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Textbook Errata

David D Nolte, *Purdue University*

Errata

Chapter 1. Interferometry

pg. 30
Eq. 1.62 should have a gap between the left and right equations. And the signs of the bottom right expressions should be

$$\begin{aligned} \vec{k}_m &= \frac{1}{2}\left(\vec{k}_1 + \vec{k}_2\right) & \Delta\vec{k} &= \frac{1}{2}\left(\vec{k}_1 - \vec{k}_2\right) \\ \omega_m &= \frac{1}{2}\left(\omega_1 + \omega_2\right) & \Delta\omega &= \frac{1}{2}\left(\omega_1 - \omega_2\right) \\ \alpha_m &= \frac{1}{2}\left(\alpha_1 + \alpha_2\right) & \Delta\alpha &= \frac{1}{2}\left(\alpha_1 - \alpha_2\right) \end{aligned} \tag{1.62}$$

Chapter 2. Diffraction and Light Scattering

pg. 60
These equations should read

$$E_m = E_0 e^{i\delta_0} e^{i\left(m\phi + m\pi/2\right)} J_m\left(k_0\left(n-1\right)d\right) \tag{2.40}$$

$$E_{\pm 1} = E_0 e^{i\delta_0} e^{i\left(\pm\phi \pm \pi/2\right)} k_0\left(n-1\right)d/2 \tag{2.42}$$

Chapter 3. Speckle and Spatial Coherence

pg. 102
Eq. 3.23 is missing a differential term at the end. It should read

$$\begin{aligned} \left\langle E^*\left(0\right)E\left(t\right)\right\rangle &= = E_0^2 + NI_s \int_{-\infty}^{\infty} P\left(\Delta x\right)\exp\left(-iq\Delta x\right)d\Delta x \\ &= I_0 + NI_s FT\left(P\left(\Delta x\right)\right) \end{aligned} \tag{3.23}$$

pg. 104
Eq. 3.38 should read

$$S(\omega) = F(\omega)F^*(\omega) = FT\left(\int_{-\infty}^{\infty} f(t)f(t+\tau)dt\right) = FT\left(A(\tau)\right) \tag{3.38}$$

pg. 105
The table should be corrected for $S^{(1)}(\omega)$ Diffusion to be

Table 3.1 Autocorrelations and Spectral Densities for DLS

	$g^{(1)}(\tau)$	$g^{(2)}(\tau)$	$S^{(1)}(\omega)$
Diffusion	$e^{-q^2 D\tau}$	$1+e^{-q^2\,2D\tau}$	$\frac{1}{\pi}\left(\frac{1}{1+\left(\omega/q^2D\right)^2}\right)$
Maxwell Velocity	$\exp\left(-q^2v_{rms}^2\tau^2/2\right)$	$1+\exp\left(-q^2v_{rms}^2\tau^2\right)$	$\frac{1}{2\pi}\exp\left(-\omega^2/2q^2v_{rms}^2\right)$
Maxwell with Drift	$\exp\left(-q^2v_{rms}^2\tau^2/2\right)\cos\left(qv_0\tau\right)$	$1+\exp\left(-q^2v_{rms}^2\tau^2\right)\cos^2\left(qv_0\tau\right)$	$\frac{1}{2\pi}\exp\left(-\left(\omega-qv_0\right)^2/2q^2v_{rms}^2\right)$

Appendix: Mathematical Formulas

pg. 338
The spectrum and normalization should read

$$S(\omega) = \frac{\left\langle |f|^2 \right\rangle}{\pi}\frac{\omega_0}{\omega_0^2+\omega^2} \qquad \frac{1}{\pi}\int_{-\infty}^{\infty}\frac{\omega_0}{\omega_0^2+\omega^2}d\omega = 1$$