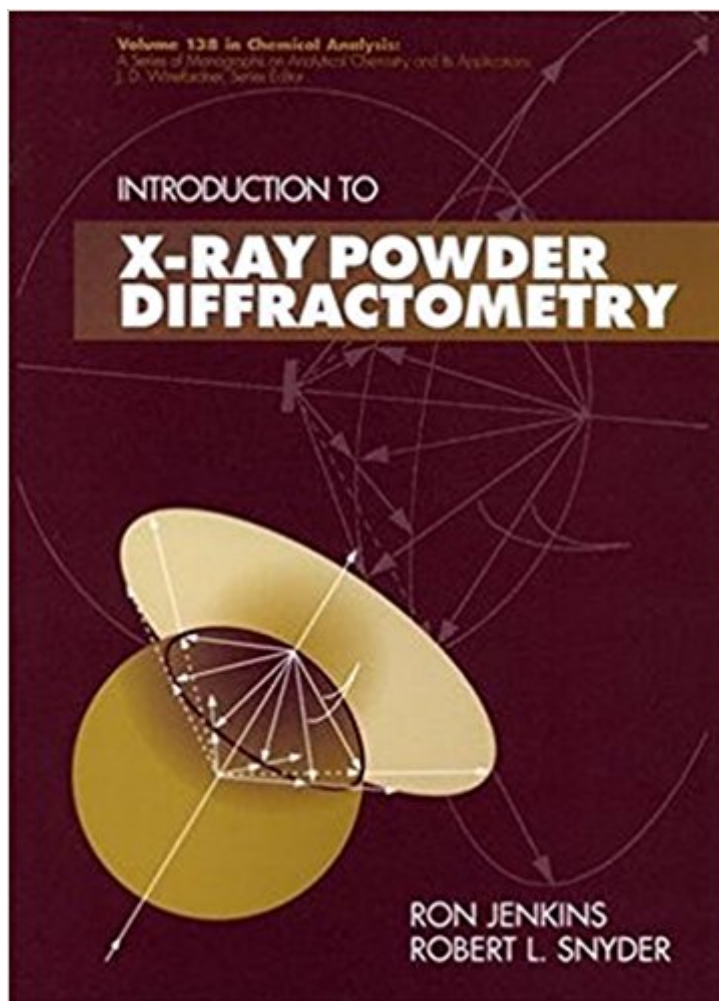




Ebook Directory
the best source of ebook

The book was found

Introduction To X-Ray Powder Diffractometry



Synopsis

When bombarded with X-rays, solid materials produce distinct scattering patterns similar to fingerprints. X-ray powder diffraction is a technique used to fingerprint solid samples, which are then identified and cataloged for future use-much the way the FBI keeps fingerprints on file. The current database of some 70,000 material prints has been put to a broad range of uses, from the analysis of moon rocks to testing drugs for purity. Introduction to X-ray Powder Diffractometry fully updates the achievements in the field over the past fifteen years and provides a much-needed explanation of the state-of-the-art techniques involved in characterizing materials. It covers the latest instruments and methods, with an emphasis on the fundamentals of the diffractometer, its components, alignment, calibration, and automation. The first three chapters outline diffraction theory in clear language, accessible to both students and professionals in chemistry, physics, geology, and materials science. The book's middle chapters describe the instrumentation and procedures used in X-ray diffraction, including X-ray sources, X-ray detection, and production of monochromatic radiation. The chapter devoted to instrument design and calibration is followed by an examination of specimen preparation methods, data collection, and reduction. The final two chapters provide in-depth discussions of qualitative and quantitative analysis. While the material is presented in an orderly progression, beginning with basic concepts and moving on to more complex material, each chapter stands on its own and can be studied independently or used as a professional reference. More than 230 illustrations and tables demonstrate techniques and clarify complex material. Self-contained, timely, and user-friendly, Introduction to X-ray Powder Diffractometry is an enormously useful text and professional reference for analytical chemists, physicists, geologists and materials scientists, and upper-level undergraduate and graduate students in materials science and analytical chemistry. X-ray powder diffraction-a technique that has matured significantly in recent years-is used to identify solid samples and determine their composition by analyzing the so-called "fingerprints" they generate when X-rayed. This unique volume fulfills two major roles: it is the first textbook devoted solely to X-ray powder diffractometry, and the first up-to-date treatment of the subject in 20 years. This timely, authoritative volume features:

- * Clear, concise descriptions of both theory and practice-including fundamentals of diffraction theory and all aspects of the diffractometer
- * A treatment that reflects current trends toward automation, covering the newest instrumentation and automation techniques
- * Coverage of all the most common applications, with special emphasis on qualitative and quantitative analysis
- * An accessible presentation appropriate for both students and professionals
- * More than 230 tables and illustrations

Introduction to X-ray Powder Diffractometry, a collaboration between two internationally known and respected experts in the field, provides

invaluable guidance to anyone using X-ray powder diffractometers and diffractometry in materials science, ceramics, the pharmaceutical industry, and elsewhere.

Book Information

Hardcover: 432 pages

Publisher: Wiley-Interscience; 1 edition (June 28, 1996)

Language: English

ISBN-10: 0471513393

ISBN-13: 978-0471513391

Product Dimensions: 6.3 x 1 x 9.2 inches

Shipping Weight: 1.5 pounds (View shipping rates and policies)

Average Customer Review: 5.0 out of 5 stars 2 customer reviews

Best Sellers Rank: #786,519 in Books (See Top 100 in Books) #60 in Books > Science & Math > Chemistry > Crystallography #191 in Books > Engineering & Transportation > Engineering > Materials & Material Science > Polymers & Textiles #229 in Books > Science & Math > Chemistry > Analytic

Customer Reviews

Illustrated with a significant amount of useful figures and diagrams this volume contains all of the fundamentals required to understand the theory and practice of powder diffraction with a strong emphasis on the two most important applications: qualitative and quantitative analysis.

When bombarded with X-rays, solid materials produce distinct scattering patterns similar to fingerprints. X-ray powder diffraction is a technique used to fingerprint solid samples, which are then identified and cataloged for future use-much the way the FBI keeps fingerprints on file. The current database of some 70,000 material prints has been put to a broad range of uses, from the analysis of moon rocks to testing drugs for purity. Introduction to X-ray Powder Diffractometry fully updates the achievements in the field over the past fifteen years and provides a much-needed explanation of the state-of-the-art techniques involved in characterizing materials. It covers the latest instruments and methods, with an emphasis on the fundamentals of the diffractometer, its components, alignment, calibration, and automation. The first three chapters outline diffraction theory in clear language, accessible to both students and professionals in chemistry, physics, geology, and materials science. The book's middle chapters describe the instrumentation and procedures used in X-ray diffraction, including X-ray sources, X-ray detection, and production of monochromatic radiation. The chapter

devoted to instrument design and calibration is followed by an examination of specimen preparation methods, data collection, and reduction. The final two chapters provide in-depth discussions of qualitative and quantitative analysis. While the material is presented in an orderly progression, beginning with basic concepts and moving on to more complex material, each chapter stands on its own and can be studied independently or used as a professional reference. More than 230 illustrations and tables demonstrate techniques and clarify complex material. Self-contained, timely, and user-friendly, Introduction to X-ray Powder Diffractometry is an enormously useful text and professional reference for analytical chemists, physicists, geologists and materials scientists, and upper-level undergraduate and graduate students in materials science and analytical chemistry.

This book provides an introduction to powder diffraction theory as well as a comprehensive list of everything involved with the actual diffractometer. This is not just a theory book nor a technical manual. It describes clearly all the factors involved in the production of x-rays, the workings of motors and detectors to the reasons for using divergence slits as well as the principles of phase identification and quantitative analysis. It is a great book for someone who will be using a diffractometer for the first time and will be doing the work themselves. This is not a crystallography text. It is more a handbook of practical applied powder diffraction. Well worth the money.

I would suggest reading this book if you want to learn about powder XRD technique. This book is really good...

[Download to continue reading...](#)

Introduction to X-Ray Powder Diffractometry
Kratom: The Truth About Mitragyna Speciosa: An Introductory Guide to Capsules, Powder, Extract, And The Full Effects (Ketum, Kratum, Kratom Capsules, Kratom Powder, Kratom Extract)
Transmission Electron Microscopy and Diffractometry of Materials (Graduate Texts in Physics)
Minerals and Rocks: Exercises in Crystal and Mineral Chemistry, Crystallography, X-ray Powder Diffraction, Mineral and Rock Identification, and Ore Mineralogy
Brother Ray: Ray Charles' Own Story
The Best of Bob & Ray: Excerpts from the Bob & Ray Public Radio Show (Volume One: 4 Cassettes, 4 Hours (64 Selections))
Ray of New (Ray #6)
X-Ray Crystallography: An Introduction to the Investigation of Crystals by Their Diffraction of Monochromatic X-Radiation
An Introduction to Communication Systems (Electrical Engineering, Dr. Ray Pickholt)
Marching Powder: A True Story of Friendship, Cocaine, and South America's Strangest Jail
Marching Powder: A True Story of a British Drug Smuggler In a Bolivian Jail (The Pan Real Lives Series Book 6)
Powder Ghost Towns: Epic Backcountry Runs in

Colorado's Lost Ski Resorts Powder: The Greatest Ski Runs on the Planet Secrets of the Greatest Snow on Earth: Weather, Climate Change, and Finding Deep Powder in Utah's Wasatch Mountains and around the World In Search of Powder: A Story of America's Disappearing Ski Bum Anyone Can Be an Expert Skier 2: Powder, Bumps, and Carving (Includes Bonus DVD) Anyone Can Be an Expert Skier II: Powder, Bumps, and Carving P3: Pipes, Parks, and Powder Powder River: Season 10, Vol. 1

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)