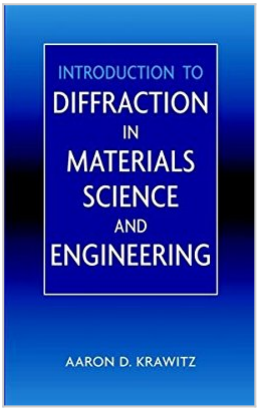

Introduction to Diffraction in Materials Science and Engineering

By Aaron D. Krawitz

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Fundamentals and practical applications of diffraction for researchers, engineers, and students
Materials science relies heavily on diffraction for the analysis of materials. Introduction to Diffraction in Materials Science and Engineering is a survey of the practical aspects of this valuable tool. Though it contains basic discussion of the theory and physics of diffraction, this book emphasizes understanding and the practical application of diffraction in materials science-making it a valuable text and resource for students, professionals, and researchers.
Designed as a teaching and self-study text, this resource begins with a treatment of the fundamentals of crystallography and crystal structure and its importance in diffraction before moving on to cover important aspects of diffraction applications. Numerous examples and problems at the end of each chapter, including critical thinking questions, make this an excellent tool for learning and understanding. The book includes treatments of:
* Basics of crystallography
* Geometrical representation of crystals and reciprocal space
* X-rays and neutrons
* Structure factors and intensity
* Powder diffraction
* Qualitative (Powder Diffraction File) and quantitative phase analysis
* Use of the International Tables for more complex structures and the Reitveld method
* Residual stress
* Introductions to texture, small diffracting units, and long-range order
Aaron Krawitz provides both a practical introduction to diffraction that suits the needs of students and a resource for professionals already at work in materials science or engineering who want to utilize the power of diffraction in the study of materials.

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Introduction to Diffraction in Materials Science and Engineering By Aaron D. Krawitz Bibliography

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Editorial Review

Review
"Anyone about to begin using diffraction as a method of solving problems in materials science should read this book." (Materials World, February 2002)

From the Back Cover
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About the Author
AARON D. KRAWITZ is Professor of Mechanical and Aerospace Engineering at the University of Missouri, Columbia, Missouri.

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