

BIFURCATION THEORY AND APPLICATIONS IN SCIENTIFIC DISCIPLINES

Edited by Okan Gurel (IBM Corporation) and Otto E. Rössler (University of Tübingen)

The application of nonlinear concepts to the applied sciences has increased dramatically over the past few years in fields ranging from physics to economics. Dynamical systems theory, originated by J.J. Poincaré, has expanded in scope and usefulness as the implications of simple ordinary and partial differential equations have turned out to be much richer than anticipated. The publication of **BIFURCATION THEORY AND APPLICATIONS IN SCIENTIFIC DISCIPLINES** at this time provides a timely reference volume on the recent research in this field.

The conference on **BIFURCATION THEORY AND APPLICATIONS IN SCIENTIFIC DISCIPLINES**, held October 31-November 4, 1977, upon which this volume is based, was one of those rare occasions when researchers from different disciplines focused their attention on a mathematical topic and discussed both common interests and basic differences. Efforts in various directions were reviewed and related to each other, not only in the sections on basic and applied sciences, where the use of bifurcation theory is well established, but also in disciplines such as ecology and economics where the role of bifurcation theory is still being debated. Catastrophe theory, a part of bifurcation theory, is also the subject of several papers.

BIFURCATION THEORY AND APPLICATIONS IN SCIENTIFIC DISCIPLINES is at present the only book on bifurcation covering both historical developments and mathematical theories and approaches. It describes applications in various fields such as biology (enzyme kinetics, morphogenesis), chemistry (chemical kinetics), physics (phase transitions), engineering, computer science, ecology of interacting species, economics and medicine and also addresses studies in experimentation and simulation.

This 708 page volume is organized to provide simple access to those interested in those particular disciplines where bifurcation has been shown to play a role. Extensive contributor and subject indexes complete the book.

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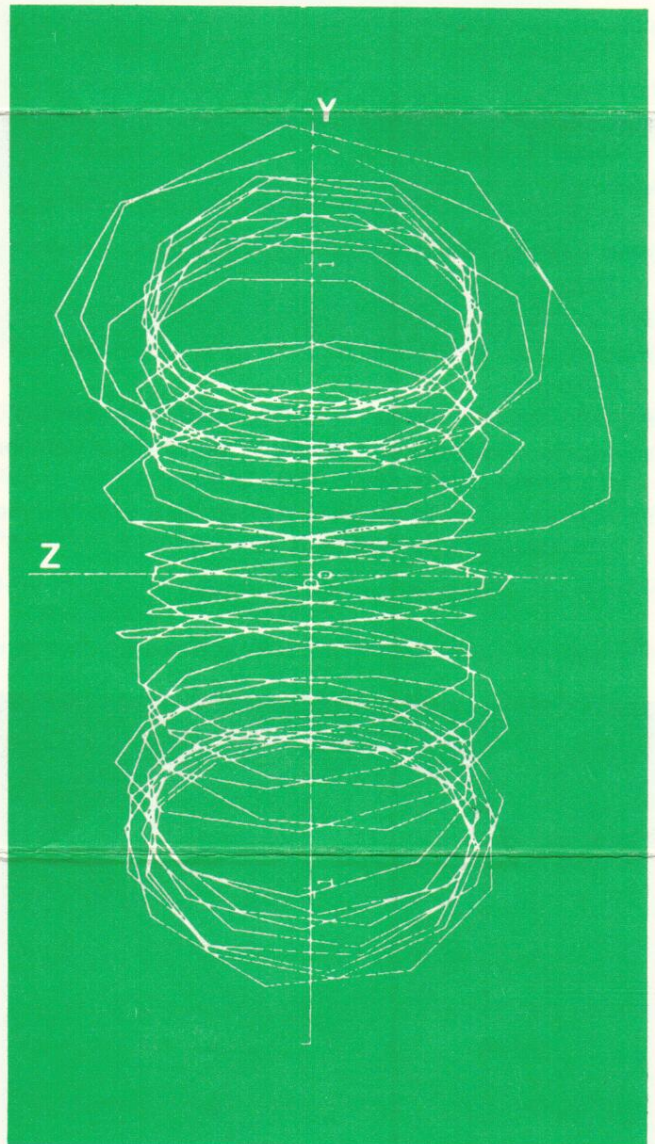
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ISBN: 0-89766-000-5 58 papers and contributor/subject indexes, 708 pages.
Published February 28, 1979 (Volume 316 of the Annals)

CONTENTS

Preface, by Okan Gurel

Introduction

Poincaré's Bifurcation Analysis, by Okan Gurel

PART 1. Mathematica

Introduction, by Eberhard Hopf

A General Bifurcation Theorem, by Jane Cronin

Necessary and Sufficient Conditions for Cooperative Peeling of Multiple Generating Singular Points, by Okan Gurel

On Stability of Stationary Points of Transformation Groups, by Morris W. Hirsch

Spontaneous Symmetry Breaking in Nonlinear Problems, by D.H. Sattinger

Applications of Bifurcation Theory in the Analysis of Spatial and Temporal Pattern Formation, by H.G. Othmer

The Bifurcation of Quadratic Functions, by John Guckenheimer

Bifurcation from Completely Unstable Flows on the Cylinder, by Zbigniew Nitecki

Homoclinic Orbits to Hyperbolic Equilibria, by Robert L. Devaney

Upper Semicontinuity of Topological Entropy, by Anthony Manning

Structural Stability and Bifurcation Theory, by S.E. Newhouse
An Analysis of Imperfect Bifurcation, by M. Golubitsky and D. Schaeffer

Extension and Interpolation of Catastrophes, by L. Markus

Factorization Theorems and Repeated Branching of Solutions at a Simple Eigenvalue, by D.D. Joseph

The Nonoccurrence of Secondary Bifurcation with Hammerstein Operators, by George H. Pimbley

PART II. Biology

Bifurcations and Biological Observables, by Robert Rosen

The Random Character of Bifurcations and the Reproducible Processes of Embryonic Development, by Hans Meinhardt

Temporal and Spatial Order in Biochemical Systems, by Benno Hess and Theodor Plesser

Pathological Conditions Resulting from Instabilities in Physiological Control Systems, by Leon Glass and Michael C. Mackey

Spatial, Chiral, and Temporal Self-Organization through Bifurcation in "Bioids," Open Systems Capable of a Generalized Darwinian Evolution, by Peter Decker

PART III. Chemistry and Chemical Engineering

Effect of Fluctuations on Bifurcation Phenomena, by G. Nicolis and J.W. Turner

Bifurcation Waves, by J.F.G. Auchmuty

Oscillations, Bistability, and Echo Waves in Models of the Belousov-Zhabotinskii Reaction, by John J. Tyson

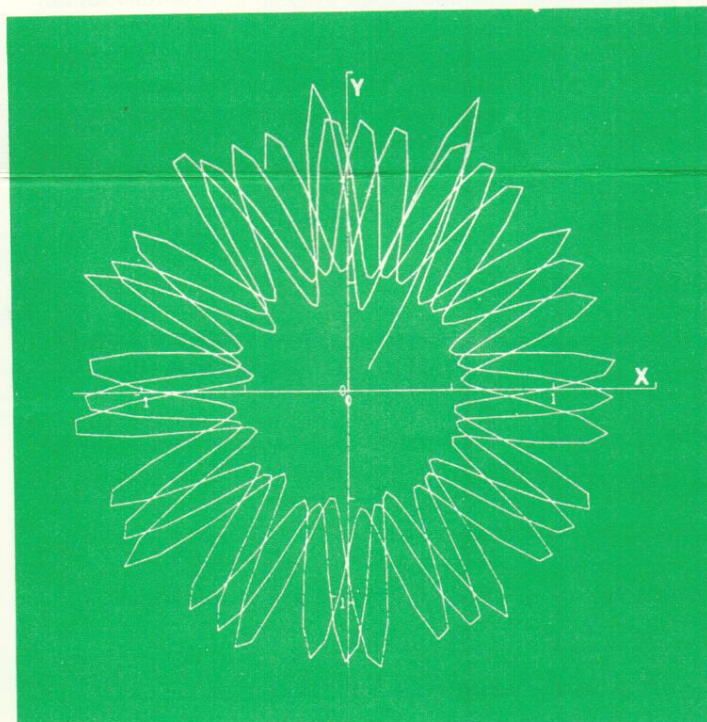
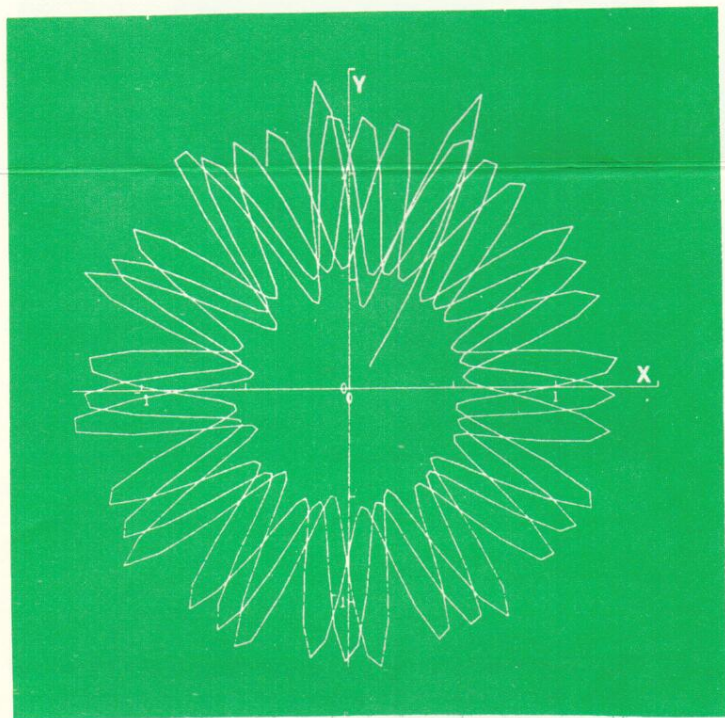
The Bifurcation Diagram of Model Chemical Reactions, by M. Herschkowitz-Kaufman and T. Erneux

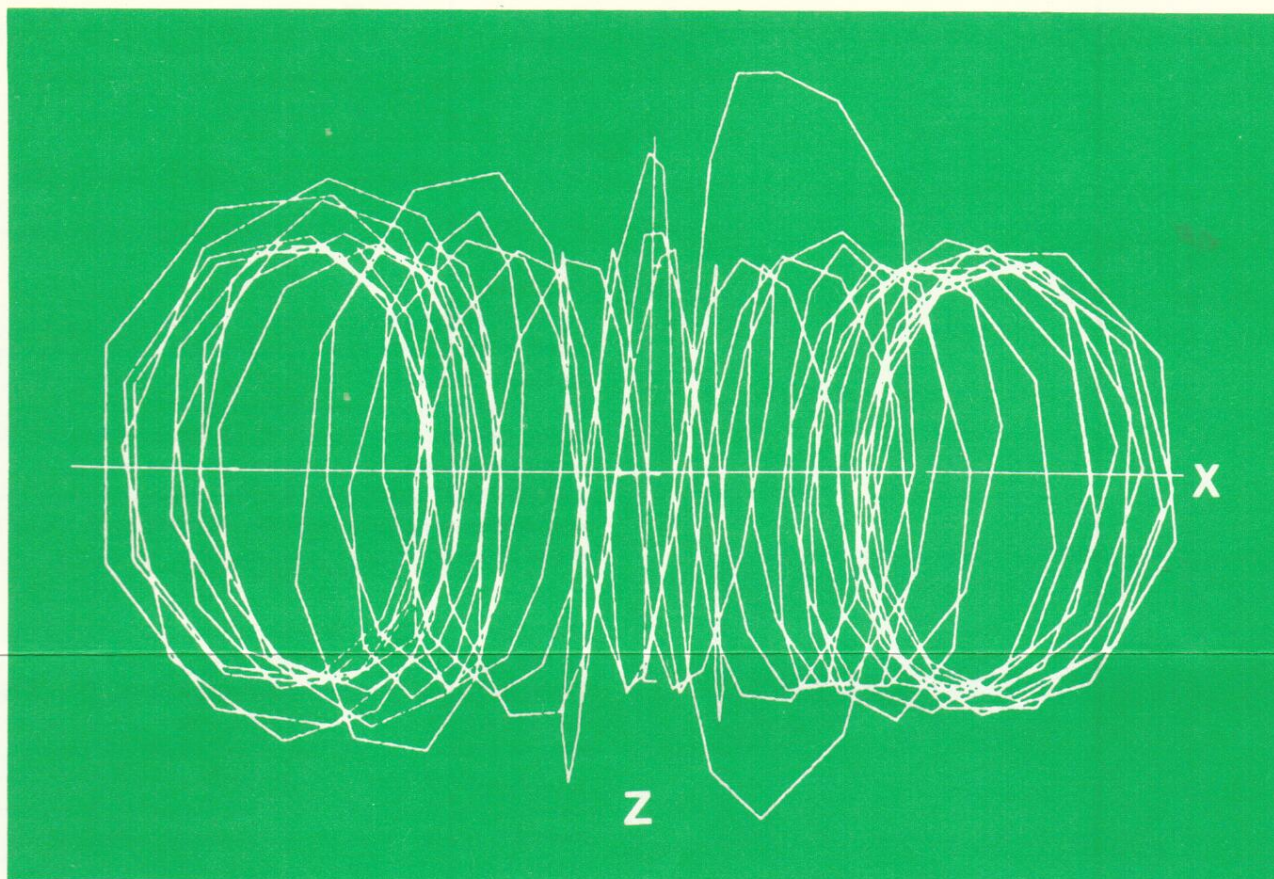
Chemical Reactors and Some Bifurcation Phenomena, by Rutherford Aris

Interacting Oscillatory Chemical Reactors, by Ronald S. Cohen and John C. Neu

Nonthermal Instabilities of "Optimized" Chemical Reactors-Hysteresis Jumps in Binary Reactions with Homogeneous Catalysis near the State of Maximal Yield Even under Strictly Isothermal Conditions, by Friedrich Franz Seelig

Discussion Paper: Bifurcations and Perturbed Attractors in Physicochemical Systems, by Peter Ortoleva





PART IV. Physics

- Synergetics and Bifurcation Theory*, by H. Haken
- Continuous Chaos – Four Prototype Equations*, by Otto E. Röster
- The Bifurcation Space of the Lorenz Attractor*, by R.F. Williams
- The Onset of Chaos in a Fluid Model of Lorenz*, by James L. Kaplan and James A. Yorke
- Sensitive Dependence on Initial Condition and Turbulent Behavior of Dynamical Systems*, by David Ruelle
- Phase Transitions as a Problem in Bifurcation Theory*, by John J. Kozak
- The Role of Fluctuations in Multistable Systems and in the Transition to Multistability*, by Rolf Landauer
- Master Equations, Stochastic Differential Equations, and Bifurcations*, by C.W. Gardiner, et al.
- Discussion Paper: Fractals, Attractors, and the Fractal Dimension*, by Benoit B. Mandelbrot

PART V. Ecology

- Ecosystem Stability and Bifurcation in the Light of Adaptability Theory*, by Michael Conrad
- On Bifurcation in Ecosystem Models*, by Thomas G. Hallam
- Some Diffusive Prey and Predator Systems and Their Bifurcation Problems*, by Masayasu Mimura, et al.
- Nonunique Stable Responses of Externally Forced Oscillatory Systems*, by F.C. Hoppensteadt and J.E. Flaherty
- Bifurcation and Dynamic Complexity in Ecological Systems*, by Robert M. May

PART VI. Economics

- Causally Indeterminate Models via Multi-Valued Differential Equations*, by Henry Y. Wan, Jr.

- On Comparative Statics and Bifurcation in Economic Equilibrium Theory*, by Steve Smale
- Discussion Paper*, by H.Y. Wan, Jr.

PART VII. Engineering

- Bifurcational Aspects of Catastrophe Theory*, by J.M.T. Thompson
- Imperfections and Near-Coincidence for Semisymmetric Bifurcations*, by Giles W. Hunt
- Some Applicable Hopf Bifurcation Formulas and an Application in Wind Engineering*, by A.B. Poore and A. Al-Rawi
- Topics in Local Bifurcation Theory*, by Jack K. Hale
- Qualitative Techniques for Bifurcation Analysis of Complex Systems*, by Philip Holmes and Jerrold E. Marsden

PART VIII. Experimentation and Simulation

- Bistability, Oscillation, and Chaos in an Enzyme Reaction*, by Hans Degn, et al.
- Observations of Complex Dynamic Behavior in the H₂-O₂ Reaction on Nickel*, by R.A. Schmitz, et al.
- Bifurcations to Periodic, Quasiperiodic, and Chaotic Regimes in Rotating and Convecting Fluids*, by P.R. Fenstermacher, et al.
- Discussion Paper: Experimental Investigations of Behavior and Stability Properties of Attractors Corresponding to Burst Phenomena in the Open Belousov Reaction*, by Graae Sørensen.
- Dynasim: Exploratory Research in Bifurcation Using Interactive Computer Graphics*, by Ralph H. Abraham
- Closing Remarks*, by Okan Gurel