

Contents

Preface

Acknowledgements

Nonlinear evolution of cellular flame instabilities

A. Bayliss, B.J. Matkowsky

1

On the justification of the Ginzburg-Landau approximation

P. Bollerman, A. van Harten, G. Schneider

20

Bifurcations far from criticality in fluid systems

F.H. Busse, R.M. Clever

37

Self-organization and chaotic advection in quasi-2D confined flows

H.J.H. Clercx, G.J.F. van Heijst

52

Surface tension driven cellular flows in small aspect ratio horizontally square boxes

H.A. Dijkstra

73

Pattern formation in systems on spatially periodic domains

A. Doelman, W. Eckhaus, R. Kuske, R. Schielen

85

Solitary wave interactions with external forces

R. Grimshaw

106

Breaking the dimension of a steady wave: some examples

M. Hărăguş, K. Kirchgässner

119

Remarks on the use and misuse of the Ginzburg-Landau equation

E. Knobloch

130

The mean flows driven by sandbar instabilities

N.L. Komarova, A.C. Newell

147

Dynamical systems, temporal vs. spatio-temporal chaos, and climate

P. Manneville

168

Interaction of modes with disparate scales in Rayleigh-Bénard convection

G. Manogg, P. Metzener

188

A new approach to sideband - instabilities using the principle of reduced instability

A. Mielke

206

Pattern formation in activator-inhibitor systems

M. Or-Guil, E. Ammelt, F.-J. Niedernostheide, H.-G. Purwins

223

Instabilities in two-layer channel flows	
Y.Y. Renardy, M. Renardy	238
A personal sample of patterns in biology	
L.A. Segel	257
Invitation to river morphodynamics	
G. Seminara	269
Periodic orbits in singularly-perturbed systems	
C. Soto-Treviño, T.J. Kaper	295
Dynamics of large-scale bed forms in coastal seas	
H.E. de Swart, S.J.M.H. Hulscher	315