Gjønnes Prize Lecture

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The large angle technique and lattice defect identifications

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The history of the Convergent Beam Electron Diffraction (CBED) is shortly introduced. Symmetry determinations[1] of crystals or the point groups and space groups of 3, 4, 5 and 6 dimensional crystals, and crystal structure analysis including the determination of charge density distribution and potential distribution of a crystal are briefly reviewed.[2] Then, the large angle CBED (LACBED) technique is described.[3] Applications of the LACBED technique to the determinations of the Burgers vector of a dislocation, the shift vector at a stacking fault, the precise orientation difference of a twin domain and the strain of an advanced multi-layer material are reviewed.

[1] *B. F. Buxton, J. A. Eades, J. W. Steeds and G. M. Rackham, Phil. Trans. R. Soc. London, 281 (1976) 171.,* ***[2]*** *M.Tanaka, "International Tables for Crystallography", 3rd ed.Vol. B, p. 307.,* ***[3]*** *M. Tanaka, R. Saito, K. Ueno and Y. Harada, J. Electron Microsc. 29 (1980) 408.*

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