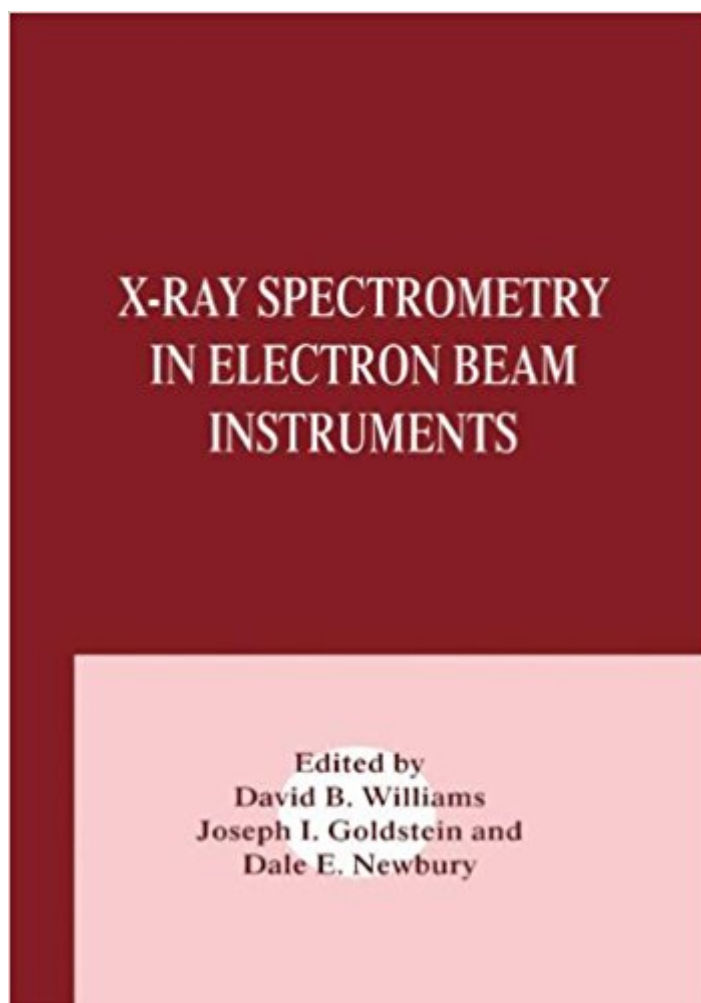




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X-Ray Spectrometry In Electron Beam Instruments



Synopsis

From its early days in the 1950s, the electron microanalyzer has offered two principal ways of obtaining x-ray spectra: wavelength dispersive spectrometry (WDS), which utilizes crystal diffraction, and energy dispersive spectrometry (EDS), in which the x-ray quantum energy is measured directly. In general, WDS offers much better peak separation for complex line spectra, whereas EDS gives a higher collection efficiency and is easier and cheaper to use. Both techniques have undergone major transformations since those early days, from the simple focusing spectrometer and gas proportional counter of the 1950s to the advanced semiconductor detectors and programmable spectrometers of today. Because of these developments, the capabilities and relative merits of EDS and WDS techniques have been a recurring feature of microprobe conferences for nearly 40 years, and this volume brings together the papers presented at the Chuck Fiori Memorial Symposium, held at the Microbeam Analysis Society Meeting of 1993. Several themes are apparent in this rich and authoritative collection of papers, which have both a historical and an up-to-the-minute dimension. Light element analysis has long been a goal of microprobe analysts since Ray Dolby first detected K radiation with a gas proportional counter in 1960. WDS techniques (using carbon lead stearate films) were not used for this purpose until four years later. Now synthetic multilayers provide the best dispersive elements for quantitative light element analysis—still used in conjunction with a gas counter.

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`[A] rich and authoritative collection of papers, which have both a historical and an up-to-the-minute dimension.' from the Foreword by Peter Duncumb, University of Cambridge, England `Contains a vast amount of detailed information and will surely be heavily used.' Ultramicroscopy

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