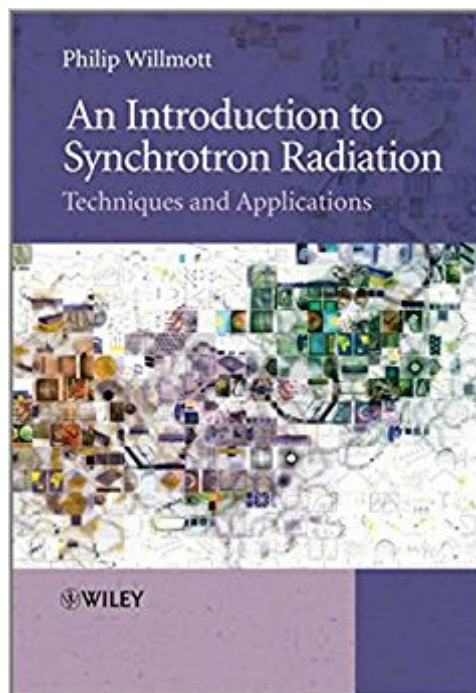


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An Introduction To Synchrotron Radiation: Techniques And Applications



Synopsis

This book introduces the reader to the basic concepts of the generation and manipulation of synchrotron light, its interaction with matter, and the application of synchrotron light in the “classical” techniques, while including some of the most modern technological developments. As much as possible, complicated mathematical derivations and formulas are avoided. A more heuristic approach is adopted, whereby the general physical reasoning behind the equations is highlighted. Key features: A general introduction to synchrotron radiation and experimental techniques using synchrotron radiation Contains many detailed “worked examples” from the literature Of interest for a broad audience - synchrotrons are possibly one of the best examples of multidisciplinary research Four-colour presentation throughout

Book Information

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Customer Reviews

“Numerous very well-done, informative figures/graphs support the text. Chapters are well referenced, up-to-date, and very readable. Summing Up: Recommended. Lower-division undergraduates and above in physics.” (Choice, 1 July 2012)

Since the first use of synchrotron light to investigate the properties of materials half a century ago, it has become increasingly recognized as an invaluable research tool by a broad spectrum of scientists, ranging from physicists and chemists, through molecular biologists and environmental scientists, to geologists and archaeologists. This rising demand for access to synchrotron radiation has also expressed itself in a recent increase in the construction of facilities worldwide to

accommodate this diverse and burgeoning user community. Modern synchrotron facilities are therefore one of the premier examples of multidisciplinary research. Major applications of synchrotron light include condensed-matter physics, materials science, catalytical chemistry, structural biology, biological and soft-matter imaging, archaeology, and medicine. This book introduces the reader to the basic concepts of the generation and manipulation of synchrotron light, its interaction with matter, and the application of synchrotron light in classical techniques. As well as including fundamentals of the main experimental methods, many of the most recent technological developments are described, especially with regards to detectors, time-resolved studies, and the advent of fourth-generation sources. Detailed descriptions, including full-colour illustrations, of the underlying physics and experimental applications are presented, while worked examples facilitate learning from a practical perspective. Undergraduate and postgraduate students from all areas of natural and physical sciences working with synchrotron light will benefit from this informative text and its heuristic style. In addition, synchrotron scientists and facility staff will find this book a useful reference regarding essential synchrotron radiation techniques and beamline infrastructure, and in optimizing the use of synchrotron light in this rapidly developing multifaceted enterprise.

A great book to start with; although jumping right into the first few chapters can be a little rough without spending a little time at a beamline. Covers a good amount of material concisely, as it should being an "introduction" to synchrotron radiation.

This is wonderful.....very sharp and feels good in my hand. I just used it for the first time yesterday and it will be my favorite product. It arrived quickly and in great condition. It is a very handsome product. next day arrive. jimmy love it , love it . the best seller.

I must confess I haven't read all of this book yet but feel I have read enough to pass comment. The book proclaims that it is introductory and levelled at undergrads and postgrads from all areas of the natural and physical sciences (I quote), it also states that there are an increasing number of biologists who are seeking the use of synchrotron radiation in their research. I would say however, being a biologist, a fair amount of prior knowledge is required. It is obviously a difficult subject to break down and I would also assume that if you are on this page that maybe the prior knowledge you have already (wasn't the case for me!) The book is fairly mathematical but illustrated beautifully, I just wish I had the assumed knowledge to get better worth out of it ...I will persevere with a little extra book reading!

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