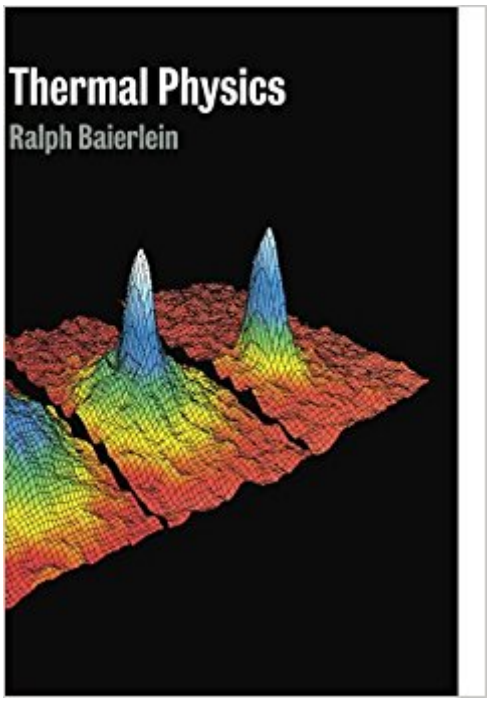
Thermal Physics



Synopsis

Suitable for both undergraduates and graduates, this textbook provides an up-to-date, accessible introduction to thermal physics. The material provides a comprehensive understanding of thermodynamics, statistical mechanics, and kinetic theory, and has been extensively tested in the classroom by the author who is an experienced teacher. This book begins with a clear review of fundamental ideas and goes on to construct a conceptual foundation of four linked elements: entropy and the Second Law, the canonical probability distribution, the partition function, and the chemical potential. This foundation is used throughout the book to help explain new topics and exciting recent developments such as Bose-Einstein condensation and critical phenomena. The highlighting of key equations, summaries of essential ideas, and an extensive set of problems of varying degrees of difficulty will allow readers to fully grasp both the basic and current aspects of the subject. A solutions manual is available for instructors. This book is an invaluable textbook for students in physics and astronomy.

Book Information

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Customer Reviews

"...an excellent book...Baierlein’s writing is exceptionally clear....Every quantity is clearly defined, and discussed when any confusion could arise, whether the concept is simple or complex....Baierlein always backs up the equations with explanations in words, and with examples....The organization of topics seems natural and well thought out....certainly among the best possible choices for use in an undergraduate course." American Journal of Physics"The book, written in instructive form, shows great experience of the author as a teacher. Many examples of

different degrees of difficulty either theoretical, experimental, or based on everyday observations, make the book interesting and readable. The author manages to present the complex ideas of thermal physics in a clear and attractive way." Applied Mechanics Reviews"...written so that students will receive an empirical, intuitive understanding of thermodynamics processes....The book is well written, uses plenty of descriptive material to establish the basic fundamentals, and is supplemented with useful applications." Choice"This book is a superb introduction to the key concepts of statistical mechanics, thoroughly modern in approach with current topics emphasized as well as basic principles. Baierlein's characteristic clarity of exposition makes the book ideal for self-study as well as for classroom use." H. Eugene Stanley, Boston University"I enjoyed reading this tremendously. The author has a personal and thoughtful way of introducing and arranging the material. He has succeeded in making many of the difficult concepts more intuitive and more within the grasp of students who have very little background in thermodynamics and thermal physics. In the hands of a skilled teacher, this book would serve very well in its intended role." Journal of Statistical Physics"...very well written and a pleasure to read...what makes this text stand out is the quality, clarity, and conciseness of the writing." Physics Today

This textbook provides a clear, instructive and highly readable introduction to thermal physics. Written by an experienced teacher, it provides a comprehensive grounding in thermodynamics, statistical mechanics and kinetic theory and also includes recent developments including Bose-Einstein condensation & critical phenomena. The modular structure allows a flexible approach to teaching and learning. Each chapter contains a summary of essential ideas, key equations are highlighted throughout and many problems of varying degrees of difficulty are included with a solutions manual available for instructors. Suitable for both undergraduates and graduates in physics and astronomy.

Hello. I have been studying physics and chemistry for about the last seven years and I am currently a graduate student. I am reading through Baieriein and thoroughly enjoying the book. It does require I think, a bit of a background on waves and oscillations to know exactly what is happening in some of the derivations and an introductory course in chemistry, specifically thermodynamics, helps to recognize how these concepts are put to use. Besides that, the book is straightforward and the text is clear. Baierlein starts with very physically intuitive examples to derive his expressions and express the concepts and then moves to the abstract. The problems in the back, or what I have completed of them, are well thought out and do not ask the read to make great leaps between what

is presented in the chapter and what is asked for.If you need a solid and straightforward introduction to the subject I would definitely recommend this.

This was a great book to read, came very quickly and was in good condition. Very informative and helped me learn more about thermal physics.

Great book the author has really great examples and also is quite easy to read. Accompanying a Thermal Physics course this book is definitely helpful and a great tool/ reference.

I had trouble with a quantum book last year due to lacking any real examples. But this book is very nice in providing those examples. Some of the questions in each chapter start to diverge from the book some requiring either to look up values online or to have prior knowledge to something relating to this subject that even a major like myself lacked.

Book has fairly good qualitative descriptions. However the books description and work regarding analytically problem solving is minimal at best. Good for courses that focus on qualitative but bad for courses focusing on the analytic.

This is an informative textbook of statistical mechanics. I will be using this one for my GRE preparation as well. Some problems are hard as conception wise, but they are not mathematically challenging.

Not an issue with the text itself, but the equations and figures on Kindle PC are so small they are barely readable even when the font is resized, making the Kindle version of the textbook nearly useless.

This book was very clear and concisely written. It made my understanding of Thermodynamics greater in depth, than any other resource I have used in the pass.

Publications) Fundamentals of Statistical and Thermal Physics From Gravity to Thermal Gauge Theories: The AdS/CFT Correspondence (Lecture Notes in Physics) The Solid State: An Introduction to the Physics of Crystals for Students of Physics, Materials Science, and Engineering (Oxford Physics Series) Head First Physics: A learner's companion to mechanics and practical physics (AP Physics B - Advanced Placement) Physics for Scientists and Engineers with Modern Physics: Volume II (3rd Edition) (Physics for Scientists & Engineers) Physics for Kids : Electricity and Magnetism - Physics 7th Grade | Children's Physics Books Six Ideas that Shaped Physics: Unit N - Laws of Physics are Universal (WCB Physics) Quantum Electrodynamics: Gribov Lectures on Theoretical Physics (Cambridge Monographs on Particle Physics, Nuclear Physics and Cosmology) Six Ideas That Shaped Physics: Unit R - Laws of Physics are Frame-Independent (WCB Physics) Problem-Solving Exercises in Physics: The High School Physics Program (Prentice Hall Conceptual Physics Workbook) Thermal Delight in Architecture (MIT Press) Thermal Environmental Engineering (3rd Edition)