

01-Instrumentation and Experimental Techniques (X-rays,  
Neutrons, Electrons)

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01.03 – Open Commission Meeting on Crystallographic  
Apparatus – Developments and Directions in  
Crystallographic Instrumentation

OCM-01.03.01 FUNDAMENTAL PARAMETERS: A REPORT OF THE ACTIVITIES OF THE COMMISSION ON CRYSTALLOGRAPHIC APPARATUS by D.C. Creagh\*, Physics Department, University College UNSW Northcott Drive CANBERRA ACT 2600 AUSTRALIA

For some time the commission has been involved in the theoretical calculation and experimental determination of the fundamental parameters of x-ray scattering. We have been involved in questions concerning the validity of the form factor formalism (Creagh (1990) Nucl Instrum Methods A280 180-188), the dispersion corrections  $f'$  and  $f''$  (Creagh and Mc Auley (1992) in International Tables for Crystallography Vol C (ed AJC Wilson) Kluwer, Dordrecht, Ch 4.2.6 pp206-222), and x-ray absorption coefficients (Creagh and Hubbell (1992) *ibid*, Ch4.2.4, pp189-206). As well we have been active in the development of appropriate standards and criteria for use in XAFS experiments (Creagh (1992) *ibid*, Ch 4.2.3, pp182-189). We shall discuss the implications on crystallographic research of our studies in these fields.

With the completion of the foregoing work the role of the commission will shift to the measurement of another important experimental parameter: the emission wavelengths of the elements. It has long been known that the existing tables in International Tables for X-Ray Crystallography Vol IV, and its reprinted version in International Tables for Crystallography Vol C contain many errors. Details will be given of a plan to set up an international project to undertake the measurement of emission wavelengths for all possible elements. Other commission projects will be mentioned briefly, including the role of the commission in the evaluation of x-ray area detectors.