a fine entomology pin with polycyanoacrylate cement and was vacuum coated with aluminium. This gave the crystal a very thin conducting layer which eliminated charging and increased secondary electron emission. The crystal was placed in a two-circle goniometer which was then mounted on a specimen stage of a Cambridge Stereoscan 2A scanning electron microscope. Photomicrographs were taken at five different orientations in order to provide three-dimensional coordinates for all boundary positions defining the various faces of the crystal. These orientations encompassed (110), (101), (110), (001), and (001) faces. Because different magnifications were used for these photographs, it was necessary to place them on a common scale by comparing common features. Overall precision in locating these vertices is estimated at 1.5%.

Once the coordinates for all the vertices of the polyhedral crystal were known, it was possible, when definite faces had been defined, to determine interfacial angles with the crystallographic least-squares lines and planes program of the System XRAY (Stewart, Kruger, Ammon, Dickinson & Hall, 1972). Stereoscopic views of the crystal were drawn using the same data with a model drawing program, PLUTO (Motherwell, 1971).

Recent work by Strom (1976) on Indexing Crystal Faces on SEM Photographs has prompted us to make this report.

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Turning cylindrical crystals in a common lathe

A steel wire with a face ground by an abrasive wheel can be used as a tool in a common lathe to prepare small cylindrical crystal specimens. The wire, about 0.3 to 0.4 mm in diameter and 35 mm long, illustrated in Fig. 1, is held by a goniometric head mounted in the tool holder. The crystal, glued with hard cement to a rigid stick of wood which will not bend during the ensuing operations, is mounted on a goniometric head which is transferred to the lathe chuck after a given crystal direction is accurately oriented along the intended cylinder axis.

By means of two telescopes, one mounted along and the other perpendicular to the axis of the lathe, the operator can observe the approach of the tool with respect to the crystal and thus control the movement of the tool accurately. The details of the operation change for different crystals. In the case of soft organic crystals speeds of rotation of about 200–300 r.p.m. were used. A length of 20 to 30 mm from the fixed end of the wire to the contact with the crystal was found to be convenient for the tool.

The same tool may be used to grind a plane face perpendicular to the axis of the lathe. As a final operation, a groove carved about the base of the specimen will facilitate later cutting of the crystal.

The specimen is usually left with crystal powder on its surface which has to be cleaned off before use. The whole operation may take about two hours and demands constant and careful attention.

By use of this technique, specimens as small as 0.3 to 0.4 mm in diameter and up to one millimeter in length were prepared. Surface irregularities were about 0.01 mm.

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Meeting Reports

International Symposium on Order and Disorder in Solids, Paris, 4–8 July 1977

This conference, sponsored by CNRS at L’École Nationale Supérieure de Chimie and organized locally by Professors M. Fayard, R. Collonques and F. Gautier, was the third in recent years on this topic. The first [see Local Atomic Arrangements Studied by X-ray Diffraction (1966), New York: Gordon and Breach], held as part of an AIME meeting in Chicago in 1965, was largely concerned with techniques for quantitative measurements of diffuse scattering from alloys (short-range order parameters) and metallic liquids. The second, held in Jülich, Germany in 1974 [see J. Appl. Cryst. (1975), 8, 79–230] was dominated by the outstanding German progress in measuring defect stress fields and defect types in dilute metallic solid solutions and irradiated metals. Some work on non-metals was reported, as well as some work with the electron microscope.

At this third conference, although there was considerable work presented on quantitative studies, no data on short-range order parameters were given. The presentations were much more balanced, involving extensive use of lattice imaging with the electron microscope, and a very considerable initial effort on non-metals (oxides, fluorides and carbides).

The meeting was attended by approximately 160 scientists, of whom about 30% were from the USA, Holland, Belgium, England, Germany, Japan, Australia and Canada. Some thirty-eight 45-minute talks, mostly in the form of reviews, were presented in the five days, with two hours each day set aside for lunch in the grand French tradition and two hours for examining the 85 posters that constituted most of the new research presented at the meeting. A hot-humid spell in Paris and this extensive program...