



Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography)

By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov

[Download now](#)

[Read Online](#) 

**Electron Crystallography: Electron Microscopy and Electron Diffraction
(International Union of Crystallography: Iucr Texts on Crystallography)** By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov

In the modern world of ever smaller devices and nanotechnology, electron crystallography emerges as the most important method capable of determining the structure of minute objects down to the size of individual atoms. Crystals of only a few millionths of a millimetre are studied. This is the first textbook explaining how this is done. Great attention is given to symmetry in crystals and how it manifests itself in electron microscopy and electron diffraction, and how this symmetry can be determined and taken advantage of in achieving improved electron microscopy images and solving crystal structures from electron diffraction patterns.

Theory and practice are combined; experimental images, diffraction patterns, formulae and numerical data are discussed in parallel, giving the reader a complete understanding of what goes on inside the "black boxes" of computer programs.

This up-to-date textbook contains the newest techniques in electron crystallography, including detailed descriptions and explanations of the recent remarkable successes in determining the very complex structures of zeolites and intermetallics. The controversial issue of whether there is phase information present in electron microscopy images or not is also resolved once and for all.

The extensive appendices include computer labs which have been used at various courses at Stockholm University and international schools in electron crystallography, with applications to the textbook. Students can download image processing programs and follow these lab instructions to get a hands-on experience of electron crystallography.

 [Download Electron Crystallography: Electron Microscopy and ...pdf](#)

 [Read Online Electron Crystallography: Electron Microscopy an ...pdf](#)

Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography)

By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov

Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov

In the modern world of ever smaller devices and nanotechnology, electron crystallography emerges as the most important method capable of determining the structure of minute objects down to the size of individual atoms. Crystals of only a few millionths of a millimetre are studied. This is the first textbook explaining how this is done. Great attention is given to symmetry in crystals and how it manifests itself in electron microscopy and electron diffraction, and how this symmetry can be determined and taken advantage of in achieving improved electron microscopy images and solving crystal structures from electron diffraction patterns.

Theory and practice are combined; experimental images, diffraction patterns, formulae and numerical data are discussed in parallel, giving the reader a complete understanding of what goes on inside the "black boxes" of computer programs.

This up-to-date textbook contains the newest techniques in electron crystallography, including detailed descriptions and explanations of the recent remarkable successes in determining the very complex structures of zeolites and intermetallics. The controversial issue of whether there is phase information present in electron microscopy images or not is also resolved once and for all.

The extensive appendices include computer labs which have been used at various courses at Stockholm University and international schools in electron crystallography, with applications to the textbook. Students can download image processing programs and follow these lab instructions to get a hands-on experience of electron crystallography.

Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov
Bibliography

- Sales Rank: #1297558 in Books
- Published on: 2011-12-01
- Original language: English
- Number of items: 1
- Dimensions: 7.70" h x .90" w x 9.80" l, 2.00 pounds
- Binding: Hardcover
- 344 pages

 [Download Electron Crystallography: Electron Microscopy and ...pdf](#)

 [Read Online Electron Crystallography: Electron Microscopy an ...pdf](#)

Download and Read Free Online Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov

Editorial Review

Review

'The fields of electron microscopy and electron diffraction have been around for a long time and, until recently, it has proved difficult to use these techniques to determine the structures of crystals in the way that traditional x-ray crystallographers have been doing. However, the new subject of Electron Crystallography has been rapidly developing and this book shows beautifully how modern electron microscopes can now be used to solve crystal structures. The authors have produced a unique and thorough work that will enable students and researchers alike to learn how this is done. Electron Crystallography is the only book that I am aware of that describes modern electron diffraction/microscopy at a genuinely readable level. It should find a place on the shelves of students and researchers alike.' Michael Glazer, Department of Physics, University of Oxford

About the Author

Xiaodong Zou is the chair of Inorganic and Structural Chemistry Unit, Department of Materials and Environmental Chemistry, and director of the Berzelii Centre EXSELENT on Porous Materials, Stockholm University. She is a member of the IUCr Commission on Electron Crystallography (2002-2011) and the Structure Commission of International Zeolite Association (2010-). She received several awards, including the K.H. Kuo Award for Distinguished Scientist (2010) and , Goran Gustafsson Prize in Chemistry (2008) and Tage Erlander Prize (2002), both given by the Royal Swedish Academy of Sciences. Her main research interests include method development for 3D structure determination of nano-sized materials by X-ray diffraction and electron crystallography, especially on zeolites and related porous materials and complex intermetallic compounds, and synthesis and applications of inorganic open-framework materials and metal-organic frameworks.

Sven Hovmoller was visiting scientist in Madrid and Nantes and was Secretary of the IUCr commission on Electron Crystallography 1999-2002. He introduced image processing of EM images by Fourier transform analysis from molecular biology into inorganic chemistry in 1984 and started, together with Xiaodong Zou, the series of annual International schools in Electron Crystallography, in 1994. Hovmoller develops new methods and computer programs for electron crystallography and is also interested in quasicrystals and their approximants and protein structure and its prediction.

Peter Oleynikov has been a researcher at Stockholm University since 2008. He writes programs for computer control of electron microscopes and for analysis of the diffraction data obtain, as well as programs simulating EM images and electron diffraction patterns.

Users Review

From reader reviews:

Bill Underhill:

Here thing why this specific Electron Crystallography: Electron Microscopy and Electron Diffraction

(International Union of Crystallography: Iucr Texts on Crystallography) are different and dependable to be yours. First of all studying a book is good but it really depends in the content than it which is the content is as tasty as food or not. Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) giving you information deeper since different ways, you can find any e-book out there but there is no reserve that similar with Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography). It gives you thrill reading journey, its open up your personal eyes about the thing that will happen in the world which is might be can be happened around you. It is possible to bring everywhere like in playground, café, or even in your technique home by train. For anyone who is having difficulties in bringing the imprinted book maybe the form of Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) in e-book can be your choice.

Steven Stockton:

Nowadays reading books become more than want or need but also become a life style. This reading behavior give you lot of advantages. The benefits you got of course the knowledge the particular information inside the book this improve your knowledge and information. The details you get based on what kind of guide you read, if you want have more knowledge just go with schooling books but if you want sense happy read one together with theme for entertaining for example comic or novel. The Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) is kind of guide which is giving the reader capricious experience.

Carl Carrillo:

In this period of time globalization it is important to someone to find information. The information will make professionals understand the condition of the world. The health of the world makes the information better to share. You can find a lot of personal references to get information example: internet, newspapers, book, and soon. You will see that now, a lot of publisher that will print many kinds of book. The book that recommended to you is Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) this guide consist a lot of the information with the condition of this world now. That book was represented just how can the world has grown up. The dialect styles that writer value to explain it is easy to understand. The particular writer made some research when he makes this book. This is why this book ideal all of you.

Fernande Hairston:

What is your hobby? Have you heard this question when you got scholars? We believe that that concern was given by teacher to their students. Many kinds of hobby, Every person has different hobby. And also you know that little person just like reading or as looking at become their hobby. You need to understand that reading is very important along with book as to be the matter. Book is important thing to include you knowledge, except your teacher or lecturer. You find good news or update regarding something by book. A substantial number of sorts of books that can you take to be your object. One of them is actually Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography).

Download and Read Online Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov #IWVRH7J06Y1

Read Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov for online ebook

Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov books to read online.

Online Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov ebook PDF download

Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov Doc

Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov MobiPocket

Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov EPub

IWVRH7J06Y1: Electron Crystallography: Electron Microscopy and Electron Diffraction (International Union of Crystallography: Iucr Texts on Crystallography) By Xiaodong Zou, Sven Hovmoller, Peter Oleynikov