Let

$$|F(\mathbf{h})|^2 = \frac{KI(\mathbf{h})}{\mathrm{Lp}\,t(\mathbf{h})}$$

assuming negligible background counts and where $I(\mathbf{h})$ is the total counts accumulated in time $t(\mathbf{h})$. Define

$$R(\mathbf{h}) = \frac{I(\mathbf{h})}{t(\mathbf{h})}\,.$$

The variance of $F(\mathbf{h})$ due to counting statistics is

$$\sigma_1^2(\mathbf{h}) = \frac{|F(\mathbf{h})|^2}{4R(\mathbf{h})t(\mathbf{h})}\,.$$

It has been suggested (*e.g.* Grant, Killean & Lawrence, 1969; Killean & Lawrence, 1969*a*) that additional terms must be added to this variance to give a satisfactory weighting scheme for least-squares analysis but it is open to question whether these terms represent mainly random or mainly systematic errors in the data. The subsequent analysis does not involve these terms since they are independent of $t(\mathbf{h})$ and consequently their form is unimportant for *a priori* optimization. Let these terms be denoted by $A(\mathbf{h})$. The variance of the structure factor may be estimated as

$$\sigma^2(\mathbf{h}) = \sigma_1^2(\mathbf{h}) + A(\mathbf{h}) = \frac{|F(\mathbf{h})|^2}{4R(\mathbf{h})t(\mathbf{h})} + A(\mathbf{h}) \qquad (2)$$

and

$$\sigma^2(\varrho) = \tfrac{1}{2}\left(\frac{2}{V}\right)^2 \sum \left\{\frac{|F(\mathbf{h})|^2}{4R(\mathbf{h})t(\mathbf{h})} + A(\mathbf{h})\right\}. \qquad (3)$$

The measuring time for the diffractometer experiment, ignoring circle setting time, is

$$T = \sum t(\mathbf{h})$$

and the *a priori* optimal time for any $t(\mathbf{h})$ is given by solving

$$\frac{\partial \psi}{\partial t(\mathbf{h})} = 0$$

for $t(\mathbf{h})$, where

$$\psi = \langle \sigma^2(\varrho) \rangle - \lambda\{T - \sum t(\mathbf{h})\}\,,$$

i.e.

$$t(\mathbf{h}) = \left(\frac{1}{\mathrm{Lp}}\right)^{1/2} \left(\frac{K}{4\lambda}\right)^{1/2}. \qquad (4)$$

The fraction of the experiment time to be spent on any reflexion is

$$\frac{t(\mathbf{h})}{T} = \frac{\left(\frac{1}{\mathrm{Lp}}\right)^{1/2}}{\sum \left(\frac{1}{\mathrm{Lp}}\right)^{1/2}} \qquad (5)$$

and the time spent measuring each reflexion is independent of the magnitude of the reflexion but depends on the geometry of the diffractometer and the wavelength of the X-radiation.

Define

$$G^2 = \frac{\sum \sigma_1^2(\mathbf{h})}{\sum |F(\mathbf{h})|^2} = \frac{1}{4\mathrm{T}} \; \frac{\left\{\sum \left(\frac{1}{\mathrm{Lp}}\right)^{1/2}\right\}^2}{\sum \frac{R(\mathbf{h})}{\mathrm{Lp}}} \qquad (6)$$

and, assuming that the random errors are due only to counting statistics

$$T = \frac{\sum |F(\mathbf{h})|^2}{2\langle \sigma^2(\varrho)\rangle V^2} \cdot \frac{\left\{\sum \left(\frac{1}{\mathrm{Lp}}\right)^{1/2}\right\}^2}{\sum \frac{R(\mathbf{h})}{\mathrm{Lp}}}\,. \qquad (7)$$

In order to evaluate T for a given $\langle \sigma^2(\varrho)\rangle$ it is necessary to estimate the average variation of $R(\mathbf{h})$ with $(\mathbf{h})$ and the height of the origin of the Patterson function $(\sum |(F(\mathbf{h})|^2)$.

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On the diffraction enhancement of symmetry. Erratum. By Hitoshi Iwasaki, *The Institute of Physical and Chemical Research, Rikagaku Kenkyusho, Wako-shi, Saitama* 351, *Japan*

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A correction is given to Iwasaki, H. (1972). *Acta Cryst.* A**28**, 253.

In a previous paper of the above title (Iwasaki, 1972), equation (25) (p. 256) should read:

$$I_p(hkl) = I_p(k\bar{h}l).$$

Reference

Iwasaki, H. (1972). *Acta Cryst.* A**28**, 253.