

CONTENTS

<u>Ralph Abraham</u>	Macroscopy of Resonance	1
<u>Ralph Abraham</u>	Simulation of Cascades by Video Feedback	10
<u>Hans Bremermann</u>	Pattern Recognition by Deformable Prototypes	15
<u>Gail A. Carpenter</u>	Nerve Impulse Equations	58
<u>Charles C. Conley and Joel Smoller</u>	Remarks on Traveling Wave Solutions of Non-linear Diffusion Equations	77
<u>David Eisenbud and Harold I. Levine</u>	The Topological Degree of a Finite C^∞ Map Germ	90
<u>John Guckenheimer</u>	Constant Velocity Waves in Oscillating Chemical Reactions ..	99
<u>Nancy Kopell</u> ¹	Shock Structures and Bifurcation Methods	
<u>Tzee-Char Kuo</u> ¹	Real Analytic Functions and F-equisingularities	
<u>Sheldon Newhouse</u>	Conservative Systems and Two Problems of Smale	104
<u>Tim Poston</u>	Various Catastrophe Machines	111
<u>John Rinzel</u>	Nerve Signalling and Spatial Stability of Wave Trains	127
<u>Michael Shub</u>	Lyapunov Functions	

¹The contents of these contributions will be contained in more detail in the following publications:

N.Kopell and L.N.Howard, "Bifurcations and trajectories joining critical points", to appear in Advances in Mathematics.

T.C.Kuo and Y.C.Lu, "On analytic function-germs of two complex variables", to appear

<u>Floris Takens</u>	Constrained Equations; A study of Implicit Differential Equations and Their Discontinuous Solutions	143
<u>René Thom</u>	The Two-Fold Way of Catastrophe Theory	235
<u>Gordon Wassermann</u>	(r,s)-Stable Unfoldings and Catastrophe Theory	253
<u>Christopher Zeeman</u> (Notes written and revised by D.J.A. Trotman) ⁺	The Classification of Elementary Catastrophes of Codimension ≤ 5	263
<u>Christopher Zeeman</u>	The Umbilic Bracelet and the Double-Cusp Catastrophe	328
<u>Christopher Zeeman</u>	Brain Modelling	367
<u>Christopher Zeeman</u>	Euler Buckling	373
<u>Christopher Zeeman</u>	Gastrulation and Formation of Somites in Amphibia and Birds	396
<u>Christopher Zeeman</u>	Prison Disturbances	402
<u>Adresses of Participants</u>		407

+

Notes of lectures given by Christopher Zeeman in spring, 1973, revised by David Trotman in June, 1974, and again in July, 1975, and reproduced by kind permission of Christopher Zeeman and David Trotman.