

Book Reviews

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Pratique du Microscope Electronique a Balayage

Published under the auspices of D. Benoit, J. F. Bresse, F. Grillon, F. Maurice, L. Meny, J. L. Pouchou, N. Rqinel, J. Ruste

Paris 1985
180 pp, 171,20 FF

This volume describes the various parts of the scanning electron microscope (SEM) and aims to inform the reader on its optimum use. It is a didactical book, much more practical than theoretical.

The first chapter reviews the principles and characteristics of electron emission and details the different contrasts in emission mode, transmission mode, induced mode, and cathode luminescence. In another chapter, devoted to the description of electron optics, particular care is given to the check list of tests and controls necessary to insure correct operation of the SEM. Advice is offered for obtaining the optimum use of electron detectors. Sample preparation and possible resulting artefacts upon microanalysis are described, as is the criteria used to choose the operating parameters of the microscope.

The applications of scanning electron microscopy dealt with in this volume concern essentially semiconductors (cathode luminescence or EBIC). However, the measurement of depth through the use of stereographic views and new applications of electroacoustic microscopy are also dealt with.

D. Benoit

Microanalyse par Sonde Electronique: Spectrometrie de Rayons X

Published under the auspices of D. Benoit, F. Grillon, F. Maurice, N. Roinel, R. Tixier

Paris 1987
12/140 pp, 170 FF

This state-of-the-art volume is part of a series which provides a pedagogical treatment of electron probe quantitative microanalysis and x-ray spectrometry. The volume is entirely devoted to x-ray measurement systems, with the exception of the first chapter, which deals with fundamentals of x-ray emission. Wavelength dispersive spectrometry (WDS) is described over four chapters. After detailed discussions of crystal spectrometers and the single-channel analyzer (with necessary

settings, verifications and optimisations), the most common problems in WDS are described. Energy-dispersive spectrometry (EDS) is described in two chapters; one details the photon-to-pulse transformation in the Si(Li) diode and provides lengthy descriptions of the electronics of each unit of the associated analog channel. The second, on EDS, defines methods of choosing the best conditions for EDS and points out pitfalls to be avoided. The last chapter deals with recent developments in analysis of light elements by EDS, a field which has seen remarkable advances in recent years.

This volume, which deliberately aims to be practical, was designed for engineers and technicians newly appointed to be in charge of electron-probe analyzers or those willing to know better to "how" and "why" of sophisticated systems in order to get the best from them.

D. Benoit

Letter to the Editors

To the Editor:

Scanning is recognised as a leading forum for both technical and research aspects of the scanning electron microscope, and is read by scientists from many different disciplines. Although use of SEM in the electron-channeling mode remains slight, particularly when compared with other modes, recent issues of the journal have contained articles on this subject. However, it is apparent from these articles that the contributors are unaware of the considerable and sophisticated usage of SEM electron-channeling in the geological sciences. We are therefore writing to *Scanning* to inform its readers of the important geological literature which already exists (see reference list at the end of this letter).

The principal importance of electron channeling in geological research is that it provides two different but related types of image. High magnification and resolution images of rock microstructures developed during deformation and/or metamorphism can be obtained by crystallographic or orientation contrast, while the exact crystallographic orientation of component elements within the microstructure can be determined via selected-area electron-channeling patterns. Until the advent of SEM electron channeling, geologists have relied upon a variety of other (often limited) techniques to