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The Rietveld Method (International Union Of Crystallography Monographs On Crystallography)



Synopsis

The Rietveld method is a powerful and relatively new method for extracting detailed crystal structural information from X-ray and neutron powder diffraction data. Since such structural details dictate much of the physical and chemical attributes of materials, knowledge of them is crucial to our understanding of those properties and our ability to manipulate them. Since most materials of technological interest are not available as single crystals but often are available only in polycrystalline or powder form, the Rietveld method has become very important and is now widely used in all branches of science that deal with materials at the atomic level. This book, a collaboration by many authorities in the field, is intended primarily to have tutorial and advisory value for those who already have some experience with this important method, but an introductory chapter enables the book to be used as a first text for researchers starting in this area of science. The audience is thus comprised of all scientists using the method: graduate students who may be starting research in this area, powder diffraction specialists, crystallographers, physicists, chemists, and materials scientists.

Book Information

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Customer Reviews

"Each of the chapters has its own comprehensive list of references..." --Materials Characterization
--This text refers to the Paperback edition.

R. A. Young is at Georgia Institute of Technology, Atlanta. --This text refers to the Paperback

edition.

Because it was impossible to look inside the book at time of order, this proved not to be what I expected from it when I ordered. Figures do not show a satisfactory contrast. A big minus for this book is represented by the lack of case studies that would be helped the person concerned to apply step by step the structure refinement. In my opinion this book has a high level approach to issues Rietveld method and structure refinement. Therefore the book addresses researchers rather initiated in structure refinement, being less accessible to students or graduates uninitiated in the "mysteries" of the Rietveld method. This edition is divided into 15 short chapters with different authors resulting in slightly different ways that involve a serious intellectual challenge. Book chapters are treated more like some specialty article significantly different from the principle of writing a book addressed to a specific audience. Nevertheless I recommend buying this book to all researchers in XRD and structure refinement.

Professor Young's must be congratulated for having made a great effort in putting together an up-to-date book on the Rietveld Method. The books gives a rather comprehensive overview of the underlying principles of this very important technique of powder diffraction. It may be quite useful for the uninitiated scientist in this exciting field. Hence, the book should be considered an 101 level course in Rietveld Analysis. Although, each chapter is rigorously written and all the chapter arranged in a systematic fashion, the book simply lacks "case studies" in the step by step application of the technique. Therefore, only a 3 star rating given. Most of the "newcomer" suffer from the lack of guides on how to perform Rietveld refinements and resources in this area is extremely scarce. To sum up, those who wish to have an idea on what the Rietveld method is all about and what it can do for you, this book would most certainly be a valuable reference (especially references cited therein would come in very handy!).

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