

## **E0045**

**Teaching about Problems of Disorder, Twinning and Pseudo-Symmetry.** William Clegg, School of Natural Sciences, Univ. of Newcastle upon Tyne, UK.

Many crystallographers will tell you that these are more common problems than they used to be. The reality is that developments in data collection techniques have made it possible to generate data sets from samples that previously would have been discarded because a set of initial reflections obtained from a point-detector diffractometer could not be indexed to give a unit cell and full data collection could not proceed. The widespread use of area detectors means that a complete diffraction pattern can be collected blind, and indexing can be tackled afterwards. High-intensity X-ray sources give access to diffraction patterns from much smaller crystals, which are often small and malformed because of structural faults. New generations of crystallographers need to know how to handle such problems.

The technology that has increased the flow of problems also provides tools for teaching their handling. Area detectors are an excellent teaching aid, their output being much more readily understood than the streams of numbers produced by serial-detector machines. And the readily affordable enhanced computing power that is necessary for manipulating the images makes it possible to work with the problems in realistically short times.

How to tackle these problems is best taught through real examples. This will be illustrated.