mercuric iodide as a room-temperature EDX detector is described and it is stated that its performance is almost comparable with the conventional cryogenically cooled Si(Li) spectrometer.

Section two deals with practical and mathematical XRF methods and includes an invited paper on the use of polarized X-rays for improved detection limits in energy-dispersive X-ray spectrometry. The paper gives a comprehensive review of this excitation method and possibilities for the future, including comparisons with better known excitation methods. Some of the other papers in this section include techniques for the preparation of lithium tetraborate fused single and multielement standards as well as a paper on X-ray fluorescence of intermediate- to high-atomic-number elements using polarized X-rays.

Of special interest to those involved in the applications of X-ray fluorescence to mineralogy and geology is section three dealing with existing techniques and new developments in these fields. Some of the eight topics discussed here are: a resin-loaded paper X-ray fluorescence method of determining uranium in phosphate materials; a combined dilution and line-overlap coefficient solution for the determination of rare earths in monazite concentrates; X-ray analysis of uranium ores for iron sulphide minerals; and a statistical comparison of data obtained from pressed-disc and fused-bead preparation techniques for geological samples.

In section four, seven papers are presented which are concerned with XRF applications to metals, catalysts or oils. The topics include, amongst others, some elemental determinations of catalytic materials using a thin-film internal standard technique by radio-isotope-excited X-ray fluorescence; direct analysis of plutonium metal for gallium, iron and nickel by energy-dispersive X-ray spectrometry; while two papers deal with the analysis of lubricating oil additives.

The papers in section five constitute XRF applications to the environment and include topics like the measurement of low concentrations of organic and inorganic gaseous contaminants in occupational environments by X-ray spectrometry; the application of XRF and XRD to the characterization of environmental assessment samples; and energy-dispersive analysis of actinides, lanthanides and other elements in soil and sediment samples.

As may be expected a number of papers deal with computer searching of the JCPDS file and other data sources. These are discussed in eight papers in section six, dealing with X-ray diffraction search/match procedures and automation.

For those interested in X-ray diffraction methods and instrumentation the seventh and last section has something to offer in the form of fifteen papers on a diversity of topics. It ranges from the application of XRD to alteration mineral zoning studies, glass batch homogeneity determination, and analysis of pharmaceutical excipients to the use of energy-dispersive diffractometry in measuring the thickness of metal and glass thin films and the calibration of the diffractometer at low values of 2θ. Other papers in this section include differential X-ray diffraction by wavelength variation and X-ray diffraction quantitative analysis using intensity ratios and external standards. Three papers deal with diffractometric techniques on stress measurements of industrial materials – thus having a practical purpose in the commercial world.

All in all, Volume 25 of *Advances in X-ray analysis* is, just as its predecessors, a must for those interested in developments in X-ray techniques, instrumentation and application of X-ray methods.

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Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

Second-order phase transitions and the irreducible representation of space groups. By H. F. FRANZEN. Pp. 98. Springer-Verlag, 1982. Price DM 28.00, US $11.20.

Structure and bonding in crystals. Vols. I and II. Edited by M. O'KEEFE and A. NAVROTSKY. Pp. 327 (I) and 357 (II), Figs. 226, Tables 86. New York: Academic Press, 1981. Price £31·80, US $40.00 (I) and £33·80, US $51.00 (II). A review of these books, by You-Chi Tang, has been published in the August issue of *Acta Crystallographica*, Section B, page 526.