

Errata

Isospin Conservation and β - γ Circular-Polarization Correlation in Mixed Transition, STEWART D. BLOOM, LLOYD G. MANN, AND JOHN A. MISKEL [Phys. Rev. **125**, 2021 (1962)]. The sign of the second term in Eq. (2') should read \mp instead of \pm .

Flow Instability in Liquid Helium II, R. MESERVEY [Phys. Rev. **127**, 995 (1962)]. The hydrodynamic equations (6) and (7) which were attributed to Landau and London should have referred to Zilsel¹ in place of London. Footnote 15 should have contained this reference and referred to Zilsel's equations. The suggestion on p. 1002 that the term $(\rho_s \rho_n / 2\rho) \nabla |\mathbf{V}_n - \mathbf{V}_s|^2$ might cause an instability was previously proposed by Fried and Zilsel.²

¹ P. R. Zilsel, Phys. Rev. **79**, 309 (1950).

² H. M. Fried and P. R. Zilsel, Phys. Rev. **85**, 1044 (1952).

Circular-Polarization Measurements in the β Decay of V^{48} , Co^{56} , Fe^{59} , and Cs^{134} , LLOYD G. MANN, STEWART D. BLOOM, AND R. J. NAGLE [Phys. Rev. **127**, 2134 (1962)]. The sign of the second term in Eq. (1) should read \mp instead of \pm . The last column in Table IV should read 2×10^{-2} instead of 2×10^{-4} for Fe^{59} , and 5×10^{-4} instead of 5×10^{-2} for Cs^{134} .

Harmonics in the Scattering of Light by Free Electrons, VACHASPATI [Phys. Rev. **128**, 664 (1962)]. Some modifications in the expressions for the scattering cross sections given in the original paper should be made. They are necessitated by the following circumstance: Denoting the instantaneous position of the electron vibrating about the origin by \mathbf{z} , its distance from the point of observation, \mathbf{x} , is $r = |\mathbf{x} - \mathbf{z}|$. We put it as approximately equal to $|\mathbf{x}|$, which is the distance from the mean central point of the electron vibration. This seems reasonable, at first sight, when we are interested in calculating the radiation field, but a closer look reveals that we should write instead

$$r = |\mathbf{x}| \left(1 - 2 \frac{\mathbf{x} \cdot \mathbf{z}}{|\mathbf{x}|^2} + \frac{z^2}{|\mathbf{x}|^2} \right)^{1/2} = |\mathbf{x}| - \mathbf{n} \cdot \mathbf{z} \text{ for large } |\mathbf{x}|.$$

The finite term, $\mathbf{n} \cdot \mathbf{z}$, cannot be neglected when finding the retarded time, τ_{ret} , from the equation

$$x_0 - z_0 = r.$$

The contribution from the $\mathbf{n} \cdot \mathbf{z}$ term leads to some modifications in the final results.

Using the expressions for \mathbf{z} and z_0 given in Eqs. (2a) and (2b) of that paper, we now find

$$k_0' \tau_{ret} = \psi + \frac{1}{2} \phi,$$

where $\psi = k_0(x_0 - r)$ satisfies the equation

$$\psi = \psi_0 - (eE_0/mk_0') \cos\alpha \left[\left(1 - \frac{1}{16} q' \right) \cos\psi + \frac{1}{16} q' \cos 3\psi \right] - \frac{1}{8} q' \cos\theta \sin 2\psi,$$

with

$$\psi_0 = k_0(x_0 - |\mathbf{x}|),$$

and ϕ is given, as before, by

$$\phi \approx \phi_1 = \frac{1}{4} q' \sin 2\psi.$$

The solution of the equation for ψ is, to terms of order E_0^2 ,

$$\psi = \psi_0 - (eE_0/mk_0) \cos\alpha \cos\psi_0 - \frac{1}{8} q (4 \cos^2\alpha + \cos\theta) \sin 2\psi_0.$$

The expression (8) can now be written in terms of ψ_0 as

$$\mathbf{M} = \mathbf{N}^{(1)} \cos\psi_0 + \mathbf{N}^{(2)} \sin 2\psi_0 + \mathbf{N}^{(3)} \cos 3\psi_0,$$

where

$$\mathbf{N}^{(a)} = \mathbf{e}_0 C^{(a)} + \mathbf{n}_0 D^{(a)}, \quad a = 1, 2, 3,$$

$$C^{(1)} = - (eE_0/m) [1 - (q/16)(5 - \cos\theta + 2 \cos^2\alpha)],$$

$$D^{(1)} = (eE_0/m)(q/8) \cos\alpha,$$

$$C^{(2)} = - 2k_0 q \cos\alpha,$$

$$D^{(2)} = - \frac{1}{2} k_0 q,$$

$$C^{(3)} = - (9/16)(eE_0/m)q(1 - \cos\theta - 6 \cos^2\alpha),$$

$$D^{(3)} = (9/8)(eE_0/m)q \cos\alpha.$$

$\mathbf{N}^{(1)}$, $\mathbf{N}^{(2)}$, $\mathbf{N}^{(3)}$ should now be used in calculating the cross sections instead of $\mathbf{M}^{(1)}$, $\mathbf{M}^{(2)}$, $\mathbf{M}^{(3)}$, which were used before. When this is done, the correct cross sections that should replace the expressions (9)–(14) are obtained. They are

$$(d\sigma^{(1)}/d\Omega)_{\text{polarized light}}$$

$$= (e^2/m)^2 \left[\sin^2\alpha - \frac{1}{8} q (5 - \cos\theta - 3 \cos^2\alpha - 2 \cos^4\alpha - \cos^2\alpha \cos\theta) \right];$$

$$(d\sigma^{(2)}/d\Omega)_{\text{polarized light}}$$

$$= \frac{1}{4} (e^2/m)^2 q \left[\sin^2\theta + 4 \sin^2 2\alpha - 8 \cos^2\alpha \cos\theta \right];$$

$$(d\sigma^{(1)}/d\Omega)_{\text{unpolarized light}}$$

$$= d\sigma_T/d\Omega - \frac{1}{32} (e^2/m)^2 q \left[11 - 6 \cos\theta + 12 \cos^2\theta + 2 \cos^3\theta - 3 \cos^4\theta \right];$$

$$(d\sigma^{(1)}/d\Omega)_{\text{unpolarized light}}$$

$$= \frac{1}{4} (e^2/m)^2 q \sin^2\theta \left[3 + 6 \cos^2\theta - 4 \cos\theta \right];$$

$$\sigma^{(1)} = [1 - (27/40)q] \sigma_T; \quad \sigma^{(2)} = (21/20)q \sigma_T.$$

The numerical estimate of the cross section for the second harmonic is

$$\sigma^{(2)} = 0.7 \times 10^{-17} I_0 \lambda^2 \sigma_T \text{ cm}^2.$$

The contribution of the finite term $\mathbf{n} \cdot \mathbf{z}$ in r to the cross sections was indicated to me by L. M. Bali.