

It is to be noted that the fundamental frequency has been chosen double that of the rotation of the drum so that in-phase signals can be picked off the diametrically opposite side to that of the recording side in order to get in-phase signals for applying negative feed-back. As only one set of indices, either  $h$  or  $k$ , need take negative values in problems relating to X-ray crystal-structure analysis if attention is confined to centrosymmetrical cases only, then a saving either in magnetic recording space or in the number of cosine resolvers can be effected by recording the cos terms with amplitudes ( $F_{hk} + F_{-hk}$ ) and the sine terms with amplitudes ( $F_{hk} - F_{-hk}$ ).

Because of their very low frequency, the axial terms of the type  $F_{0k}$  have to be dealt with on a different footing from the  $F_{h0}$ . They are also recorded on the drum with one of the basic frequencies with appropriate amplitudes, and subsequently passed through a separate set of cosine resolvers followed by a phase detector and then added in the final adding amplifier.

The following is a brief description of the contour generator employed. The output voltage from the computer is applied to one pair of plates of a short-persistence cathode ray tube. A set of suitably spaced slits is placed in front of the screen of the cathode ray tube and the light output falling on a photomultiplier gives electrical pulses which, suitably amplified and processed, give intensifying pulses to the grid of a second oscillograph whose time base is synchronized with the fundamental frequency and has a slow  $y$ -shift. The intensifying pulses occur whenever the output voltage crosses any of a set of pre-set voltage

levels (as defined by the system of fine slits) and produces the contours.

A more elegant system based on generating the  $\cos(hx \pm ky)$  signals directly by means of a set of pick-up heads moving coaxially with the magnetic recording drum has been designed and is eminently adapted not only for the production of direct Fourier synthesis but also for applying some of the more recent vector-shift and similar methods of crystal-structure analysis. Further description of the system is, however, deferred pending the construction of a computer based on this design. Recently Mohanti & Booth (1955) have devised a magnetic-recording type of Fourier synthesizer which, however, is different from the system described in the present paper.

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### References

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## Données cristallographiques sur le cyanure de sodium hydraté: $\text{NaCN} \cdot 2\text{H}_2\text{O}$ . Par HUBERT CURIEN et THÉRÈSE LE BIHAN, *Laboratoire de Minéralogie-Cristallographie, Faculté des Sciences, Paris, France*

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### Formation

Par évaporation lente à température ordinaire d'une solution aqueuse de cyanure de sodium, on obtient des cristaux dont le degré d'hydratation a été précisé à l'aide de la thermobalance: il correspond à la formule  $\text{NaCN} \cdot 2\text{H}_2\text{O}$ . Ces cristaux se déshydratent dès  $40^\circ \text{C}$ ., se dissolvent dans leur eau d'hydratation et recristallisent sous la forme cubique stable à température ordinaire de  $\text{NaCN}$  anhydre.

### Faciès

La symétrie est monoclinique. Le faciès est tabulaire avec  $\{001\}$  dominant. La plupart des cristaux se présentent sous forme de lames losanges limitées sur les cotés par  $\{110\}$  et  $\{\bar{1}10\}$ . On peut trouver aussi les faces  $\{010\}$ .

### Maille cristalline

Les paramètres ont été déterminés sur des diagrammes de cristal tournant (radiation  $\text{Cu K}\alpha$ ):

$$a = 6,08 \pm 0,01; \quad b = 10,66 \pm 0,01; \quad c = 6,54 \pm 0,01 \text{ \AA}; \\ \beta = 77^\circ 30'.$$

$$D_{\text{exp.}} = 1,361 \text{ g.cm.}^{-3}; \quad D_{\text{calc.}} = 1,368 \text{ g.cm.}^{-3}; \quad Z = 4.$$

Les diagrammes de Weissenberg permettent de préciser le groupe.

Les extinctions systématiques observées sont:  $(h0l)$  pour  $h = 2n+1$ , et  $(0k0)$  pour  $k = 2n+1$ , compatibles avec le groupe  $P2_1/a$ . Un test de piézoélectricité s'est d'ailleurs avéré négatif.

### Macle

Sur quelques échantillons, on a observé une macle par rotation autour de l'axe  $[001]$ . C'est une macle par pseudosymétrie, la maille commune aux deux individus étant une maille double.

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