\[ \phi(r) = \sum_k V(h) \exp \{ -2\pi i h \cdot r \} \]
\[ V(h) = \frac{1}{\Omega} \sum_k f_p(h) \exp \{ 2\pi i h \cdot r_0 \} \]
\[ f_p(s) = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \phi(r) \exp \{ 2\pi i s \cdot r \} dxdydz \]
\[ \nabla^2 \phi = -4\pi (\rho_{\text{e}} - \rho_{\text{atom}}) \]
\[ \rho(r) = \frac{1}{\Omega} \sum_k F(h) \exp \{ -2\pi i h \cdot r \} \]
\[ F(h) = \sum_p f_p(h) \exp \{ 2\pi i h \cdot r_0 \} \]
\[ f_p(s) = \frac{1}{\pi} \left\{ \frac{\mathcal{F} \rho_{\text{e}} - \mathcal{F} \rho_{\text{atom}}}{s^2} \right\} \]

\[
\sigma = \frac{\pi}{W \lambda} \left( 1 + \left( 1 - \frac{v^2}{c^2} \right)^{1/2} \right)
\]

\[ W \] is the accelerating voltage, and the other symbols have their conventional meaning. Since the dimensionless quantity \( \sigma V(h) \) is important in all scattering calculations, some typical values for \( \sigma \) are given in Table 1.

The direct relationship between the atomic scattering factors for electrons and X-rays is obtained by taking Fourier transforms of both sides of Poisson's equation and applying standard boundary conditions at infinity to give

\[ \mathcal{F} \phi = f_p(s) = \frac{1}{\pi} \left\{ \frac{\mathcal{F} \rho_{\text{e}} - \mathcal{F} \rho_{\text{atom}}}{s^2} \right\} \]

where \( s = 2 \sin \theta / \lambda \), \( e \) is the electronic charge, and \( f_p(s) \) the X-ray atomic scattering factor.

Reference


Erratum to: \( n \)-Beam lattice images. I. Experimental and computed images from \( \text{W}_4\text{Nb}_2\text{O}_{77} \). By J. G. Allpress, Elizabeth A. Hewatt, A. F. Moodie and J. V. Sanders, Division of Chemical Physics, CSIRO, P. O. Box 160, Clayton, Victoria, Australia 3168*

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The following corrections to Allpress, Hewatt, Moodie & Sanders (1972) are given.
1. Page 529, equation (2) and next line should read:

\[ U_{n+1} = U_n \exp \left\{ i 2\pi \zeta(h,k) \lambda \right\} Q_{n+1} \]

where \( \zeta(h,k) = -(u^2 + v^2) \lambda / 2 \) is the excitation error for
2. Page 530, column one, fifth line from the bottom should read:

\[ \mathcal{F} Q_{n+1} = C Q_{n+1} \]

Reference