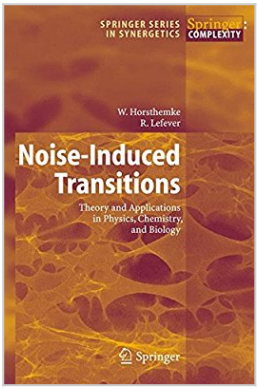

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics)

By W. Horsthemke, R. Lefever

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever

The study of phase transitions is among the most fascinating fields in physics. Originally limited to transition phenomena in equilibrium systems, this field has outgrown its classical confines during the last two decades. The behavior of far from equilibrium systems has received more and more attention and has been an extremely active and productive subject of research for physicists, chemists and biologists. Their studies have brought about a more unified vision of the laws which govern self-organization processes of physico-chemical and biological sys tems. A major achievement has been the extension of the notion of phase transi tion to instabilities which occur only in open nonlinear systems. The notion of phase transition has been proven fruitful in apphcation to nonequilibrium ins- bihties known for about eight decades, like certain hydrodynamic instabilities, as well as in the case of the more recently discovered instabilities in quantum optical systems such as the laser, in chemical systems such as the Belousov-Zhabotinskii reaction and in biological systems. Even outside the realm of natural sciences, this notion is now used in economics and sociology. In this monograph we show that the notion of phase transition can be extend ed even further. It apphes also to a new class of transition phenomena which occur only in nonequilibrium systems subjected to a randomly fluctuating en vironment.

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics)

By W. Horsthemke, R. Lefever

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever

The study of phase transitions is among the most fascinating fields in physics. Originally limited to transition phenomena in equilibrium systems, this field has outgrown its classical confines during the last two decades. The behavior of far from equilibrium systems has received more and more attention and has been an extremely active and productive subject of research for physicists, chemists and biologists. Their studies have brought about a more unified vision of the laws which govern self-organization processes of physico-chemical and biological sys tems. A major achievement has been the extension of the notion of phase transi tion to instabilities which occur only in open nonlinear systems. The notion of phase transition has been proven fruitful in apphcation to nonequilibrium ins- bihties known for about eight decades, like certain hydrodynamic instabilities, as well as in the case of the more recently discovered instabilities in quantum optical systems such as the laser, in chemical systems such as the Belousov-Zhabotinskii reaction and in biological systems. Even outside the realm of natural sciences, this notion is now used in economics and sociology. In this monograph we show that the notion of phase transition can be extend ed even further. It apphes also to a new class of transition phenomena which occur only in nonequilibrium systems subjected to a randomly fluctuating en vironment.

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever Bibliography

- Sales Rank: #3693287 in Books
- Published on: 2007-02-15
- Original language: English
- Number of items: 1
- Dimensions: 6.14" h x .81" w x 9.21" l, 1.45 pounds
- Binding: Hardcover
- 322 pages

Editorial Review

From the Back Cover

This classic text, an often-requested reprint, develops and explains the foundations of noise-induced processes. At its core is a self-contained, textbook-style presentation of the elements of probability theory, of the theory of Markovian diffusion processes and of the theory of stochastic differential equations, on which the modeling of fluctuating natural and artificial environments is based. Following an introduction to the mathematical tools, the occurrence and the properties of noise-induced transitions are then analyzed for rapidly fluctuating environments describable by the white-noise idealization. Subsequently, more realistic and general types of colored noises are considered. Appropriate practical methods for dealing with these situations are developed. The latter part of the book contains applications and experimental studies illustrating the many facets of noise-induced transitions. The following applications are considered in Noise-Induced Transitions: population dynamics, electrical circuits, chemical and photochemical reactions, non-linear optics, and hydrodynamical systems.

Users Review

From reader reviews:

Hector Naranjo:

Book will be written, printed, or outlined for everything. You can learn everything you want by a e-book. Book has a different type. As it is known to us that book is important issue to bring us around the world. Beside that you can your reading talent was fluently. A guide Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) will make you to always be smarter. You can feel considerably more confidence if you can know about every little thing. But some of you think that will open or reading some sort of book make you bored. It is not make you fun. Why they can be thought like that? Have you trying to find best book or suited book with you?

Charlene Martinez:

The e-book untitled Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) is the reserve that recommended to you to see. You can see the quality of the reserve content that will be shown to you. The language that creator use to explained their ideas are easily to understand. The writer was did a lot of exploration when write the book, and so the information that they share for your requirements is absolutely accurate. You also could possibly get the e-book of Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) from the publisher to make you considerably more enjoy free time.

Christopher Larsen:

Your reading 6th sense will not betray you actually, why because this Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) book written by well-known writer we are excited for well how to make book that could be understand by anyone who also read the book. Written within good manner for you, still dripping wet every ideas and creating skill only for eliminate your current hunger then you still skepticism Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) as good book not merely by the cover but also by content. This is one reserve that can break don't determine book by its protect, so do you still needing one more sixth sense to pick this particular!? Oh come on your studying sixth sense already said so why you have to listening to one more sixth sense.

James Walton:

Beside this particular Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) in your phone, it could possibly give you a way to get nearer to the new knowledge or facts. The information and the knowledge you will got here is fresh in the oven so don't possibly be worry if you feel like an outdated people live in narrow village. It is good thing to have Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) because this book offers to you personally readable information. Do you often have book but you do not get what it's facts concerning. Oh come on, that will not end up to happen if you have this in the hand. The Enjoyable blend here cannot be questionable, similar to treasuring beautiful island. Use you still want to miss that? Find this book along with read it from currently!

Read Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever for online ebook

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever 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 Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever books to read online.

Online Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever ebook PDF download

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever Doc

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever Mobipocket

Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever EPub

S7XOATIZE89: Noise-Induced Transitions: Theory and Applications in Physics, Chemistry, and Biology (Springer Series in Synergetics) By W. Horsthemke, R. Lefever