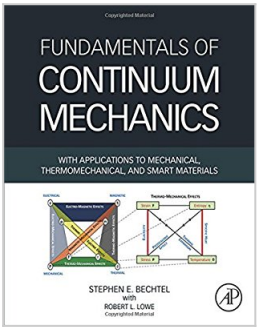

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials

By Stephen Bechtel, Robert Lowe

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe

Fundamentals of Continuum Mechanics provides a clear and rigorous presentation of continuum mechanics for engineers, physicists, applied mathematicians, and materials scientists. This book emphasizes the role of thermodynamics in constitutive modeling, with detailed application to nonlinear elastic solids, viscous fluids, and modern smart materials. While emphasizing advanced material modeling, special attention is also devoted to developing novel theories for incompressible and thermally expanding materials. A wealth of carefully chosen examples and exercises illuminate the subject matter and facilitate self-study.

- Uses direct notation for a clear and straightforward presentation of the mathematics, leading to a better understanding of the underlying physics
- Covers high-interest research areas such as small- and large-deformation continuum electrodynamics, with application to smart materials used in intelligent systems and structures
- Offers a unique approach to modeling incompressibility and thermal expansion, based on the authors' own research

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials

By Stephen Bechtel, Robert Lowe

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe

Fundamentals of Continuum Mechanics provides a clear and rigorous presentation of continuum mechanics for engineers, physicists, applied mathematicians, and materials scientists. This book emphasizes the role of thermodynamics in constitutive modeling, with detailed application to nonlinear elastic solids, viscous fluids, and modern smart materials. While emphasizing advanced material modeling, special attention is also devoted to developing novel theories for incompressible and thermally expanding materials. A wealth of carefully chosen examples and exercises illuminate the subject matter and facilitate self-study.

- Uses direct notation for a clear and straightforward presentation of the mathematics, leading to a better understanding of the underlying physics
- Covers high-interest research areas such as small- and large-deformation continuum electrodynamics, with application to smart materials used in intelligent systems and structures
- Offers a unique approach to modeling incompressibility and thermal expansion, based on the authors' own research

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe Bibliography

- Sales Rank: #1937612 in Books
- Published on: 2014-11-19
- Original language: English
- Number of items: 1
- Dimensions: 9.25" h x .81" w x 7.52" l,
- Binding: Hardcover
- 340 pages

Editorial Review

About the Author
Stephen Bechtel is a professor emeritus in the Department of Mechanical & Aerospace Engineering at The Ohio State University. He obtained his Ph.D. in Mechanical Engineering from the University of California, Berkeley. He is a Fellow of the American Society of Mechanical Engineers (ASME) and a two-time winner of the Ohio State University College of Engineering Lumley Research Award. His research interests include advanced materials, including polymer/nanoparticle composites, magnetorheological fluids, ferroic solids, and piezoelectric crystals; industrial polymer processing and fiber manufacturing; and shear and extensional characterization of polymer melts and solutions.

Robert Lowe is a Presidential Fellow and former American Society of Mechanical Engineers (ASME) Graduate Teaching Fellow in the Department of Mechanical & Aerospace Engineering at The Ohio State University. He conducts research in the Computer Applications of Mechanics Laboratory and the Computational Fluid Dynamics Laboratory. He obtained his B.S. in Mechanical Engineering from Ohio Northern University and his M.S. in Mechanical Engineering from Ohio State. His research interests include theoretical and computational mechanics, vibrations and elastic waves in structures, finite-deformation continuum electrodynamics, and polymer processing.

Users Review

From reader reviews:

Jason Silva:

Now a day people who Living in the era everywhere everything reachable by connect to the internet and the resources included can be true or not require people to be aware of each data they get. How a lot more to be smart in having any information nowadays? Of course the correct answer is reading a book. Looking at a book can help individuals out of this uncertainty Information mainly this Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials book because this book offers you rich information and knowledge. Of course the details in this book hundred pct guarantees there is no doubt in it you probably know this.

Jean McFerren:

Reading a book can be one of a lot of task that everyone in the world likes. Do you like reading book and so. There are a lot of reasons why people enjoy it. First reading a e-book will give you a lot of new facts. When you read a e-book you will get new information since book is one of several ways to share the information or maybe their idea. Second, reading through a book will make you actually more imaginative. When you reading a book especially fictional works book the author will bring you to imagine the story how the personas do it anything. Third, you are able to share your knowledge to others. When you read this Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials, you may tells your family, friends and also soon about yours book. Your knowledge can inspire the others, make them reading a e-book.

Lane James:

In this age globalization it is important to someone to find information. The information will make anyone to understand the condition of the world. The fitness of the world makes the information better to share. You can find a lot of sources to get information example: internet, magazine, book, and soon. You can see that now, a lot of publisher which print many kinds of book. The actual book that recommended for you is Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials this reserve consist a lot of the information from the condition of this world now. This particular book was represented how do the world has grown up. The language styles that writer use to explain it is easy to understand. Typically the writer made some research when he makes this book. That is why this book suited all of you.

Mary Adamczyk:

You may get this Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials by look at the bookstore or Mall. Only viewing or reviewing it can to be your solve challenge if you get difficulties for ones knowledge. Kinds of this guide are various. Not only by simply written or printed and also can you enjoy this book by e-book. In the modern era just like now, you just looking because of your mobile phone and searching what their problem. Right now, choose your personal ways to get more information about your reserve. It is most important to arrange yourself to make your knowledge are still revise. Let's try to choose correct ways for you.

Read Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe for online ebook

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe 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 Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe books to read online.

Online Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe ebook PDF download

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe Doc

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe Mobipocket

Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe EPub

2UQLV71ABXC: Fundamentals of Continuum Mechanics: With Applications to Mechanical, Thermomechanical, and Smart Materials By Stephen Bechtel, Robert Lowe