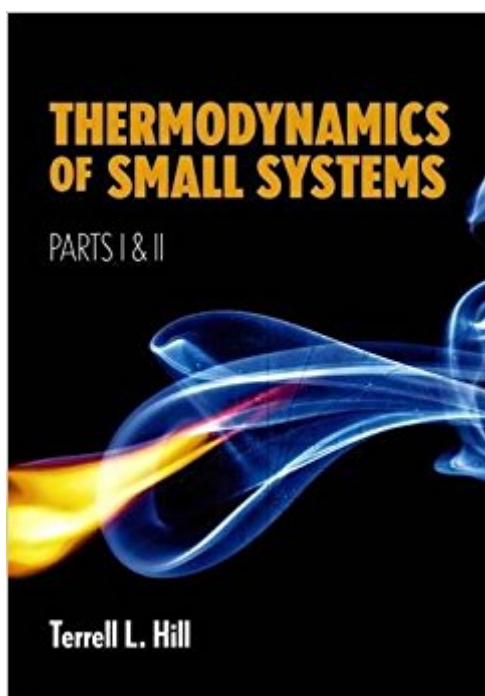


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Thermodynamics Of Small Systems, Parts I & II (Dover Books On Chemistry) (Pt. 1 & 2)



Synopsis

This authoritative summary of the basics of small system, or nonmacroscopic, thermodynamics was written by the field's founder. Originally published in two volumes, the text remains essential reading in an area in which the practical aim is to derive equations that provide interconnections among various thermodynamic functions. Part I introduces the basics of small system thermodynamics, exploring environmental variables, noting throughout the ways in which small thermodynamic systems differ operationally from macroscopic systems. Part II explores binding on macromolecules and aggregation, completes the discussion of environmental variables, and includes brief summaries of certain special topics, including electric and magnetic fields, spherical drops and bubbles, and polydisperse systems.

Book Information

Series: Dover Books on Chemistry

Paperback: 416 pages

Publisher: Dover Publications (October 17, 2013)

Language: English

ISBN-10: 0486681092

ISBN-13: 978-0486681092

Product Dimensions: 5.6 x 0.8 x 8.2 inches

Shipping Weight: 15.2 ounces (View shipping rates and policies)

Average Customer Review: 4.6 out of 5 stars 2 customer reviews

Best Sellers Rank: #1,742,351 in Books (See Top 100 in Books) #61 in Books > Science & Math > Chemistry > Electrochemistry #744 in Books > Science & Math > Physics > Dynamics > Thermodynamics #1201 in Books > Science & Math > Chemistry > Physical & Theoretical

Customer Reviews

Terrell L. Hill, a leading American chemist, biophysicist and science writer and educator, is Professor Emeritus at the University of California at Santa Cruz and a member of the National Academy of Sciences. --This text refers to an out of print or unavailable edition of this title.

Some scientists, including the author, are beginning to use the phrase 'nanothermodynamics' to describe the behavior of small chemical systems at or near equilibrium. 'Thermodynamics of Small Systems' provides many concepts which can be used to describe these behaviors in practical terms for biological systems, between nearest-neighbor molecules or molecular clusters at surfaces and

interfaces, in vapor-liquid-solid interfacial reaction and diffusion, in adsorbent-adsorbate interactions, or in membrane science and heterogeneous catalysis at short length scales. Concepts are clear and easy to apply if one has a strong background in chemical thermodynamics and physical chemistry. A basic understanding of quantum chemistry is also useful. When I read this book a few years ago, I merely sought to round out my knowledge of molecular level chemical systems by covering an area of thermodynamics I wasn't familiar with, but had no expectation of ever using those concepts. In fact, I've found that Dr. Hill's book has become a fundamental reference for my own work.

Thermodynamics in its beginnings was devoted to macroscopic objects. However its methodology has found room for application at microscopic molecular level something that, has acquired notoriety in recent years. The author presents a wider scope of basic thermodynamics which goes beyond its original intentions thus opening the door to new possibilities. Books like this one offers a clear exponent that things that now are rediscovered and presented as a spectacular breakthrough in fact goes to the sources of Thermodynamics.

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