frac{eB_u\lambda_u}{2\pi m_e c} \quad (1)$

p.18, left column, Eq.(3)

Original text $\frac{d^2I}{d\omega d\Omega} = N_u^2 \frac{e^2}{c} ... \quad (3)$

New text $\frac{d^2I}{d\omega d\Omega} = N_u^2 \frac{e^2}{4\pi\epsilon_0 c} ... \quad (3)$

p.29, left column, 19th line

Original text (Fig.1) [4]

New text (Fig.1) [1]

p.38, left column, Eq.(7)

Original text $f = 1.643\, E_s e^{-(8.5/E_s)} \quad (7)$

New text $f = 1.643\, E_s^2 e^{-(8.5/E_s)} \quad (7)$

p.47, right column, 12-th line

Original text $\approx \sqrt{n_e}$ [MV/cm],

New text $\approx \sqrt{n_e}$ [V/cm],

p.50, left column, right above Eq.(13)

Original text definition above:

New text definition above, for a centered beam:

p.59, right column, last line of Eq.(2)

Original text $(\frac{m}{k})$

New text $\begin{pmatrix} m \\ k \end{pmatrix}$

p.60, right column, Eq.(5)

Original text $\beta(s) = \beta^+ - \frac{2s(1+\sin\frac{\mu}{2})}{\cos\frac{\mu}{2}} + 4s^2 \tan\frac{\mu}{2}$

New text $\beta(s) = \beta^+ - \frac{2s(1+\sin\frac{\mu}{2})}{\cos\frac{\mu}{2}} + \frac{4s^2}{L_p} \tan\frac{\mu}{2}$

p.67, left column, 10th line, Eq.(1)

Original text $s_\alpha = 19.1655\sqrt{\frac{\beta\gamma}{g\left[\frac{\mathrm{T}}{\mathrm{m}}\right]}}, \quad \hat{u} = 7.50513\sqrt{\frac{\beta\gamma}{g\left[\frac{\mathrm{T}}{\mathrm{m}}\right]}} \qquad (1)$

New text $s_\alpha[\mathrm{m}] = 0.191652\sqrt{\frac{\beta\gamma}{g\left[\frac{\mathrm{T}}{\mathrm{m}}\right]}}, \quad \hat{u}[\mathrm{m}] = 0.0750498\sqrt{\frac{\beta\gamma}{g\left[\frac{\mathrm{T}}{\mathrm{m}}\right]}} \qquad (1)$

p.67, left column, Ref.[1]

Original text [1] H.A. Enge, RSI 34 (1963) 385

New text [1] H.A. Enge, RSI 34 (1963) 385; M. Borland, PhD thesis, SLAC-R-0402 (1993)

p.71, right column, Table 1

Original text 4 decapole $2\langle \beta D^2 b_4 \rangle \delta^2 + ...$

New text 4 decapole $2\langle \beta D^3 b_4 \rangle \delta^3 + ...$

p.100, right column, Table 1

Original text

increment due to going through a buncher	$\frac{r_0^2}{4}\frac{e\hat{E}}{m_e c^2} \times \left[1 + \left(1 + \frac{1}{\beta_0}\right)\sin\phi_0\right]$

New text

increment due to going through a buncher	$\frac{r_0^2}{4}\frac{e\hat{E}}{m_e c^2} \times \left(1 + \frac{1}{\beta_0}\right)\Delta\phi_0 \cos\bar{\phi}_0$
increment due to grid in triode gun	$\frac{e r_b r_g \lvert\Delta E_z\rvert}{4\beta m_e c^2}$ (r_b = beam radius at grid, r_g = radius of grid holes, ΔE_z = change of E_z through grid, $\beta = \frac{v}{c}$ of beam at grid

p.112, right column, Eq.(3)

Original text $$\frac{d^2 a_x}{ds^2} + K_x(s)a_x - \frac{\epsilon_x^2}{a_x^3} - \frac{2\lambda r_0}{\gamma^3(a_x+a_y)} = 0 \quad (3)$$

New text $$\frac{d^2 a_x}{ds^2} + K_x(s)a_x - \frac{\epsilon_x^2}{a_x^3} - \frac{4\lambda r_0}{\beta^2\gamma^3(a_x+a_y)} = 0 \quad (3)$$

p.114, Table 1, the column for "par.plate", the last two rows

Original text

0 $\pi^2/16$
0 $\pi^2/16$

New text

$\pi^2/16$ 0
$\pi^2/16$ 0

p.118, right column, Table 1

Original text

3/2 power	1.061	1.061	.0611	Keil-Schnell

New text

3/2 power	1.061	1.061	1.061	Keil-Schnell

p.118, right column, Eq.(6)

Original text $\frac{Z_\parallel}{n} \le F' \frac{E_0}{e} \frac{\eta\gamma\sigma}{I_b} \left(\frac{\Delta p_{\mathrm{FWHM}}}{p_\parallel}\right)^2 \qquad (6)$

New text $\frac{Z_\parallel}{n} \le F' \frac{E_0}{e} \frac{|\eta|\gamma}{I_b} \frac{\sigma_z}{cT_0} \left(\frac{\Delta p_{\mathrm{FWHM}}}{p_\parallel}\right)^2 \qquad (6)$ where $E_0 = mc^2$, $I_b = N_B e/cT_0$.

p.126, left column, 2nd line

Original text rms bunch length, momentum

New text rms bunch length, relative momentum

p.127, left column, Eq.(11)

Original text

$\sigma^2_{x,y,p} = \frac{\sigma^2_{x0,y0,p0}}{1-\tau_{x,y,p}/T_{x,y,p}} \qquad (11)$

with $\sigma_{x0,y0,p0}$ = rms due to ...

New text

$\sigma^2_{x\beta,y\beta,p} = \frac{\sigma^2_{x\beta0,y\beta0,p0}}{1-\tau_{x,y,p}/T_{x,y,p}} \qquad (11)$

with $\sigma_{x\beta0,y\beta0,p0}$ = rms due to ...

p.140, right column, 15th line, right under Eq.(1)

Original text where σ_x, σ_y,

New text where N is the number of particles in the bunch, σ_x, σ_y,

p.141, left column, after Eq.(11)

Original text (add a line)

New text where $c_\phi = \frac{\phi}{\sigma_x/\sigma_z}$ with ϕ the full crossing angle.

p.141, right column, 4th line from bottom

Original text (add a line)

New text where $\lambda\!\!\!^{-}_c$ is the electron Compton wavelength.

p.154, right column, 27th line

Original text 0.9238 [30].

New text 0.9238 [7].

p.155, left column, 14th line

Original text [9, 7, 3]

New text [9, 10, 3]

p.155, right column, 5th line

Original text [35]. However,

New text [13]. However,

p.155, right column, 8th line

Original text see [30].

New text see [7].

p.155, right column, 5th line from bottom

Original text 2.7.4) [6],

New text 2.7.4) [14],

p.156, left column, 10th line

Original text phase space of

New text phase space per particle of

p.156, left column, 27th line

Original text [17]. The polarization

New text [24]. The polarization

p.156, left column, 17th line from bottom

Original text [25, 30, 26].

New text [25, 7, 26].

p.159, 161, 162

Original text The underlined subheadings:

Alternative Stage 1: Harmonic synchrobeta spin matching of the perfectly aligned ring

Reformulation in terms of beta functions and dispersion

Commentary

Some examples

Computer programs for strong spin matching

New text

(The subheadings should be in italics.)

p.183, right column, Eq.(2)

Original text $P_\gamma = \frac{cC_\gamma}{2\pi}\frac{E^4}{\rho^2}$, with

New text $P_\gamma = \frac{e^2c^3}{2\pi}C_\gamma E^2B^2 = \frac{cC_\gamma}{2\pi}\frac{E^4}{\rho^2}$, with

p.187, left column, 2nd line from bottom

Original text where ω_s is

New text where ϕ_s is the synchronous phase determined by $V_{\rm rf}\sin\phi_s = U_0$ with the sign convention $\eta\cos\phi_s < 0$ and U_0 given by Sec.3.1.3, ω_s is

p.187, right column, 7th line

Original text In an ideal,

New text For a planar isomagnetic ring, $\frac{\sigma^2_{\beta x}(s)}{\beta_x(s)} \approx \frac{C_q\alpha_p R\gamma^2}{J_x\rho\nu_x}$. In an ideal,

p.189, labels in Figure 1

Original text $i = 1, 3, 5$

New text $i = 1, 2, 3$

p.203, left column, Eq.(1) and Eq.(4)

Original text $\sqrt{\frac{|\omega|\mu_r Z_0}{2c\sigma_c}}$

New text $\sqrt{\frac{|\omega| Z_0}{2c\mu_r\sigma_c}}$

p.203, left column, denominator of Eq.(2) and Eq.(5)

Original text $\sqrt{2|\omega|\sigma_c/(c\mu_r Z_0)}$

New text $\sqrt{2|\omega|\mu_r\sigma_c/(cZ_0)}$

p.204, leftmost box, last entry of table

Original text length g and depth h, where $g \ll h$ [6].

New text length g, radial depth $h + b$, where $g \leq h \ll b$ [6].

p.205, leftmost box, 1st entry of table

Original text length g, radial depth h, where $b \leq g \ll h$ [6].

New text length g, radial depth $h + b$, where $h \ll g \ll b$ [6].

p.206, first item of the table, left column

Original text replace g by $2(d - b)$.

New text replace g by $(d - b)$.

p.206, first item of the table, right column

Original text with g replaced by $2(d - b)$.

New text when $g \gg 2(d - b)$.

p.208, second box in the table

Original text Heifets and Keifets formulae

New text Heifets and Kheifets formulae

p.208, rightmost box, last entry of the table

Original text $\frac{Z_0}{\pi} \ln \frac{h}{b} \qquad g \gg kb^2$

New text $-i\frac{Z_0}{\pi} \ln \frac{h}{b} \qquad g \gg kb^2$

p.208

Original text (add more items to the table of explicit impedances)

New text

<table>
<tr>
<td>Array of pill-boxes, box spacing L, each with gap width g, beam pipe radius b. Gluckstern-Yokoya-Bane formula [15] at high freq. to order $(kg)^{-1}$:</td>
<td>For each cavity of length L with $k = \omega/c$,
$$Z_0^{\parallel} = \frac{iZ_0 L}{\pi k b^2}\left\{1 + [1 + i\,\mathrm{sgn}(k)]\frac{\alpha L}{b}\sqrt{\frac{\pi}{|k|g}}\right\}^{-1}$$
with $k = \omega/c$. $\alpha = 1$ when $g/L \ll 1$ and $\alpha = \alpha_1 = 0.4648$ when $g/L = 1$, the limiting case of infinitely thin irises. In general, with $\gamma = g/L$, $\alpha(\gamma) = 1 - \alpha_1\gamma^{1/2} - (1 - 2\alpha_1)\gamma + \mathcal{O}(\gamma^{3/2})$.</td>
</tr>
<tr>
<td>The above pill-box array with radial depth d generates a single-frequency resonance impedance at $\omega_r = c\left(\frac{2L}{bgd}\right)^{1/2}$ [16,17].</td>
<td>$$Z_0^{\parallel} = \frac{Z_0 cL}{2\pi b^2}\sum_{\omega'=\pm\omega_r}\left[\pi\delta(\omega-\omega') + \frac{i}{\omega-\omega'}\right]$$
$$Z_1^{\perp} = \frac{2cL}{b^2\omega}Z_0^{\parallel}$$
$$W_0'(z) = \frac{Z_0 cL}{\pi b^2}\cos\frac{\omega_r z}{c}$$
$$W_1(z) = \frac{2Z_0 L}{\pi b^4\omega_r}\sin\frac{\omega_r z}{c}$$
The corresponding resonator per pill box has $\frac{R_s^{(0)}\omega_r}{Q} = \frac{Z_0 cL}{\pi b^2}$.</td>
</tr>
<tr>
<td>Smooth toroidal chamber of rectangular cross section, width $b-a$, height h, inner radius a, outer radius b, and $R = \frac{1}{2}(a+b)$. As the Lorentz $\gamma \to \infty$ (ultra-relativistic beam), a curvature contribution remains for the longitudinal impedance [18].</td>
<td>Valid from zero frequency up to just below synchronous resonant modes, i.e., $0 < \nu < \sqrt{R/h}$ with $\nu = \omega h/c$,
$$\frac{Z_0^{\parallel}}{n} = iZ_0\left(\frac{h}{\pi R}\right)^2\left\{\left[1 - e^{-2\pi(b-R)/h} - e^{-2\pi(R-a)/h}\right]\left[1 - 3\left(\frac{\nu}{\pi}\right)^2\right] + 0.05179 - 0.01355\left(\frac{\nu}{\pi}\right)^2\right\} + \rho \approx iZ_0\left(\frac{h}{\pi R}\right)^2\left[A - 3B\left(\frac{\nu}{\pi}\right)^2\right] .$$
where ρ is quadratic in ν. As $(b–a)/h$ increases, ρ vanishes exponentially and $A \approx B \approx 1$. In general, $A/B \approx 1$ implying $\mathrm{Im}Z_0^{\parallel}$ changes sign (a node) near $\nu = \pi/\sqrt{3}$.</td>
</tr>
<tr>
<td>Rf cage: beam of radius a surrounded by a cylindrical cage or array of N wires of radius ρ_w, length L at radial distance r_w from beam center. Wire filling factor is $f_w = N\rho_w/(\pi r_w)$. Formulas are valid at low frequencies, $0 < n < R/r_w$ and $N \gg 1$.</td>
<td>$$\frac{Z_0^{\parallel}}{n} = \frac{iZ_0 L}{4\pi R\beta\gamma^2}\left[1 + 2\ln\frac{r_w}{a} + C_{\parallel}\right] , \quad Z_1^{\perp} = \frac{iZ_0 L}{2\pi\beta^2\gamma^2}\left[\frac{1}{a^2} - \frac{1 - C_{\perp}}{r_w^2}\right]$$
Without metallic beam pipe outside wire array or cage [19],
$$C_{\parallel} = -\frac{2\ln(nr_w/R)\ln(\pi f_w)}{N\ln(nr_w/R) + \ln(\pi f_w)} , \quad C_{\perp} = -\frac{2\ln(\pi f_w)}{N - 2\ln(\pi f_w)}$$
With infinitely conducting metallic beam pipe, radius $b > r_w$ [20],
$$C_{\parallel} = 2\ln\frac{b}{r_w} - \frac{2N[\ln(b/r_w)]^2}{N\ln(b/r_w) - \ln(\pi f_w) + \ln[1-(r_w/b)^{2N}]}$$
$$C_{\perp} = \frac{[1-(r_w/b)^2][(r_w/b)^2 + (b/r_w)^2]\{\ln[1-(r_w/b)^{2N}] - 2\ln(\pi f_w)\}}{N[1-(r_w/b)^2] + [(r_w/b)^2 + (b/r_w)^2]\ln[1-(r_w/b)^{2N}] - 2\ln(\pi f_w)}$$</td>
</tr>
</table>

[15] R. Gluckstern, PR D39 (1989) 2773, 2780; G. Stupakov, PAC95 p.3303; K. Yokoya and K. Bane, PAC99, p.1725
[16] A. Novokhatski, A. Mosnier, PAC 97, p.1661
[17] K.L.F. Bane, A. Novokhatski, SLAC Report AP-117 (1999)
[18] K.Y. Ng, R. Warnock, PAC 89 p.798; PR D40 (1989) 231
[19] T.S. Wang, AIP Proc. 448, (1998) p.286
[20] T.S. Wang, R. Gluckstern, PAC 99, p.2876

p.210, left column, one line after Eq.(6)

Original text where $\omega_{1,2} = \omega_r/Q[-i/2 \pm Q_r'],$

New text where $\omega_{1,2} = (\omega_r/Q_r)[-i/2 \pm Q_r'],$

p.214, left column, 1st line

Original text with $u = k/E$ the fractional energy loss by radiation.

New text with $u = k/E$ the fractional energy loss by radiation, where k is the energy of the photon radiated in the bremsstrahlung event and k_{min} is the largest energy change that can be tolerated by the acceptance of the accelerator.

p.218, right column, 1-st line

Original text the ring limiting acceptance

New text the ring limiting acceptance (beam chamber radius squared divided by $\beta_\perp$)

p.263, left column, Ref.[9]

Original text Brinmann

New text Brinkmann

p.263, right column

Original text **4.5.1 Error Sources and Effects**

New text **4.5.1 Error Sources and Effects** [1,2,3]

p.264, right column, 9th line

Original text $= 1.02 \times 10^{-11}[\mathrm{s}]t[\mathrm{mm}]/\rho_r[\Omega - \mathrm{m}]$

New text $= 2\pi \times 10^{-13}[\mathrm{s}]b[\mathrm{mm}]t[\mathrm{mm}]/\rho_r[\Omega - \mathrm{m}]$

p.264, right column. Remove Ref.[5], and reorder the rest of the references.

p.276, right column, Eq.(1)

Original text $\langle x^2 \rangle = \sigma_0^2 + \frac{1}{2}\left[\Delta x^2 + f(\beta_0 \Delta x' + \alpha_0 \Delta x)^2\right] \qquad (1)$

New text $\langle x^2 \rangle = \sigma_0^2 + \frac{1}{2}\left[\Delta x^2 + (\beta_0 \Delta x' + \alpha_0 \Delta x)^2\right] \qquad (1)$

p.362, Table 3

Original text

Nb45-50-Ti I 8.9-9.3 0.16 0.0 10.5-11.0 500 10 3 (at 5 T)

New text

Nb45-50-Ti II 8.9-9.3 0.16 0.0 10.5-11.0 500 10 3 (at 5 T)

p.362, Table 3

Original text

Sn . . . . I 3.7 0.03 0.01(c) >200(c) 1000(c) 2-3(c)

New text

				0.01(c)	>200(c)	1000(c)	2-3(c)
Sn	I	3.7	0.03				

p.362, Table 4

Original text

Nb-46.5% Ti MF** wire 280 at (4.2 K, 5 T) km IGC, OST,

New text

Nb-46.5% Ti MF** wire 2800 at (4.2 K, 5 T) km IGC, OST,

p.369, left column, 7th line from bottom

Original text the voltage is

New text the power is

p.369, left column, 4th line from bottom

Original text (add a sentence)

New text Catalog peak power ratings for 1 5/8 in, 3 1/8 in. 50Ω and 6 1/8 in. 75Ω lines are 300 kW, 1 MW and 2 MW respectively [11].

[11] Dielectric Communications, Raymond, ME

p.374, left column, 5th line from bottom

Original text (add a paragraph)

New text

Cavity Tuning For precise tuning of cavity frequencies it is sometimes necessary to take account of the difference of the relative dielectric constant of air from that of vacuum owing to the finite pressure and presence of water vapor,

$$\frac{\Delta f}{f} = -\frac{1}{2}\frac{\epsilon_r(\text{air}) - \epsilon_{\text{vac}})}{\epsilon_{\text{vac}})}$$

$$\epsilon_{\text{air}} = 1 + 2.10 \times 10^{-4}\frac{P_a}{T} + 1.80 \times 10^{-4}\left(1 + \frac{5580}{T}\right) \cdot \left(\frac{P_w}{T}\right) \quad *$$

where P_a and P_w are the partial pressures of air and water in mmHg and T the temperature in K.

* Reference Data for Radio Engineers, 5th Ed. H.W. Sams (1968)

p.432, right column, 14th line, Eq.(5)

Original text $\frac{B[\text{T}]r_a[\text{m}]}{2}$

New text $\frac{B[\text{T}]r_a^2[\text{m}^2]}{2}$

p.517, left column, 8th line from bottom

Original text (add a table)

New text

The SLAC linac parameters are typical of S-band constant gradient structures: (symbols same as in article)

frequency [MHz]	2856
mode	$2\pi/3$
length	84 cells + 2 couplers
t, disk thickness [inch]	0.23
iris lip radius [inch]	0.122
$2a$, iris diameter [inch]	0.7517 - 1.032
$2b_{\rm max}$, max cavity inner diameter [inch]	3.28
t_f , filling time [ms]	0.83
τ, attenuation [neper]	0.57
v_g/c, group velocity/light velocity	0.0204 - 0.0065
r, shunt impedance [MΩ/m]	53 - 60
$r_{\rm avg}$ average shunt impedance for structure	56.5
Q nominal	13,000
$\Delta f/\Delta T$, temp. coefficient of frequency [kHz/K]	50

p.522, right column, Eq.(1)

Original text $\omega_{mnv} = \left[k_{nm}^2 + \left(\frac{\pi v}{\ell}\right)\right]^{1/2}$ (1)

New text $\omega_{mnv} = \left[k_{mn}^2 + \left(\frac{\pi v}{\ell}\right)\right]^{1/2}$ (1)

p.522, right column, 7-th line from bottom

Original text $E_\rho = -E_0 \frac{\pi \nu}{k\ell}$ ....

New text $E_\rho = -E_0 \frac{\pi v}{k\ell}$ ....

p.523, right column, Eq.(6)

Original text with $\delta = (\pi\mu_0 f_0 \sigma)^{-1/2}$ (6)

New text with $\delta = (\pi\mu_0 f_0 \sigma_c)^{-1/2}$ (6)

p.577, left column, 20th line

Original text

Applied voltage;

New text

Applied voltage [Longitudinal electric field that the beam sees in the direction of travel is $\frac{1}{\beta c}\frac{\partial}{\partial t}V_{\parallel}(t,s)$];

p.578, Table 1, $\bar{\rho}$ for Parabolic-like distribution

Original text

$$\frac{1}{2\pi\mu}\frac{\Gamma(\mu)}{\Gamma(\mu-1/2)}\left(1-\frac{x^2}{2\mu}\right)^{\mu-3/2}$$

New text

$$\frac{1}{\sqrt{2\pi\mu}}\frac{\Gamma(\mu)}{\Gamma(\mu-1/2)}\left(1-\frac{x^2}{2\mu}\right)^{\mu-3/2}$$

p.579, Eq.(12)

Original text

$$B_k^{\perp}(\omega)=\sum_{\pm}\pm\frac{1}{4\pi}\frac{\omega_0}{\sigma_\delta(\omega\eta\mp\omega_\perp\xi)}$$

New text

$$B_k^{\perp}(\omega)=\sum_{\pm}\mp\frac{1}{4\pi}\frac{\omega_0}{\sigma_\delta(\omega\eta\mp\omega_\perp\xi)}$$

p.579, Eq.(14)

Original text

$$B_k^{\perp}(\omega) = \sum_{\pm} \pm \frac{\omega_0}{4\pi} \frac{1}{k\omega_0 \pm \omega_y - \omega}$$
$$\times \bar{T}^y \left(\frac{k\omega_0 \pm \omega_y - \omega}{\alpha_{yx} \mp \frac{\omega\omega_x \xi_x \epsilon_x}{\beta c}}, \frac{k\omega_0 + \omega_y - \omega}{\alpha_{yy} \mp \frac{\omega\omega_y \xi_y \epsilon_y}{\beta c}} \right)$$

New text

$$B_k^{\perp}(\omega) = \sum_{\pm} \mp \frac{\omega_0}{4\pi} \frac{1}{k\omega_0 \pm \omega_y - \omega}$$
$$\times T^y \left(\frac{k\omega_0 \pm \omega_y - \omega}{\mp\alpha_{yx} - \frac{\omega\omega_x \xi_x \epsilon_x}{\beta c}}, \frac{k\omega_0 \pm \omega_y - \omega}{\mp\alpha_{yy} - \frac{\omega\omega_y \xi_y \epsilon_y}{\beta c}} \right)$$

p.579, right column, 1-st line

Original text

$$\bar{T}^y(X,Y) = -\int_0^\infty \int_0^\infty \frac{y\bar{\Lambda}(x+y)dxdy}{1 - x/X - y/Y}$$

New text

$$\bar{T}^y(X,Y) = -\int_0^\infty \int_0^\infty \frac{y\bar{\Lambda}'(x+y)dxdy}{1 - x/X - y/Y}$$

Index p.ii, right column, 20th line from bottom

Original text (add an item)

New text Boiling point 245, 246, 306, 307

Index p.ii, right column, 7th line from bottom

Original text Bremsstrahlung, beam-beam (see Beam-beam effects, linear colliders)

New text Bremsstrahlung, beam-beam 214 (see Beamstrahlung, Bhabha scattering, radiative)

Index p.iii, left column, 6th line

Original text (add an item)

New text Budker-O'Neill Model 169

Index p.v, left column, 19th line

Original text (add an item)

New text Density 245, 246

Index p.vi, left column, 9th line from bottom

Original text Emittance, radiation equilibrium 54, 187

New text Emittance, radiation equilibrium 54, 115, 187

Index p.viii, right column, 23th line

Original text (add an item)

New text Ionization, tunneling 228

Index p.ix, left column, 24th line

Original text (add a sub-item)

New text Michelson's stellar interferometer 569

Index p.ix, right column, 15th line from bottom

Original text factories 246

New text factories 250

Index p.xi, left column, 13th line from bottom

Original text (add two items)

New text

Nuclear collision length 245, 246

Nuclear interaction length 245, 246

Index p.xiii, left column, 22th line from bottom

Original text Radiation length X_0 192, 213, 601

New text Radiation length X_0 192, 213, 245, 246, 601

Index p.xiii, right column, 21th line

Original text (add an item)

New text Refractive index 245, 246, 359, 360

Index p.xiv, right column, 3rd line

Original text Secondary emission coefficient 133, 382, 396

New text Secondary emission coefficient 133, 382, 359, 396

Index p.xvi, left column, 5th line

Original text Synchronous phase 43, 51

New text Synchronous phase 43, 51, 187

Index p.xvi, right column, 14th line

Original text (add an item)

New text Transit time factor 403

Index p.xvii, left column, 12th line from bottom

Original text (add an item)

New text Van Citter-Zernike's theorem 569