

## REFERENCES

## References

## 5.1

- Authier, A. (1970). *Ewald waves in theory and experiment*. *Adv. Struct. Res. Diffraction Methods*, **3**, 1–51.
- Authier, A. (1986). *Angular dependence of the absorption induced nodal plane shifts of X-ray stationary waves*. *Acta Cryst.* **A42**, 414–426.
- Authier, A. (1989). *X-ray standing waves*. *J. Phys. (Paris)*, **50**, C7-215, C7-224.
- Authier, A. (2001). *Dynamical theory of X-ray diffraction*. IUCr Monographs on Crystallography. Oxford University Press.
- Authier, A. & Balibar, F. (1970). *Création de nouveaux champs d'onde généralisés dus à la présence d'un objet diffractant. II. Cas d'un défaut isolé*. *Acta Cryst.* **A26**, 647–654.
- Authier, A. & Malgrange, C. (1998). *Diffraction physics*. *Acta Cryst.* **A54**, 806–819.
- Batterman, B. W. (1964). *Effect of dynamical diffraction in X-ray fluorescence scattering*. *Phys. Rev. A*, **133**, 759–764.
- Batterman, B. W. (1969). *Detection of foreign atom sites by their X-ray fluorescence scattering*. *Phys. Rev. Lett.* **22**, 703–705.
- Batterman, B. W. & Bilderback, D. H. (1991). *X-ray monochromators and mirrors*. In *Handbook on synchrotron radiation*, Vol. 3, edited by G. Brown & D. E. Moncton, pp. 105–153. Amsterdam: Elsevier Science Publishers BV.
- Batterman, B. W. & Cole, H. (1964). *Dynamical diffraction of X-rays by perfect crystals*. *Rev. Mod. Phys.* **36**, 681–717.
- Batterman, B. W. & Hildebrandt, G. (1967). *Observation of X-ray Pendellösung fringes in Darwin reflection*. *Phys. Status Solidi*, **23**, K147–K149.
- Batterman, B. W. & Hildebrandt, G. (1968). *X-ray Pendellösung fringes in Darwin reflection*. *Acta Cryst.* **A24**, 150–157.
- Bedzyk, M. J. (1988). *New trends in X-ray standing waves*. *Nucl. Instrum. Methods A*, **266**, 679–683.
- Bonse, U. & Teworte, R. (1980). *Measurement of X-ray scattering factors of Si from the fine structure of Laue case rocking curves*. *J. Appl. Cryst.* **13**, 410–416.
- Born, M. & Wolf, E. (1983). *Principles of optics*, 6th ed. Oxford: Pergamon Press.
- Borrmann, G. (1950). *Die Absorption von Röntgenstrahlen in Fall der Interferenz*. *Z. Phys.* **127**, 297–323.
- Borrmann, G. (1954). *Der kleinste Absorption Koeffizient interferierender Röntgenstrahlung*. *Z. Kristallogr.* **106**, 109–121.
- Borrmann, G. (1959). *Röntgenwellenfelder*. *Beit. Phys. Chem.* **20** *Jahrhunderts*, pp. 262–282. Braunschweig: Vieweg und Sohn.
- Bragg, W. L. (1913). *The diffraction of short electromagnetic waves by a crystal*. *Proc. Cambridge Philos. Soc.* **17**, 43–57.
- Bragg, W. L., Darwin, C. G. & James, R. W. (1926). *The intensity of reflection of X-rays by crystals*. *Philos. Mag.* **1**, 897–922.
- Brümmer, O. & Stephanik, H. (1976). *Dynamische Interferenztheorie*. Leipzig: Akademische Verlagsgesellschaft.
- Chang, S.-L. (1987). *Solution to the X-ray phase problem using multiple diffraction – a review*. *Crystallogr. Rev.* **1**, 87–189.
- Cowan, P. L., Brennan, S., Jach, T., Bedzyk, M. J. & Materlik, G. (1986). *Observations of the diffraction of evanescent X-rays at a crystal surface*. *Phys. Rev. Lett.* **57**, 2399–2402.
- Darwin, C. G. (1914a). *The theory of X-ray reflection*. *Philos. Mag.* **27**, 315–333.
- Darwin, C. G. (1914b). *The theory of X-ray reflection. Part II*. *Philos. Mag.* **27**, 675–690.
- Darwin, C. G. (1922). *The reflection of X-rays from imperfect crystals*. *Philos. Mag.* **43**, 800–829.
- Ewald, P. P. (1917). *Zur Begründung der Kristalloptik. III. Röntgenstrahlen*. *Ann. Phys. (Leipzig)*, **54**, 519–597.
- Ewald, P. P. (1958). *Group velocity and phase velocity in X-ray crystal optics*. *Acta Cryst.* **11**, 888–891.
- Fewster, P. F. (1993). *X-ray diffraction from low-dimensional structures*. *Semicond. Sci. Technol.* **8**, 1915–1934.
- Fingerland, A. (1971). *Some properties of the single crystal rocking curve in the Bragg case*. *Acta Cryst.* **A27**, 280–284.
- Golovchenko, J. A., Patel, J. R., Kaplan, D. R., Cowan, P. L. & Bedzyk, M. J. (1982). *Solution to the surface registration problem using X-ray standing waves*. *Phys. Rev. Lett.* **49**, 560–563.
- Hart, M. (1981). *Bragg angle measurement and mapping*. *J. Crystal Growth*, **55**, 409–427.
- Hirsch, P. B. & Ramchandran, G. N. (1950). *Intensity of X-ray reflection from perfect and mosaic absorbing crystals*. *Acta Cryst.* **3**, 187–194.
- Hümmer, K. & Weckert, E. (1995). *Enantiomorphism and three-beam X-ray diffraction: determination of the absolute structure*. *Acta Cryst.* **A51**, 431–438.
- International Tables for Crystallography* (1999). Vol. C. *Mathematical, physical and chemical tables*, edited by A. J. C. Wilson & E. Prince. Dordrecht: Kluwer Academic Publishers.
- James, R. W. (1950). *The optical principles of the diffraction of X-rays*. London: G. Bell and Sons Ltd.
- James, R. W. (1963). *The dynamical theory of X-ray diffraction*. *Solid State Phys.* **15**, 53.
- Kato, N. (1955). *Integrated intensities of the diffracted and transmitted X-rays due to ideally perfect crystal*. *J. Phys. Soc. Jpn.* **10**, 46–55.
- Kato, N. (1958). *The flow of X-rays and material waves in an ideally perfect single crystal*. *Acta Cryst.* **11**, 885–887.
- Kato, N. (1960). *The energy flow of X-rays in an ideally perfect crystal: comparison between theory and experiments*. *Acta Cryst.* **13**, 349–356.
- Kato, N. (1961a). *A theoretical study of Pendellösung fringes. Part I. General considerations*. *Acta Cryst.* **14**, 526–532.
- Kato, N. (1961b). *A theoretical study of Pendellösung fringes. Part 2. Detailed discussion based upon a spherical wave theory*. *Acta Cryst.* **14**, 627–636.
- Kato, N. (1963). *Pendellösung fringes in distorted crystals. I. Fermat's principle for Bloch waves*. *J. Phys. Soc. Jpn.* **18**, 1785–1791.
- Kato, N. (1964a). *Pendellösung fringes in distorted crystals. II. Application to two-beam cases*. *J. Phys. Soc. Jpn.* **19**, 67–77.
- Kato, N. (1964b). *Pendellösung fringes in distorted crystals. III. Application to homogeneously bent crystals*. *J. Phys. Soc. Jpn.* **19**, 971–985.
- Kato, N. (1968a). *Spherical-wave theory of dynamical X-ray diffraction for absorbing perfect crystals. I. The crystal wave fields*. *J. Appl. Phys.* **39**, 2225–2230.
- Kato, N. (1968b). *Spherical-wave theory of dynamical X-ray diffraction for absorbing perfect crystals. II. Integrated reflection power*. *J. Appl. Phys.* **39**, 2231–2237.
- Kato, N. (1974). *X-ray diffraction*. In *X-ray diffraction*, edited by L. V. Azaroff, R. Kaplow, N. Kato, R. J. Weiss, A. J. C. Wilson & R. A. Young, pp. 176–438. New York: McGraw-Hill.
- Kato, N. & Lang, A. R. (1959). *A study of Pendellösung fringes in X-ray diffraction*. *Acta Cryst.* **12**, 787–794.
- Kikuta, S. (1971). *Determination of structure factors of X-rays using half-widths of the Bragg diffraction curves from perfect single crystals*. *Phys. Status Solidi B*, **45**, 333–341.
- Kikuta, S. & Kohra, K. (1970). *X-ray collimators using successive asymmetric diffractions and their applications to measurements of diffraction curves. I. General considerations on collimators*. *J. Phys. Soc. Jpn.* **29**, 1322–1328.
- Kovalchuk, M. V. & Kohn, V. G. (1986). *X-ray standing waves – a new method of studying the structure of crystals*. *Sov. Phys. Usp.* **29**, 426–446.
- Laue, M. von (1931). *Die dynamische Theorie der Röntgenstrahlinterferenzen in neuer Form*. *Ergeb. Exakten Naturwiss.* **10**, 133–158.
- Laue, M. von (1952). *Die Energie Strömung bei Röntgenstrahlinterferenzen Kristallen*. *Acta Cryst.* **5**, 619–625.
- Laue, M. von (1960). *Röntgenstrahl-Interferenzen*. Frankfurt am Main: Akademische Verlagsgesellschaft.

## 5. DYNAMICAL THEORY AND ITS APPLICATIONS

### 5.1 (cont.)

- Lefeld-Sosnowska, M. & Malgrange, C. (1968). *Observation of oscillations in rocking curves of the Laue reflected and refracted beams from thin Si single crystals*. *Phys. Status Solidi*, **30**, K23–K25.
- Lefeld-Sosnowska, M. & Malgrange, C. (1969). *Experimental evidence of plane-wave rocking curve oscillations*. *Phys. Status Solidi*, **34**, 635–647.
- Ludewig, J. (1969). *Debye–Waller factor and anomalous absorption (Ge; 293–5 K)*. *Acta Cryst.* **A25**, 116–118.
- Materlik, G. & Zegenhagen, J. (1984). *X-ray standing wave analysis with synchrotron radiation applied for surface and bulk systems*. *Phys. Lett. A*, **104**, 47–50.
- Ohtsuki, Y. H. (1964). *Temperature dependence of X-ray absorption by crystals. I. Photo-electric absorption*. *J. Phys. Soc. Jpn*, **19**, 2285–2292.
- Ohtsuki, Y. H. (1965). *Temperature dependence of X-ray absorption by crystals. II. Direct phonon absorption*. *J. Phys. Soc. Jpn*, **20**, 374–380.
- Penning, P. & Polder, D. (1961). *Anomalous transmission of X-rays in elastically deformed crystals*. *Philips Res. Rep.* **16**, 419–440.
- Pinsker, Z. G. (1978). *Dynamical scattering of X-rays in crystals*. *Springer series in solid-state sciences*. Berlin: Springer-Verlag.
- Prins, J. A. (1930). *Die Reflexion von Röntgenstrahlen an absorbierenden idealen Kristallen*. *Z. Phys.* **63**, 477–493.
- Renninger, M. (1955). *Messungen zur Röntgenstrahl-Optik des Idealkristalls. I. Bestätigung der Darwin–Ewald–Prins–Kohler-Kurve*. *Acta Cryst.* **8**, 597–606.
- Saka, T., Katagawa, T. & Kato, N. (1973). *The theory of X-ray crystal diffraction for finite polyhedral crystals. III. The Bragg–(Bragg)<sup>m</sup> cases*. *Acta Cryst.* **A29**, 192–200.
- Takagi, S. (1962). *Dynamical theory of diffraction applicable to crystals with any kind of small distortion*. *Acta Cryst.* **15**, 1311–1312.
- Takagi, S. (1969). *A dynamical theory of diffraction for a distorted crystal*. *J. Phys. Soc. Jpn*, **26**, 1239–1253.
- Tanner, B. K. (1976). *X-ray diffraction topography*. Oxford: Pergamon Press.
- Tanner, B. K. (1990). *High resolution X-ray diffraction and topography for crystal characterization*. *J. Cryst. Growth*, **99**, 1315–1323.
- Tanner, B. K. & Bowen, D. K. (1992). *Synchrotron X-radiation topography*. *Mater. Sci. Rep.* **8**, 369–407.
- Uragami, T. (1969). *Pendellösung fringes of X-rays in Bragg case*. *J. Phys. Soc. Jpn*, **27**, 147–154.
- Uragami, T. (1970). *Pendellösung fringes in a crystal of finite thickness*. *J. Phys. Soc. Jpn*, **28**, 1508–1527.
- Wagner, E. H. (1959). *Group velocity and energy (or particle) flow density of waves in a periodic medium*. *Acta Cryst.* **12**, 345–346.
- Zachariasen, W. H. (1945). *Theory of X-ray diffraction in crystals*. New York: John Wiley.
- Zegenhagen, J. (1993). *Surface structure determination with X-ray standing waves*. *Surf. Sci. Rep.* **18**, 199–271.

### 5.2

- Berry, M. V. (1971). *Diffraction in crystals at high voltages*. *J. Phys. C*, **4**, 697–722.
- Bethe, H. A. (1928). *Theorie der Beugung von Elektronen an Kristallen*. *Ann. Phys. (Leipzig)*, **87**, 55–129.
- Blackman, M. (1939). *Intensities of electron diffraction rings*. *Proc. Phys. Soc. London Sect. A*, **173**, 68–72.
- Blume, J. (1966). *Die Kantenstreuung im Elektronen-Mikroskopischen Bild Würfelförmiger MgO Kristalle bei Durchstrahlung im Richtung der Raumdagonal*. *Z. Phys.* **191**, 248–272.
- Born, M. (1926). *Quantenmechanik der Stossvorgänge*. *Z. Phys.* **38**, 803–826.
- Buxton, B. (1978). *Graduate lecture-course notes: dynamical diffraction theory*. Cambridge University, England.
- Corones, J., De Facio, B. & Kreuger, R. J. (1982). *Parabolic approximations to the time-independent elastic wave equation*. *J. Math. Phys.* **23**, 577–586.

- Cowley, J. M. (1981). *Diffraction physics*, pp. 26–30. Amsterdam: North-Holland.
- Cowley, J. M. & Moodie, A. F. (1957). *The scattering of electrons by atoms and crystals. I. A new theoretical approach*. *Acta Cryst.* **10**, 609–619.
- Cowley, J. M. & Moodie, A. F. (1962). *The scattering of electrons by thin crystals*. *J. Phys. Soc. Jpn*, **17**, Suppl. B11, 86–91.
- Feynman, R. (1948). *Space–time approach to non-relativistic quantum mechanics*. *Rev. Mod. Phys.* **201**, 367–387.
- Frazer, R. A., Duncan, W. J. & Collar, A. R. (1963). *Elementary matrices*, pp. 78–79. Cambridge University Press.
- Fujimoto, F. (1959). *Dynamical theory of electron diffraction in the Laue case*. *J. Phys. Soc. Jpn*, **14**, 1558–1568.
- Fujiwara, K. (1959). *Application of higher order Born approximation to multiple elastic scattering of electrons by crystals*. *J. Phys. Soc. Jpn*, **14**, 1513–1524.
- Fujiwara, K. (1962). *Relativistic dynamical theory of electron diffraction*. *J. Phys. Soc. Jpn*, **17**, Suppl. B11, 118–123.
- Fukuhara, A. (1966). *Many-ray approximations in the dynamical theory of electron diffraction*. *J. Phys. Soc. Jpn*, **21**, 2645–2662.
- Gilmore, R. (1974). *Lie groups, Lie algebras, and some of their applications*. New York: Wiley–Interscience.
- Gjønnnes, J. & Høier, R. (1971). *The application of non-systematic many-beam dynamic effects to structure-factor determination*. *Acta Cryst.* **A27**, 313–316.
- Gjønnnes, J. & Moodie, A. F. (1965). *Extinction conditions in the dynamic theory of electron diffraction*. *Acta Cryst.* **19**, 65–67.
- Goodman, P. (1975). *A practical method of three-dimensional space-group analysis using convergent-beam electron diffraction*. *Acta Cryst.* **A31**, 804–810.
- Goodman, P. (1981). Editor. *Fifty years of electron diffraction*. Dordrecht: Kluwer Academic Publishers.
- Goodman, P. & Moodie, A. F. (1974). *Numerical evaluation of N-beam wave functions in electron scattering by the multislice method*. *Acta Cryst.* **A30**, 280–290.
- Gratias, D. & Portier, R. (1983). *Time-like perturbation method in high energy electron diffraction*. *Acta Cryst.* **A39**, 576–584.
- Hirsch, P. B., Howie, A., Nicholson, R. B., Pashley, D. W. & Whelan, M. J. (1965). *Electron microscopy of thin crystals*. London: Butterworths.
- Howie, A. (1966). *Diffraction channelling of fast electrons and positrons in crystals*. *Philos. Mag.* **14**, 223–237.
- Howie, A. (1978). In *Electron diffraction 1927–1977*, edited by P. J. Dobson, J. B. Pendry & C. J. Humphreys, pp. 1–12. *Inst. Phys. Conf. Ser. No. 41*. Bristol/London: Institute of Physics.
- Humphreys, C. J. (1979). *The scattering of fast electrons by crystals*. *Rep. Prog. Phys.* **42**, 1825–1887.
- Hurley, A. C., Johnson, A. W. S., Moodie, A. F., Rez, P. & Sellar, J. R. (1978). *Algebraic approaches to N-beam theory*. In *Electron diffraction 1927–1977*, edited by P. J. Dobson, J. B. Pendry & C. J. Humphreys, pp. 34–40. *Inst. Phys. Conf. Ser. No. 41*. Bristol/London: Institute of Physics.
- Hurley, A. C. & Moodie, A. F. (1980). *The inversion of the three-beam intensities for scalar scattering by a general centrosymmetric crystal*. *Acta Cryst.* **A36**, 737–738.
- International Tables for Crystallography* (1999). Vol. C. *Mathematical, physical and chemical tables*, edited by A. J. C. Wilson & E. Prince. Dordrecht: Kluwer Academic Publishers.
- Kainuma, Y. (1968). *Averaged intensities in the many beam dynamical theory of electron diffraction. Part I*. *J. Phys. Soc. Jpn*, **25**, 498–510.
- Kambe, K. (1957). *Study of simultaneous reflection in electron diffraction by crystal*. *J. Phys. Soc. Jpn*, **12**, 13–31.
- Kogiso, M. & Takahashi, H. (1977). *Group-theoretical method in the many-beam theory of electron diffraction*. *J. Phys. Soc. Jpn*, **42**, 223–229.
- Lontovitch, M. & Fock, R. (1946). *Solution of the problem of propagation of electromagnetic waves along the Earth's surface by the method of parabolic equation*. *J. Phys.* **10**, 13–24. (Translated from Russian by J. Smorodinsky.)
- Lynch, D. F. & Moodie, A. F. (1972). *Numerical evaluation of low energy electron diffraction intensities*. *Surf. Sci.* **32**, 422–438.