

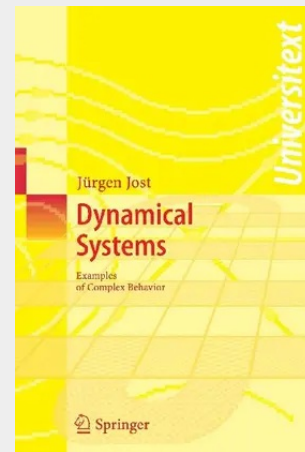
## Dynamical Systems

Examples of Complex Behaviour

This book presents a survey of the field of dynamical systems and its significance for research in complex systems and other fields, based on a careful analysis of specific important examples. It also explains the fundamental underlying mathematical concepts, with a particular focus on invariants of dynamical systems, including a systematic treatment of Morse-Conley theory. Entropy and related concepts in the topological, metric, measure theoretic and smooth settings and some connections with information theory are discussed, and cellular automata and random Boolean networks are presented as specific examples.

Our aim is to introduce, explain, and discuss the fundamental problems, ideas, concepts, results, and methods of the theory of dynamical systems and to show how they can be used in specific examples. We do not intend to give a comprehensive overview of the present state of research in the theory of dynamical systems, nor a detailed historical account of its development. We try to explain the important results, often neglecting technical refinements and, usually, we do not provide proofs. One of the basic questions in studying dynamical systems, i.e. systems that evolve in time, is the construction of invariants that allow us to classify qualitative types of dynamical evolution, to distinguish between qualitatively different dynamics, and to study transitions between different types. It is also important to find out when a certain dynamic behavior is stable under small perturbations, as well as to understand the various scenarios of instability. Finally, an essential aspect of a dynamic evolution is the transformation of some given initial state into some final or asymptotic state as time proceeds.

The temporal evolution of a dynamical system may be continuous or discrete, but it turns out that many of the concepts to be introduced are useful in either case.



**64,19 €**

59,99 € (zzgl. MwSt.)

*Lieferfrist: bis zu 10 Tage*

**Artikelnummer:** 9783540229087

**Medium:** Buch

**ISBN:** 978-3-540-22908-7

**Verlag:** Springer

**Erscheinungstermin:** 01.08.2005

**Sprache(n):** Englisch

**Auflage:** 1. Auflage 2005

**Serie:** Universitext

**Produktform:** Kartoniert

**Gewicht:** 355 g

**Seiten:** 190

**Format (B x H):** 155 x 235 mm

