

Book Review: *Chaotic Behavior of Deterministic Dissipative Systems*

Chaotic Behaviour of Deterministic Dissipative Systems, Milos Marek and Igor Schreiber, Cambridge University Press, Cambridge, 1991, 367 pp.

This book contains a survey of theoretical and experimental aspects of the chaotic behavior of deterministic systems. It is an introductory text aimed at the level of graduate students and researchers from a variety of fields (mathematics, physics, biology, and engineering). The monograph provides a comprehensive bibliography on the subject up to the date of publication. In my opinion, one of the most interesting features of the book is its detailed description of experiments in which chaos constitutes a significant backdrop.

The book consists of seven chapters and two technical appendices. The introductory Chapter 1 discusses the significance of chaos as a model of many seemingly random processes in nature and defines the class of dissipative systems described in greater detail later in the book.

Chapter 2 discusses basic notions of dynamical systems and their asymptotic behavior, including the definitions of chaos and strange attractors. Chapter 3 deals with the transition from order to chaos, illustrated by a number of examples.

Chapter 4 discusses numerical methods for studies of parametric dependences, bifurcations, and chaos. Chapters 5 and 6 survey experimental observations of chaotic behavior, including a number of experiments and data from mechanical and electromechanical systems, semiconductors, lasers, chemical and biological systems, and hydrodynamics. Some of the experiments and data are based on the authors' work.

Finally, Chapter 7 deals with spatiotemporal behavior in distributed systems, presenting a brief review on results in the areas of cellular automata, coupled map lattices, and partial differential equations.

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