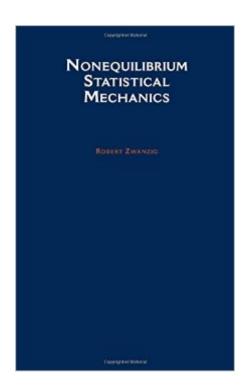**The book was found**

Nonequilibrium Statistical Mechanics

Synopsis

This is a presentation of the main ideas and methods of modern nonequilibrium statistical mechanics. It is the perfect introduction for anyone in chemistry or physics who needs an update or background in this time-dependent field. Topics covered include fluctuation-dissipation theorem; linear response theory; time correlation functions, and projection operators. Theoretical models are illustrated by real-world examples and numerous applications such as chemical reaction rates and spectral line shapes are covered. The mathematical treatments are detailed and easily understandable and the appendices include useful mathematical methods like the Laplace transforms, Gaussian random variables and phenomenological transport equations.

Book Information

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Customer Reviews

I really enjoyed this book by Zwanzig. It treats many standard subjects starting from Langevin eq., Fokker Planck eq., to projection operators and mode-coupling theories, etc. Most of the examples demonstrated are elementary, but some of them (heat bath, dipole moments, etc) are treated several times in different chapters with different techniques so that the reader can understand more deeply how these techniques are interconnected. Really enlightening!

This book is not an ideal dictionary of stat/mech as "A modern course in Stat/Phys" by Reichl. Albeit noticeable typos,as long as the reader does all the hard work and derives eqns step by step, he/she can easily correct the typos without missing any important information.The reason I liked this book

over others is because of its clearand crisp content to underpin the essential "physics" of each equation by simple words. Moreover, the connections betweeneach section and chapter are arranged in a logical way as you can see that Bob has indeed distilled a thorough understandingof nonequilibrium stat/mech into a delicious, thin book for which every student who uses stat/mech for research should read.

Zwanzig shows great mastery of the material and his explanations are great. They help explain the material well.But the big problem here is that there are just so many typos. When you want to follow complicated arguments, it can take forever to figure out what he means precisely/mathematically.Also, there is not the slightest attempt to keep units correct or fix a representation, so one finds inner products between objects that don't really make sense. They are never formally defined.It's a great book to get the ideas from and some simple derivations. I'm still working my way through parts of it. But unless you have a complementary book to guide you, especially through Ch. 8, or you are already familiar with the material, you may get lost...I would suggest Berne/Pacora Ch. 11 for help in Ch. 8

I have taken and TA-ed statistical thermodynamics and nonequilibrium statistical mechanics and have found Robert Zwanzig's book to be the best introduction to the nonequilibrium side of things. Clarity is the goal here, without the detail of Kubo's Stat. Phys. II, and MUCH clearer than the latter chapters in McQuarrie. However, a student will get much more from this book if he or she has at least some background in quantum mechanics and, needless to say, in statistical thermodynamics.Without getting into much detail, Zwanzig focuses on the fundamental concepts in a clear exposition. If you are taking yourt first course in nonequilibrium stat mech, this is the book you should buy. If, however, you have some reasonable experience with the subject, this book is not worth as much, since it is designed to be pedagogical. In that case, Van Kampen's Stochastic Processes in Physics and Chemistry is best.

Nonequilibrium Statistical Mechanics Direct Methods for Solving the Boltzmann Equation and Study of Nonequilibrium Flows (Fluid Mechanics and Its Applications) Elementary Stochastic Calculus With Finance in View (Advanced Series on Statistical Science & Applied Probability, Vol 6) (Advanced Series on Statistical Science and Applied Probability) Thermodynamics With Quantum Statistical Illustrations. Monographs in Statistical Physics and Thermodynamics, Volume 2 Thermodynamics and Statistical Mechanics: An Integrated Approach (Cambridge Series in

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