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Microstructural Characterization Of Materials

David Brandon and Wayne D. Kaplan

Microstructural Characterization of Materials

Second Edition

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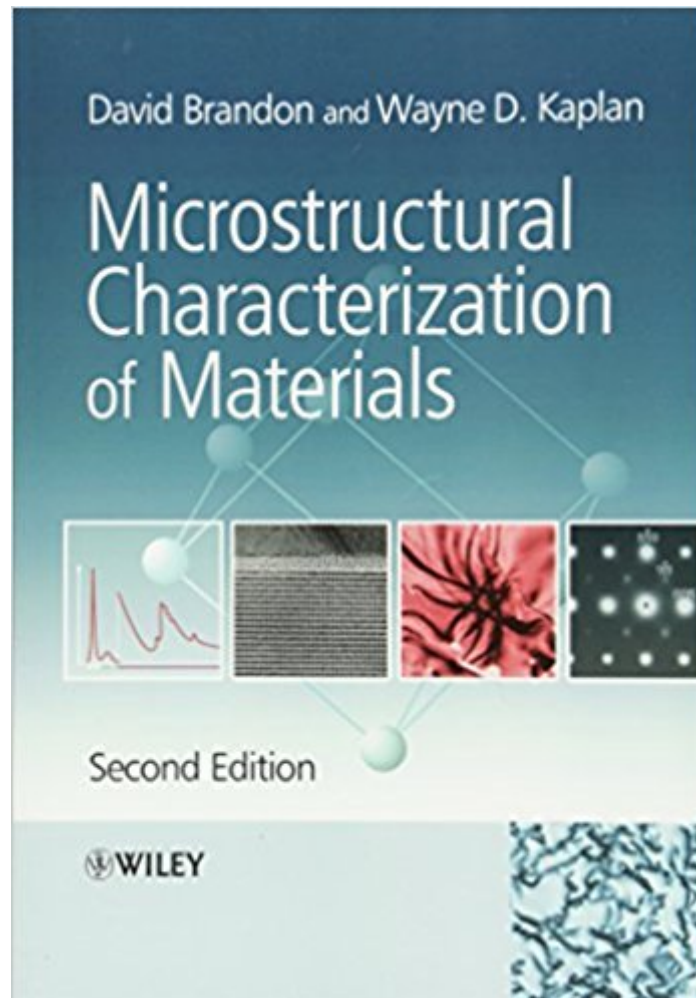
Synopsis

Microstructural characterization is usually achieved by allowing some form of probe to interact with a carefully prepared specimen. The most commonly used probes are visible light, X-ray radiation, a high-energy electron beam, or a sharp, flexible needle. These four types of probe form the basis for optical microscopy, X-ray diffraction, electron microscopy, and scanning probe microscopy. Microstructural Characterization of Materials, 2nd Edition is an introduction to the expertise involved in assessing the microstructure of engineering materials and to the experimental methods used for this purpose. Similar to the first edition, this 2nd edition explores the methodology of materials characterization under the three headings of crystal structure, microstructural morphology, and microanalysis. The principal methods of characterization, including diffraction analysis, optical microscopy, electron microscopy, and chemical microanalytical techniques are treated both qualitatively and quantitatively. An additional chapter has been added to the new edition to cover surface probe microscopy, and there are new sections on digital image recording and analysis, orientation imaging microscopy, focused ion-beam instruments, atom-probe microscopy, and 3-D image reconstruction. As well as being fully updated, this second edition also includes revised and expanded examples and exercises, with a solutions manual available at http://develop.wiley.co.uk/microstructural2e/ Microstructural Characterization of Materials, 2nd Edition will appeal to senior undergraduate and graduate students of material science, materials engineering, and materials chemistry, as well as to qualified engineers and more advanced researchers, whoÃ Â will find the book a useful and comprehensive general reference source.

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Customer Reviews

Microstructural Characterization of Materials- 2nd Edition David Brandon and Wayne D. Kaplan. Israel Institute of Technology, Haifa, Israel Microstructural characterization is usually achieved by allowing some form of probe to interact with a carefully prepared specimen. The most commonly used probes are visible light, X-ray radiation, a high-energy electron beam, or a sharp, flexible needle. These four types of probe form the basis for optical microscopy, X-ray diffraction, electron microscopy, and scanning probe microscopy. The book is an introduction to the expertise involved in assessing the microstructure of engineering materials and to the experimental methods used for this purpose. Similar to the first edition, this 2nd edition of Microstructural Characterization of Materials explores the methodology of materials characterization under the three headings of crystal structure, microstructural morphology, and microanalysis. The principal methods of characterization, including diffraction analysis, optical microscopy, electron microscopy, and chemical microanalytical techniques are treated both qualitatively and quantitatively. An additional chapter has been added to the new edition to cover surface probe microscopy, and there are new sections on digital image recording and analysis, orientation imaging microscopy, focused ion-beam instruments, atom-probe microscopy, and 3-D image reconstruction. As well as being fully updated, this second edition also includes revised and expanded examples and exercises. The book should appeal to senior undergraduate and graduate students of material science, materials engineering, and materials chemistry, as well as to qualified engineers and more advanced researchers, who should find the book a useful and comprehensive general reference source.

Good textbook: covers a lot of techniques and is fairly easy to read. However it wouldn't make a good reference since it is very concept-oriented and vague about details.

The book met all of my expectations. No damage anywhere on the book, and it arrived on time.

Good

but I do not think it is very helpful Ãƒ Â Ã Â Ã Å'though it was recommended by the professor. AnyhowÃƒ Â Ã Â Ã Å'the quality of the book is good.

The book was way cheaper here than at my local bookstore. Aside from a bent page or two this book was in excellent condition to have been "used". No complaints here!

The product came pretty quickly and was in almost perfect shape. Decent price, no real problems.

I am revising my first review, which was based on a quick read of the first few chapters. Unfortunately, forbids revising the stars given to the book. There's no way this book earns the three stars I originally gave it.The equations are *regularly* wrong, to the point we can't trust what the author says anymore - it could be wrong, it could be right, who knows? The visual graphics are not clearly labeled, and often I (and the entire class) have no idea what is meant by them. The text reads like a "mix n'match" tapestry of paragraphs written separately with no care given to *synthesize* them into a coherent whole. And the end-of chapter "summaries" are anything but summaries - they're easily 30-50% the size of the chapter itself in many cases; nope, that is not a review - it's filler.But there's a lot more filler than that: pictures are thrown abundantly throughout the book, taking up the space that should have been dedicated to developing ideas in an *adequate* manner. Equations come out of absolutely nowhere, and are given to you to memorize, not understand - because memorize them is all you could possibly do without knowing where they come from.I have rarely used a book that warranted this bad of a review. The book *looks* like it should be competent (somebody's doing their job up in the PR department, or somewhere), but it so doesn't.

Microstructural Characterization of Materials A Practical Guide to Microstructural Analysis of Cementitious Materials Catalyst Characterization: Physical Techniques for Solid Materials (Fundamental and Applied Catalysis) Fundamentals of Powder Diffraction and Structural Characterization of Materials, Second Edition Materials Characterization Techniques Characterization of Materials, 3 Volume Set Materials Characterization: Introduction to Microscopic and Spectroscopic Methods Materials Characterization - Book 2: 300+ Questions & Example Answers Materials Characterization - Book 1: 400+ Questions & Answers Composite Materials for Implant Applications in the Human Body: Characterization and Testing/Pcn No. : 04-011780-54 (Astm Special Technical Publication// Stp) Engineering Materials 3: Materials Failure Analysis: Case Studies and Design Implications (International Series on Materials Science and Technology) (v. 3) Surface Wave Methods for Near-Surface Site Characterization Polymer Synthesis and Characterization: A Laboratory Manual Semiconductor Material and Device Characterization

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