

Contents

GENERAL CONCEPTS

Some Aspects of Synergetics. By H. Haken (With 14 Figures)	2
Radiation and Entropy, Coherence and Negentropy. By A. Kastler (With 2 Figures)	18
What is Catastrophe Theory about? By R. Thom	26

BIFURCATION THEORY

Bifurcation of a Continuum of Unstable Modes. By K. Kirchgässner	34
The Bifurcation of T-periodic Solutions into nT-periodic Solutions and TORI. By D. Joseph (With 3 Figures)	39
Cooperative Effects in Fluid Problems. By D.H. Sattinger (With 3 Figures)	51

INSTABILITIES IN FLUID DYNAMICS

Transition to Turbulence in a Fluid Flow. By H.L. Swinney, P.R. Fenstermacher, J.P. Gollup (With 9 Figures)	60
Instabilities in Fluid Dynamics. By E.L. Koschmieder (With 7 Figures)	70

INSTABILITIES IN ASTROPHYSICS

Instabilities in Stellar Evolution. By R. Kippenhahn (With 10 Figures)	80
---	----

SOLITONS

Solitons. I. Basic Concepts (With 1 Figure)	92
II. Mathematical Structures	104
By R.K. Bullough, R.K. Dodd	

NONEQUILIBRIUM PHASE TRANSITIONS IN CHEMICAL REACTIONS

Chemical Instabilities as Critical Phenomena. By A. Nitzan (With 1 Figure)	122
Chemical Evolution far from Equilibrium. By A. Pacault (With 28 Figures)	133
Entropy and Critical Fluctuations in a Stochastic Model of Second Order Nonequilibrium Phase Transition. By G. Czajkowski (With 1 Figure)	155

CHEMICAL WAVES AND TURBULENCE

Chemical Waves and Chemical Turbulence. By Y. Kuramoto (With 7 Figures)	164
Chemical Turbulence - A Synopsis. By O.E. Röessler (With 8 Figures)	174
Continuous Chaos. By O.E. Röessler (With 14 Figures)	184

MORPHOGENESIS

Morphogenesis - Persistence of Organized Structures and Breakthrough of New Structures. By H. Kuhn (With 5 Figures)	200
The Spatial Control of Cell Differentiation by Autocatalysis and Lateral Inhibition. By H. Meinhardt (With 9 Figures)	214
Regelmäßig periodische Verteilung im Raum. By H.J. Maresquille	224

BIOLOGICAL SYSTEMS

Neurosynergetics. By J.D. Cowan (With 10 Figures)	228
Biological Control through Long Range Coherence. By H. Fröhlich	241

GENERAL SYSTEMS

Sociocultural Systems and the Challenge of Sociobiology. By W. Buckley	248
Applications of Synergy in Business Administration. By M. Welge (With 4 Figures)	258
The Linguistic Structure of the Chromosome Genetic Code and Language. By F. Fröhlich	267

