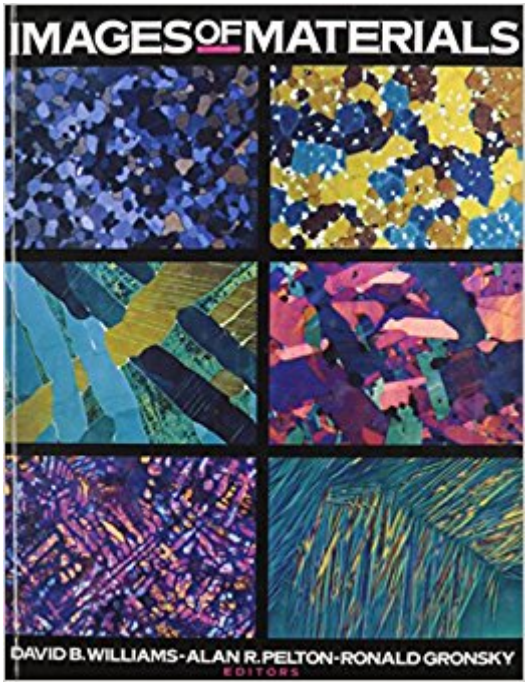
Images Of Materials



Synopsis

This spectacularly illustrated book celebrates the structural beauty of everyday materials and the space-age technologies used to probe their surface features and internal structures. It introduces the reader to the various instruments and their uses: scanning electron, ion, and tunneling microscopies, acoustic microscopy and transmission electron microscopy. The book describes how images are processed and analyzed, and how modern materials science is based on these techniques and their ability to "see" materials at the atomic level. The book includes hundreds of illustrations and 32 pages of beautiful color plates depicting the complex microscopic realm within such everyday materials as the metals used in cars and planes, polymer fabrics, ceramics, and the ubiquitous silicon semiconductors, without which society today would fall into disarray and confusion. The many full-color and black-and-white illustrations make this book a pleasure for the eye, in addition to being a useful resource for scientists, students, researchers, and engineers involved in solid-state physics, materials science, geology, and chemistry.

Book Information

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Customer Reviews

"An exceptional collection of 12 chapters describing several types and techniques of microscopy that are the basis of modern microstructural analysis in materials science. Although each of the topics covered is broad, the authors have generally provided complete introductions, with numerousexamples showing the present state of the art. With their extensive references, the chapters also serve as a guide to further information . . . All of the chapters are written in a clear

style well suited to the nonexpert reader . . . . This book indeed provides a delightful view into the world ofmaterials." --Science"Todays' fine-structure imaging . . . is remarkably many-sided. Each of the dozen chapters in this books is a state-of-the-art overview of one pictorial discipline by an expert author or a small group. Their welcome practice is to break off some highly technical explication full of acronymsand urge the nonspecialist reader to attend instead to the images overleaf. The level of the text remains demanding; this is a resource for materials scientists, but opened for others through its uncommon visuals. Virtuosity abounds." --Scientific American"Almost a necessity for anyone involved in metallography." --Choice"A valuable resource for all microscopists, or prospective microscopists, who wish to learn more about the bewildering range of techniques currently available. . . .The standard of reproduction of micrographs is extremely high and the layout is attractive. . . .This is the most comprehensiveintroduction to modern microscopy currently available. . . . The beauty of many of the micrographs reproduced here demonstrates the aesthetic as well as the scientific rewards which can be gained by looking ever more closely at the materials which surround us." --Inst. of Materials Journal"The authors . . . are eminently qualified to represent their fields, reviewing a selection of microscopy-based techniques available to the materials scientist . . . . The production quality of the book is excellent, as is the reproduction of micrographs." --New Scientist"It has many characteristics of a text or reference book surveying the currently available microscopy techniques for the imaging of structures in materials. At the same time, as the editors suggest, it 'celebrates the beauty of the structures of the materials-' with its superb reproduction ofthe images." --Microscopy Society of American Bulletin"An excellent resource. The fine images will provide a visual vocabulary for the microscopies covered (SEM, TEM, STM, scanning-ion, light, and acoustic microscopy). The text too is well judged, having a lighter and smoother tone than a textbook. Principles and ideas are indicated withoutcomplexity or mathematics. The microscopists who produced this beautiful book should be proud of it. Those who did not contribute to it should buy it or produce a rival book of their own." --Microscopy Research and Technique"You will find good concise descriptions, written by people who know their stuff, of convergent beam electron diffraction and atom probe field ion microscopy amnd aspects of image processing and high-resolution TEM. You will find a lot of pictures, many of them very informative and taken withahgreat deal of skill." --Engineering Structures and Materials and Design"A wide range of examples of each technique us given. The quality of the micrographs is outstanding. . . . include some spectacular reflected-light micrographs . . . as well as false-colour images made by techniques such as electron probe and SIMS element mapping and STM. The black and whitemicrographs are also of a very high standard." --Journal of Microscopy"Good concise

descriptions, written by people who know their stuff. You will find a lot of pictures, many of them very informative and taken with a great deal of skill. You will most probably find something to interest you -- I did. The subject matter of this book is thus of great importance."--Peter Goodhew, Materials and Design

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