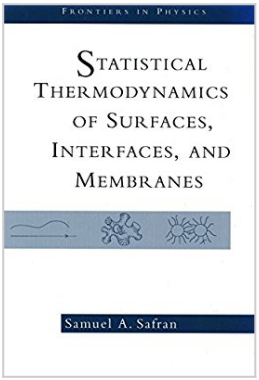

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics)

By Samuel Safran

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran

Understanding the structural and thermodynamic properties of surfaces, interfaces, and membranes is important for both fundamental and practical reasons. Complex fluids and solids, important in the development of new materials, cannot be designed using trial and error methods due to the multiplicity of components and parameters. While these materials can sometimes be analyzed in terms of microscopic mixtures, it is often conceptually simpler to regard them as dispersions and to focus on the properties of the internal interfaces found in these systems. The basic physics centers on the properties of quasi-two-dimensional systems embedded in the three-dimensional world, thus exhibiting phenomena which do not exist in bulk materials.This approach is the basis behind the theoretical presentation of *Statistical Thermodynamics of Surfaces, Interfaces, and Membranes.* Focusing on the large-scale properties of these systems, these notes are meant to supplement the usual treatments in books on colloid and interface science. The approach adapted here first presents the traditional approach and then investigates throughout to treat the rich diversity of phenomena investigated in the field of colloid and interface science such as interfacial tension, the roughening transition, wetting, interactions between surfaces, membrane elasticity, and self-assembly. The presentation is that of a set of lecture notes (used in graduate courses taught by the author) including worked examples and further problems. This book is aimed at physicists, physical chemists, chemical engineers, and materials scientists who are interested in the statistical mechanics that underlie the macroscopic, thermodynamic properties of surfaces, interfaces, and membranes.While the primary focus of the book is on the systems important in colloid and interface science, a more general goal is to introduce the reader to several theoretical methods that are useful in applications of statistical mechanics to materials. It is thus the hope that the depth and breadth of coverage will introduce the condensed matter physicist to colloid science and present to the physical chemist or material scientist, who may already be familiar with the underlying phenomena, a modern theoretical perspective.

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics)

By Samuel Safran

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran

Understanding the structural and thermodynamic properties of surfaces, interfaces, and membranes is important for both fundamental and practical reasons. Complex fluids and solids, important in the development of new materials, cannot be designed using trial and error methods due to the multiplicity of components and parameters. While these materials can sometimes be analyzed in terms of microscopic mixtures, it is often conceptually simpler to regard them as dispersions and to focus on the properties of the internal interfaces found in these systems. The basic physics centers on the properties of quasi-two-dimensional systems embedded in the three-dimensional world, thus exhibiting phenomena which do not exist in bulk materials.This approach is the basis behind the theoretical presentation of *Statistical Thermodynamics of Surfaces, Interfaces, and Membranes.* Focusing on the large-scale properties of these systems, these notes are meant to supplement the usual treatments in books on colloid and interface science. The approach adapted here first presents the traditional approach and then investigates throughout to treat the rich diversity of phenomena investigated in the field of colloid and interface science such as interfacial tension, the roughening transition, wetting, interactions between surfaces, membrane elasticity, and self-assembly. The presentation is that of a set of lecture notes (used in graduate courses taught by the author) including worked examples and further problems. This book is aimed at physicists, physical chemists, chemical engineers, and materials scientists who are interested in the statistical mechanics that underlie the macroscopic, thermodynamic properties of surfaces, interfaces, and membranes.While the primary focus of the book is on the systems important in colloid and interface science, a more general goal is to introduce the reader to several theoretical methods that are useful in applications of statistical mechanics to materials. It is thus the hope that the depth and breadth of coverage will introduce the condensed matter physicist to colloid science and present to the physical chemist or material scientist, who may already be familiar with the underlying phenomena, a modern theoretical perspective.

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran Bibliography

- Rank: #3396256 in Books
- Published on: 1994-04-20
- Original language: English
- Number of items: 1
- Dimensions: .81" h x 6.64" w x 9.44" l,
- Binding: Hardcover
- 270 pages

Editorial Review

Review
"A most welcome introduction to the study of internal interfaces found in complex multicomponent systems." -- *Rudlog Podgornik, Journal of Statistical Physics*

"One of the most laudable aspects of Safran's presentation is the methodical way he proceeds from simple to complex systems." -- *Michael Schick, Physics Today*

About the Author

Samuel A. Safran has been a professor in the department of Materials and Interfaces at Weizmann Institute of Science, Rehovot, Israel, since 1990 and is the first incumbent of the Steinfeld Professorial Chair. He was appointed Vice President of the Weizmann Institute in 2001 after serving as Dean of its Feinberg Graduate School for six years. He has been a senior staff physicist in the Complex Fluid Physics group at Exxon Research and Engineering, Annandale, New Jersey. His research applies the theoretical concepts of condensed matter physics to the understanding of soft matter including the structure, phase behavior, and dynamics of interfaces, membranes, and self-assembly. Specific topics include phase behavior and structure of colloidal, self-assembling and biomaterials, surface phase transitions, wetting dynamics, and the mechanics/thermodynamics of cells and membranes. He is a Fellow of the American Physical Society, on the editorial board of Langmuir, and an editor of several volumes on the physics of complex fluids.

Users Review

From reader reviews:

Karen Imes:

Here thing why this kind of Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) are different and dependable to be yours. First of all looking at a book is good nonetheless it depends in the content of it which is the content is as delicious as food or not. Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) giving you information deeper since different ways, you can find any e-book out there but there is no guide that similar with Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics). It gives you thrill looking at journey, its open up your own eyes about the thing this happened in the world which is probably can be happened around you. It is easy to bring everywhere like in park your car, café, or even in your technique home by train. If you are having difficulties in bringing the paper book maybe the form of Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) in e-book can be your alternative.

Joyce Jacobs:

Information is provisions for anyone to get better life, information today can get by anyone at everywhere. The information can be a information or any news even an issue. What people must be consider any time those information which is from the former life are challenging to be find than now could be taking seriously which one works to believe or which one often the resource are convinced. If you find the unstable resource

then you understand it as your main information there will be huge disadvantage for you. All those possibilities will not happen inside you if you take Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) as the daily resource information.

Donald Wexler:

People live in this new time of lifestyle always try to and must have the time or they will get lots of stress from both day to day life and work. So , if we ask do people have spare time, we will say absolutely of course. People is human not really a huge robot. Then we question again, what kind of activity do you have when the spare time coming to you actually of course your answer will unlimited right. Then ever try this one, reading textbooks. It can be your alternative with spending your spare time, the book you have read is definitely Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics).

Sarah Porter:

Your reading sixth sense will not betray you, why because this Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) reserve written by well-known writer who really knows well how to make book which can be understand by anyone who all read the book. Written throughout good manner for you, still dripping wet every ideas and writing skill only for eliminate your personal hunger then you still doubt Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) as good book but not only by the cover but also by the content. This is one book that can break don't judge book by its include, so do you still needing one more sixth sense to pick this specific!? Oh come on your reading sixth sense already said so why you have to listening to another sixth sense.

Read Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran for online ebook

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran 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 Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran books to read online.

Online Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran ebook PDF download

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran Doc

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran Mobipocket

Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran EPub

FG9DEO71U6T: Statistical Thermodynamics Of Surfaces, Interfaces And Membranes (Frontiers in Physics) By Samuel Safran