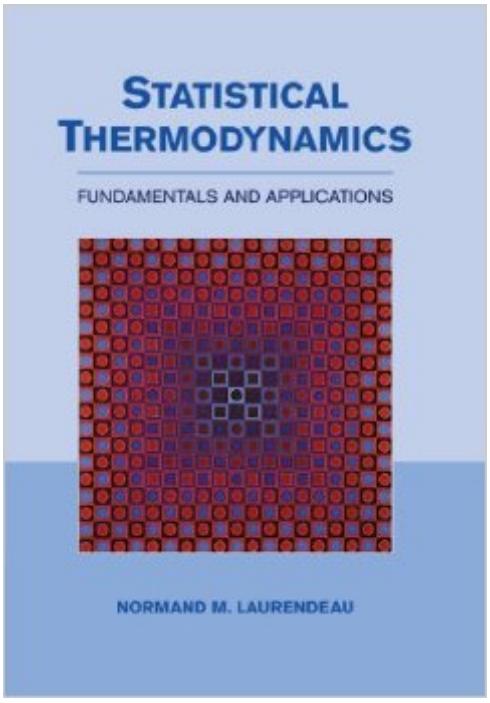
Statistical Thermodynamics: Fundamentals And Applications



Synopsis

Building on the Maxwell-Boltzmann method of step-by-step development of the subject, this book makes few presumptions concerning students' previous exposure to statistics, quantum mechanics, or spectroscopy. The book begins with the fundamentals of statistical thermodynamics, pauses to recover needed knowledge from quantum mechanics and spectroscopy, and then moves on to applications involving ideal gases, the solid state, and radiation. A full introduction to kinetic theory is provided, including its applications to transport phenomena and chemical kinetics. Modern applications, such as laser-based diagnostics, are also discussed.

Book Information

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Customer Reviews

Great book! It is a little dense at some points and can be hard to read (for reference I'm a PhD student in mechanical engineering). The author is a legend in the laser diagnostics field so if you are looking for rovibtronic models for use with Raman scattering or LIF, this book has lots of good information.Note: If you are an optical diagnostics beginner check out Introduction to Optics and Lasers in Engineering (Laufer), Spectra of Atoms and Molecules (Bernath), or Laser Diagnostics for Combustion Temperature and Species (Eckbreth).

I use this text for my graduate intermediate thermodynamics course for Mechanical Engineers. It's a superb text for this group, well written, understandable, and approachable, without compromise on significant detail. It is especially good as a preparatory text for those interested in making optical diagnostic measurements. Good introductory material on kinetic theory as well as statistical

thermodynamics. I highly recommend it.

This book is a great introduction! It clearly explains the linkages between classical concepts and the statistical/quantum concepts.Entropy, work, temperature, heat transfer et al become much clearer as a result.Note that this book does not just spellout facts. it gives both qualitative and quantative derivations to help you understand how everything fits together. The problem sets are well chosen to further enhance your understanding.

This is a pretty good book, if you’re into this kind of stuff. Good explanations and examples. Mildly interesting material.