

# THE PHYSICAL REVIEW

*A journal of experimental and theoretical physics established by E. L. Nichols in 1893*

SECOND SERIES, Vol. 134, No. 7AB

29 JUNE 1964

## Errata

**Scattering of Electromagnetic Plane Waves from Inhomogeneous Spherically Symmetric Objects**, PHILIP J. WYATT [Phys. Rev. **127**, 1837 (1962)]. Through the kindness of Professor Milton Kerker, the author has recently been made aware of an error pertaining to the scattering coefficients derived above. Specifically, Eqs. (36) and (37) each contain a spurious negative sign and the latter has two erroneous gradient terms. They should read

$${}^e B_l = \frac{\psi_l(x) n^2 W_l(x) D_l - W_l'(x)}{\zeta_l^{(1)}(x) W_l'(x) - n^2 W_l(x) \Gamma_l}, \quad (36)$$

$${}^m B_l = \frac{\psi_l(x) G_l'(x) - G_l D_l}{\zeta_l^{(1)}(x) G_l(x) \Gamma_l - G_l'(x)}. \quad (37)$$

Equations (27) and (28), on which the former two are based, should have read

$$r^e \Omega^l = \frac{-1}{k_2^l} \sum_{l=1}^{\infty} \frac{i^{l-1} (2l+1)}{l(l+1)} {}^e A_l W_l(r) P_l^l(\cos\theta) \cos\phi, \quad (27)$$

$$r^m \Omega^l = \frac{i}{k_2^l} \sum_{l=1}^{\infty} \frac{i^{l-1} (2l+1)}{l(l+1)} {}^m A_l G_l(r) P_l^l(\cos\theta) \sin\phi. \quad (28)$$

Despite these errors, all calculations<sup>1</sup> performed using this formalism are correct inasmuch as the Green-Wyatt form factor ensures  $dn/d\rho = 0$  at the dielectric surface. Equation (66) contains a misprint and should read

$$n^2 = 1 - V/E. \quad (66)$$

<sup>1</sup> Including, e.g., P. J. Wyatt, in *Electromagnetic Scattering*, edited by M. Kerker (Pergamon Press, Ltd., London, 1963); J. Appl. Phys. **34**, 2078 (1963).

**Low Momentum Transfer Pion-Pion Scattering**, LOUIS BALÁZS [Phys. Rev. **132**, 867 (1963)]. The optical theorem should read  $\sigma_t = -\delta\pi^2\beta(0)$ . Equation (44) should be multiplied on the right side by  $1/2$ ; Eq. (A1) by  $(-1)$ ; Eqs. (A2), (A3), and (A4) by  $\pi/2$ ; Eq. (A10) by  $2/\pi$ ; and Eqs. (A11) and (38) by  $4/\pi$ . These corrections do not seem to change the numerical results in any drastic way. Assuming  $\sigma_t \simeq 20$  mb, the  $\rho$  is found to have the

same mass and width as in Sec. V. The saturation principle is then found to be satisfied to about 10%, and the calculated  $\sigma_t$  equals the assumed  $\sigma_t$  to the same degree of accuracy.

**Impurity Conduction in *p*-Type Silicon at Microwave Frequencies**, SHOJI TANAKA AND H. Y. FAN [Phys. Rev. **132**, 1516 (1963)]. In Fig. 8, the scale on the *left*-hand side is for the calculated curves, and the scale on the *right*-hand side is for the experimental points.

**Production and Scattering in Simple Models**, H. CHEW [Phys. Rev. **132**, 2756 (1963)]. Page 2759: The last equation of (20) should read  $[a_K, a_{K'}^\dagger] = \delta_{KK'}$ , instead of  $[a_{K'}^\dagger, a_K] = \delta_{KK'}$ . This is a misprint and does not affect the rest of the paper.

**Spin Effects on the Plasma Oscillations of an Electron Gas in a Magnetic Field**. S. GARTENHAUS AND G. STRANAHAN [Phys. Rev. **133**, A104 (1964)]. Equation (12) is incorrect. The correct formula is given by

$$1 = \frac{e^2}{\pi \hbar \omega \alpha} \sum_s \sum_{n'=0}^{\infty} \sum_{n=0}^{[n_0(s)]} \frac{F_{n',n^2}(\mathbf{p}_x)}{p_x(p_x^2 + p_z^2)} \times \left\{ \begin{aligned} & \ln \frac{\omega + n - n' + 2^{\frac{1}{2}} p_z [n_0(s) - n]^{\frac{1}{2}} - \frac{1}{2} p_z^2}{\omega + n - n' - 2^{\frac{1}{2}} p_z [n_0(s) - n]^{\frac{1}{2}} - \frac{1}{2} p_z^2} \\ & + \ln \frac{\omega + n' - n - 2^{\frac{1}{2}} p_z [n_0(s) - n]^{\frac{1}{2}} + \frac{1}{2} p_z^2}{\omega + n' - n + 2^{\frac{1}{2}} p_z [n_0(s) - n]^{\frac{1}{2}} + \frac{1}{2} p_z^2} \end{aligned} \right\},$$

and the long-wavelength limit in Eq. (15) may be obtained by setting  $\Delta(s)$  to zero. We wish to thank N. D. Mermin for pointing out this error and for informing us that the corresponding formula in the paper by Zyryanov<sup>1</sup> also requires this correction.

<sup>1</sup> P. S. Zyryanov, Zh. Eksperim. i Teor. Fiz. **40**, 1065 (1961) [English transl.: Soviet Phys.—JETP **13**, 751 (1961)].

**Specific Heat of Cerium and Europium Metals**, O. V. LOUNASMAA [Phys. Rev. **133**, A502 (1964)]. On p. A509, 2nd column, lines 5 and 6 should read: “. . . and neutron diffraction<sup>18</sup> studies did not show any indications of Eu<sup>3+</sup> ions. The deviation plot in Fig. 3 . . . .”

AB1