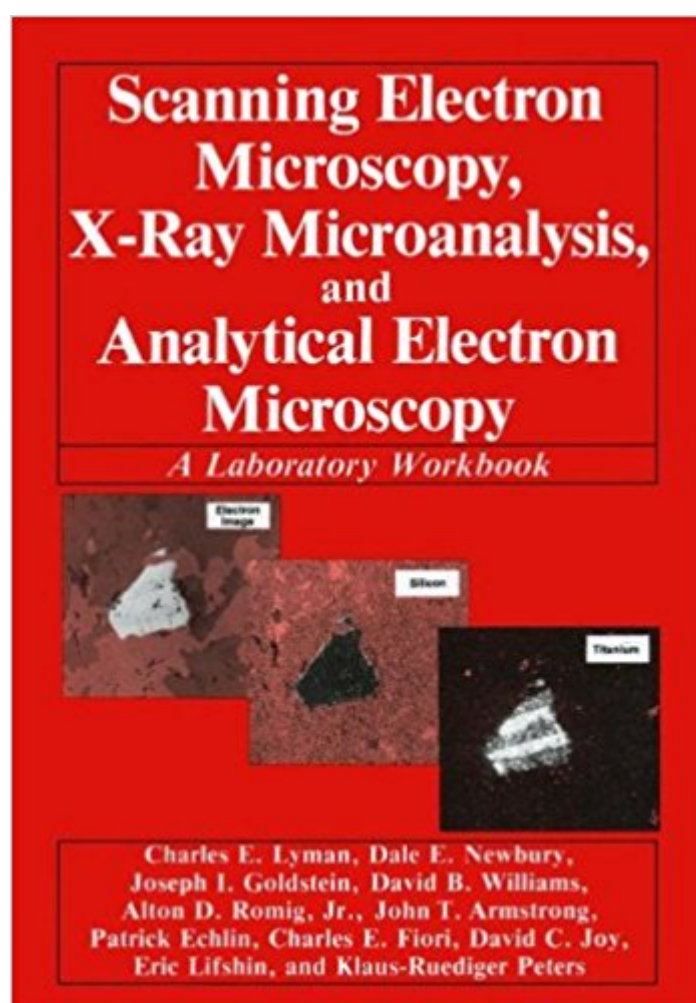


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Scanning Electron Microscopy, X-Ray Microanalysis, And Analytical Electron Microscopy: A Laboratory Workbook



Synopsis

During the last four decades remarkable developments have taken place in instrumentation and techniques for characterizing the microstructure and microcomposition of materials. Some of the most important of these instruments involve the use of electron beams because of the wealth of information that can be obtained from the interaction of electron beams with matter. The principal instruments include the scanning electron microscope, electron probe x-ray microanalyzer, and the analytical transmission electron microscope. The training of students to use these instruments and to apply the new techniques that are possible with them is an important function, which has been carried out by formal classes in universities and colleges and by special summer courses such as the ones offered for the past 19 years at Lehigh University. Laboratory work, which should be an integral part of such courses, is often hindered by the lack of a suitable laboratory workbook. While laboratory workbooks for transmission electron microscopy have been in existence for many years, the broad range of topics that must be dealt with in scanning electron microscopy and microanalysis has made it difficult for instructors to devise meaningful experiments. The present workbook provides a series of fundamental experiments to aid in "hands-on" learning of the use of the instrumentation and the techniques. It is written by a group of eminently qualified scientists and educators. The importance of hands-on learning cannot be overemphasized.

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Form the reviews of the third edition: “There is no other single volume that covers as much theory and practice of SEM or X-ray microanalysis as Scanning Electron Microscopy and X-ray Microanalysis, 3rd Edition does. It is clearly written ... well organized. ... This is a reference text that no SEM or EPMA laboratory should be without.” (Thomas J. Wilson, Scanning, Vol. 27 (4), July/August, 2005) “As the authors pointed out, the number of equations in the book is kept to a minimum, and important conceptions are also explained in a qualitative manner. A lot of very distinct images and schematic drawings make for a very interesting book and help readers who study scanning electron microscopy and X-ray microanalysis. The principal application and sample preparation given in this book are suitable for undergraduate students and technicians learning SEEM and EDS/WDS analyses. It is an excellent textbook for graduate students, and an outstanding reference for engineers, physical, and biological scientists.” (Microscopy and Microanalysis, Vol. 9 (5), October, 2003) --This text refers to the Hardcover edition.

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