



# Dynamical Theory of X-Ray Diffraction (International Union of Crystallography Monographs on Crystallography)

*By André Authier*

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## **Dynamical Theory of X-Ray Diffraction (International Union of Crystallography Monographs on Crystallography) By André Authier**

The dynamical theory of diffraction has witnessed exciting developments since the advent of synchrotron radiation. This book provides an up-to-date account of the theory of diffraction and its applications. The first part serves as an introduction to the subject, presenting early developments and the basic results. It is followed by a detailed development of the diffraction and propagation properties of x-rays in perfect crystals and by an extension of the theory to the case of slightly and highly deformed crystals. The last part gives three applications of the theory: X-ray optics for synchrotron radiation, locations of atoms at surfaces, and X-ray diffraction topography. The book is richly illustrated and contains a wide range of references to the literature. It will be a most useful reference work for graduate students, lecturers and researchers.

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### **Editorial Review**

#### **Review**

"The dynamical theory of x-ray diffraction has been advanced by the development of perfect or nearly perfect crystals. Authier (emeritus, U. Pierre et Marie Curie, France) first provides a historical account of developments in the field, from the work of Ewald in the early part of the 20th century onward. He then describes the diffraction properties of plane and spherical waves by perfect crystals. He extends dynamical theory to deformed crystals. Finally, he provides a section on applications, including x-ray optics, standing wave studies of surfaces and interfaces, and diffraction topography." --*SciTech Book News*

#### **About the Author**

André Authier is Professor Emeritus at Université Pierre et Marie Curie, Paris in France. He is co-editor of *Acta Crystallographica*, Section A and editor of *International Tables of Crystallography*, Volume D.

### **Users Review**

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