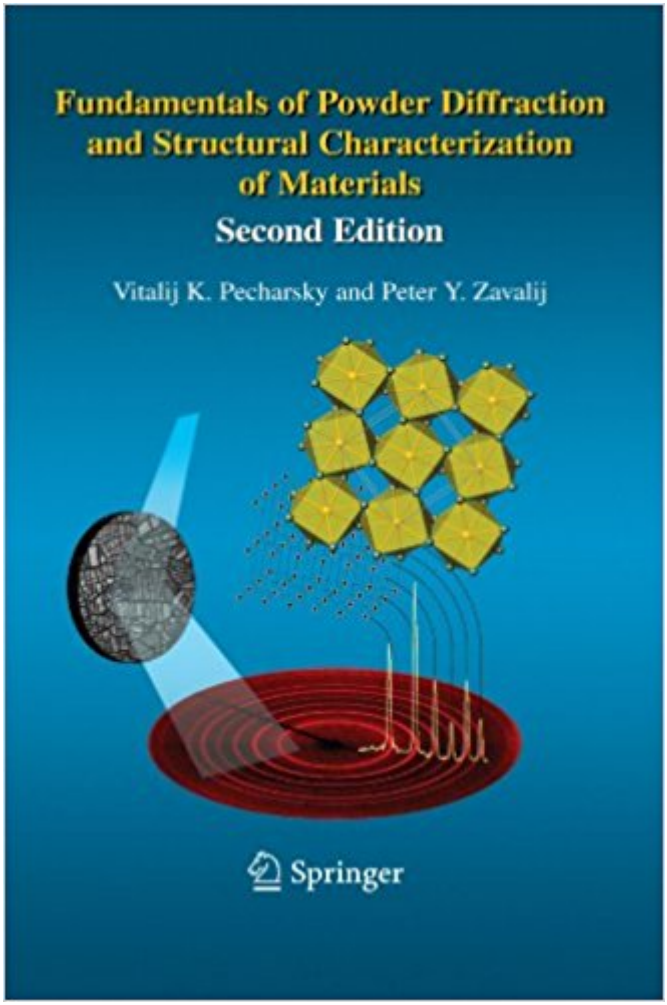
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Fundamentals Of Powder Diffraction And Structural Characterization Of Materials, Second Edition



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Synopsis

A little over ?ve years have passed since the ?rst edition of this book appeared in print. Seems like an instant but also eternity, especially considering numerous developments in the hardware and software that have made it from the laboratory test beds into the real world of powder diffraction. This prompted a revision, which had to be beyond cosmetic limits. The book was, and remains focused on standard laboratory powder diffractometry. It is still meant to be used as a text for teaching students about the capabilities and limitations of the powder diffraction method. We also hope that it goes beyond a simple text, and therefore, is useful as a reference to practitioners of the technique. The original book had seven long chapters that may have made its use as a text - convenient. So the second edition is broken down into 25 shorter chapters. The ?rst ?fteen are concerned with the fundamentals of powder diffraction, which makes it much more logical, considering a typical 16-week long semester. The last ten ch- ters are concerned with practical examples of structure solution and re?nement, which were preserved from the ?rst edition and expanded by another example Ã¢â ¬â œ R solving the crystal structure of Tylenol .

Book Information

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Customer Reviews

From a review of the first edition: Ã¢â ¬Å“The book is well written and organized. The authorsÃ¢â ¬â„¢ enthusiasm and dedication to the subject matter are clearly evident. I find the book to be not only an excellent introduction to structural characterization, but also a valuable introduction to the world of the working crystallographer. The text is rich in references to internet

resources, software, literature, organizations, databases, and institutions that x-ray researchers employ routinely. As a class text the book could be used in an introductory course for third or fourth year undergraduates in materials science, chemistry, physics, or geochemistry. The detailed structural treatments may be too much for the typical introductory x-ray diffraction course, but students would be adding a valuable text for future reference to their libraries. The sections are also ideal for more advanced coursework at the graduate level. Beyond the classroom, any researcher desiring structural information on materials would benefit from this book.Ã¢â ¬Â• - Materials Today, July/August 2004 Ã Â .com readers: http://www..com/Fundamentals-Diffraction-Structural-Characterization-Materials/dp/0387241477/ref=pd_bbs_sr_1?ie=UTF8&s=books&qid=1229536007&sr=8-1

This new edition provides an in-depth introduction to the theories and applications of the powder diffraction method for structure determination. The emphasis is placed on powder diffraction data collected using conventional x-ray sources, which remain primary tools for thousands of researchers and students in their daily experimental work. The book is divided into two parts: chapters one though fifteen give essential theoretical background, while chapters sixteen through twenty-five guide the reader through practical aspects of extracting structural information from powder data. Fundamentals of Powder Diffraction and Structural Characterization of Materials, Second Edition is suited for undergraduate and graduate students and practitioners from materials science, solid-state chemistry, physics, geology, and literally any other science or engineering background, who demand structural information at the atomic resolution using the powder diffraction method. Ã Â Key features of the second edition: The book requires no prior knowledge of the subject, but is comprehensive and detailed making it useful for both the novice and experienced user of the powder diffraction method. While developed as a text to teach students, the book is also a reference for academic and industrial researchers using the powder diffraction method in their daily work. Major revisions include expanded treatment of non-crystallographic symmetry brief introductions to the total scattering analysis and non-ambient powder diffractometry basics of quantitative analysis using the Rietveld method, including determination of amorphous content addition of a difficult pseudo-symmetric indexing case expanded coverage of direct space structure solution techniques an introduction to the mechanism of constraints, restraints and rigid bodies and a new example of structure solution of a pharmaceutical compound additional problems to help in assessment of studentsÃ¢â ¬â„¢ progress. Ã Â The book is supplemented by online content, including color figures, powder diffraction data, examples, and web links.

This book provides an in-depth introduction to the theories and applications of the powder diffraction method for structure determination. The emphasis is placed on powder diffraction data collected using conventional x-ray sources, which remain primary tools for thousands of researchers and students from materials science, solid-state chemistry, physics, geology, and other science or engineering background, in their daily experimental work. It is still meant to be used as the text for teaching students about the capabilities and limitations of the powder diffraction method.This edition is divided into 25 chapters. The first fifteen are concerned with the fundamentals of powder diffraction. The last ten chapters are concerned with practical examples of structure solution and refinement.I think the book is properly structured, figures are representative, and each chapter ends with problems to solve for the reader. I have not found the solutions to the problems raised at the end of each chapter. These solutions would be provided a proper understanding of crystallography in general and X-ray powder diffraction in particular.In my opinion this book is the best in the field so far.I highly recommend buying this book to all researchers in difractometry.P.S. The solutions manual can be obtained by request addressed to Mr. Pecharsky.

Good for beginners with no idea about crystallography

Likely one of the absolute best texts on the topic of XRD and powder diffraction.

It is good

thanks

This book needs to have example problems to walk students through the concepts by solving some examples.

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