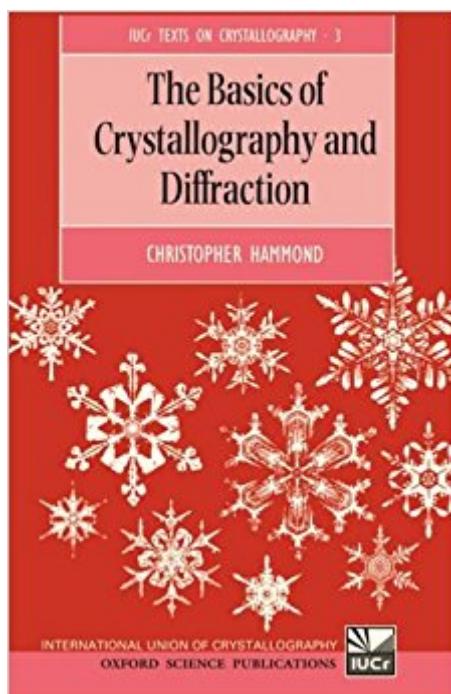


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The Basics Of Crystallography And Diffraction (International Union Of Crystallography Texts On Crystallography)



Synopsis

A knowledge of crystallography opens the door to a clearer understanding of topics in physics, chemistry, and other disciplines. In this new text, basic ideas in crystallography and diffraction are explained simply and comprehensively. The physical concepts and geometrical features common to diffraction modes are emphasized by simple analogies and demonstrations, with special attention paid to two-dimensional patterns and symmetry. The book, written by an experienced teacher, is an ideal introduction for students.

Book Information

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Customer Reviews

"Presents the basic concepts of crystallography and diffraction in a simple and comprehensible fashion. . . . I recommend this book to first year students taking a crystallography course as an additional or supplementary material. This volume can help provide the intuition and understanding that is often lost in the heat of the mathematics." --The Leading Edge "This text book presents an introduction to crystallography. The ideas of symmetry, structure, lattices and architecture of crystals are approached by reference to everyday examples of things. Diffraction is also covered. The subject of diffraction flows naturally from that of crystallography because by its means the structures of materials are revealed. The historical development and interpretation of x-ray diffraction patterns is included. Graphs Photomicrographs." --Metals Abstracts

Christopher Hammond is at University of Leeds.

Thank you.

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This book was intended as a reference in a graduate course in mechanical engineering. It is divided in 13 chapters. The first 6 chapters perfectly served the purpose by clarifying concepts that are not as well described in other sources. The other chapters, about diffraction, are very important as well and will be addressed later. The book content is structured in what may be regarded as the traditional black and white technical format devoid of any distracting inserts and unnecessary figures and colors. The book was a good deal for the price.

This book represents a fair introduction to the world of crystallography and crystal structure determination. The chapters on structure determination are the best, although some of the more advanced material, e.g. EBSD, is lightly sketched, and should perhaps have been omitted. The early chapters are somewhat more problematic: much is stated about crystal structures without justification, and this makes for a hard and often unilluminating read. Overall, though, the author has succeeded in writing a reasonable introductory text for a difficult field.

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I used this text for a course on material structures in which we covered most of this book for about half the semester and then moved onto topics such as polymer structure, liquid crystals, and basic quantum mechanics behind orbitals and the formation of atomic bonds. I must say the most painful parts of the course were those covered in this book. We used another text created by the professor in lieu of chapter one, and the difference was remarkable. Fairly easy topics are shrouded in heavy text and lack of clear explanations. I had alternate sources for each and every chapter in the book because the book never provided enough information to truly grasp the material. Most sections go as follows: historical and other non-important details mixed with some useful information, then an introduction to a new topic and why it's useful, a short but inadequate explanation of the topic, skips the section where a student would learn to arrive at a conclusion, states the conclusion without a

real explanation. This approach works fine for some chapters and horribly for others (the Ewald sphere chapter is a nightmare). I'm sure this seems great to someone who already knows the material (it proved awesome for studying for the final since my mind was filling in the blanks in the text), but it really is lacking as a teaching text. It's not set up like a textbook (no examples and few exercises), and should not be used as one.

for my friend , it is recommend. comfortable,nice . excellent. Great little business. Lovely, friendly follow-up. Awesome bread product. Go get yourself one.

For an undergrad reader, Hammond develops the theory and explains the experiments you can do in crystallography. The theory of scattering from a single crystal explains the diffraction patterns. The latter are what you observe, and the text shows how you can work back from these to deduce what the underlying crystal structure might be. There are variations on this approach. Especially the powder method, where you do not have a single crystal, but a powder of microcrystals. Which can be visualised as spinning the Bravais lattice around its origin, to give the diffraction patterns. More recent observations like quasicrystals are also covered. A good introduction to crystallography.

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