

8. SYNCHROTRON CRYSTALLOGRAPHY

References

- Amorós, J. L., Buerger, M. J. & Canut de Amorós, M. (1975). *The Laue Method*. New York: Academic Press.
- Bourgeois, D., Ursby, T., Wulff, M., Pradervand, C., Legrand, A., Schildkamp, W., Labouré, S., Šrajer, V., Teng, T. Y., Roth, M. & Moffat, K. (1996). *Feasibility and realization of single-pulse Laue diffraction on macromolecular crystals at ESRF*. *J. Synchrotron Rad.* **3**, 65–74.
- Campbell, J. W. (1995). *LAUEGEN, an X-windows-based program for the processing of Laue X-ray diffraction data*. *J. Appl. Cryst.* **28**, 228–236.
- Cassetta, A., Deacon, A., Emmerich, C., Habash, J., Helliwell, J. R., McSweeney, S., Snell, E., Thompson, A. W. & Weisgerber, S. (1993). *The emergence of the synchrotron Laue method for rapid data collection from protein crystals*. *Proc. R. Soc. London Ser. A*, **442**, 177–192.
- Chen, Y. (1994). PhD thesis, Cornell University, USA.
- Clifton, I. J., Duke, E. M. H., Wakatsuki, S. & Ren, Z. (1997). *Methods Enzymol.* **277**, 448–467.
- Clifton, I. J., Elder, M. & Hajdu, J. (1991). *Experimental strategies in Laue crystallography*. *J. Appl. Cryst.* **24**, 267–277.
- Cruickshank, D. W. J., Helliwell, J. R. & Johnson, L. N. (1992). *Time-Resolved Macromolecular Crystallography*. Oxford: Oxford Science Publications.
- Cruickshank, D. W. J., Helliwell, J. R. & Moffat, K. (1987). *Multiplicity distribution of reflections in Laue diffraction*. *Acta Cryst.* **A43**, 656–674.
- Cruickshank, D. W. J., Helliwell, J. R. & Moffat, K. (1991). *Angular distribution of reflections in Laue diffraction*. *Acta Cryst.* **A47**, 352–373.
- Garman, E. F. & Schneider, T. R. (1997). *Macromolecular cryocrystallography*. *J. Appl. Cryst.* **30**, 211–237.
- Hajdu, J. & Johnson, L. N. (1993). *Biochemistry*, **29**, 1669–1675.
- Helliwell, J. R. (1984). *Synchrotron X-radiation protein crystallography: instrumentation, methods and applications*. *Rep. Prog. Phys.* **47**, 1403–1497.
- Helliwell, J. R. (1985). *Protein crystallography with synchrotron radiation*. *J. Mol. Struct.* **130**, 63–91.
- Helliwell, J. R., Habash, J., Cruickshank, D. W. J., Harding, M. M., Greenhough, T. J., Campbell, J. W., Clifton, I. J., Elder, M., Machin, P. A., Papiz, M. Z. & Zurek, S. (1989). *The recording and analysis of synchrotron X-radiation Laue diffraction photographs*. *J. Appl. Cryst.* **22**, 483–497.
- Helliwell, J. R. & Rentzepis, P. M. (1997). *Time Resolved Diffraction*. Oxford University Press.
- Kalman, Z. H. (1979). *On the derivation of integrated reflected energy formulae*. *Acta Cryst.* **A35**, 634–641.
- Moffat, K. (1989). *Time-resolved macromolecular crystallography*. *Annu. Rev. Biophys. Biophys. Chem.* **18**, 309–332.
- Moffat, K. (1995). *Proc. Soc. Photo-Opt. Instrum. Eng.* **2521**, 182–187.
- Moffat, K. (1997). *Laue diffraction*. *Methods Enzymol.* **277B**, 433–447.
- Moffat, K. (1998). *Ultrafast time-resolved crystallography*. *Nature Struct. Biol.* **5**, 641–643.
- Moffat, K., Bilderback, D., Schildkamp, W., Szebenyi, D. & Teng, T.-Y. (1989). In *Synchrotron Radiation in Structural Biology*, edited by R. M. Sweet and A. J. Woodhead, pp. 325–330. New York and London: Plenum Press.
- Moffat, K., Szebenyi, D. & Bilderback, D. (1984). *X-ray Laue diffraction from protein crystals*. *Science*, **223**, 1423–1425.
- Perman, B. (1999). PhD thesis, University of Chicago, USA.
- Perman, B., Šrajer, V., Ren, Z., Teng, T.-Y., Pradervand, C., Ursby, T., Bourgeois, D., Schotte, F., Wulff, M., Kort, R., Hellingwerf, K. & Moffat, K. (1998). *Energy transduction on the nanosecond time scale: early structural events in a xanthopsin photocycle*. *Science*, **279**, 1946–1950.
- Ren, Z., Bourgeois, D., Helliwell, J. R., Moffat, K., Šrajer, V. & Stoddard, B. L. (1999). *Laue crystallography: coming of age*. *J. Synchrotron Rad.* **6**, 891–917.
- Ren, Z. & Moffat, K. (1994). *Laue crystallography for studying rapid reactions*. *J. Synchrotron Rad.* **1**, 78–82.
- Ren, Z. & Moffat, K. (1995a). *Quantitative analysis of synchrotron Laue diffraction patterns in macromolecular crystallography*. *J. Appl. Cryst.* **28**, 461–481.
- Ren, Z. & Moffat, K. (1995b). *Deconvolution of energy overlaps in Laue diffraction*. *J. Appl. Cryst.* **28**, 482–493.
- Ren, Z., Ng, K., Borgstahl, G. E. O., Getzoff, E. D. & Moffat, K. (1996). *Quantitative analysis of time-resolved Laue diffraction patterns*. *J. Appl. Cryst.* **29**, 246–260.
- Schlichting, I., Almo, S. C., Rapp, G., Wilson, K., Petratos, K., Lentfer, A., Wittinghofer, A., Kabsch, W., Pai, E. F., Petsko, G. A. & Goody, R. S. (1990). *Time-resolved X-ray crystallographic study of the conformational change in Ha-Ras p21 protein on GTP hydrolysis*. *Nature (London)*, **345**, 309–315.
- Schlichting, I. & Goody, R. S. (1997). *Methods Enzymol.* **277B**, 467–490.
- Šrajer, V., Teng, T.-Y., Ursby, T., Pradervand, C., Ren, Z., Adachi, S., Schildkamp, W., Bourgeois, D., Wulff, M. & Moffat, K. (1996). *Photolysis of the carbon monoxide complex of myoglobin: nanosecond time-resolved crystallography*. *Science*, **274**, 1726–1729.
- Stoddard, B. L., Cohen, B. E., Brubaker, M., Mesecar, A. D. & Koshland, D. E. Jr (1998). *Millisecond Laue structures of an enzyme-product complex using photocaged substrate analogues*. *Nature Struct. Biol.* **5**, 891–897.
- Wakatsuki, S. (1993). In *Data Collection and Processing*, edited by L. Sawyer, N. W. Isaacs & S. Bailey, pp. 71–79. DL/Sci/R34. Warrington: Daresbury Laboratory.
- Wood, I. G., Thompson, P. & Mathewman, J. C. (1983). *A crystal structure refinement from Laue photographs taken with synchrotron radiation*. *Acta Cryst.* **B39**, 543–547.
- Yang, X., Ren, Z. & Moffat, K. (1998). *Structure refinement against synchrotron Laue data: strategies for data collection and reduction*. *Acta Cryst.* **D54**, 367–377.