

CONTENTS

PREFACE	*	VII
ONE-DIMENSIONAL CELLULAR PATTERNS P. Coullet and G.Iooss	1	
DEFECTS AND DEFECT MEDIATED TURBULENCE J. Lega	7	
PHASE DYNAMICS - THE CONCEPT AND SOME RECENT DEVELOPMENTS H.R. Brand	25	
TRANSIENT PATTERN DYNAMICS : GENERAL CONCEPTS AND THE FREEDERICKSZ TRANSITION IN NEMATICS M. San Miguel and F. Sagues	35	
LOCALIZED STRUCTURES IN REACTION-DIFFUSION SYSTEMS G. Dewel and P. Borckmans	63	
KINETIC MODELS FOR DEFECT POPULATIONS IN DRIVEN MATERIALS D. Walgraef	73	
EXTERNAL NOISE AND PATTERN SELECTION IN CONVECTIVELY UNSTABLE SYSTEMS R J. Deissler	83	
SECONDARY INSTABILITY OF TRAVELING INCLINED ROLLS IN TAYLOR-DEAN SYSTEM I. Mutabazi	89	
EXPERIMENTS ON THE FORMATION OF STATIONARY SPATIAL STRUCTURES ON A NETWORK OF COUPLED OSCILLATORS T. Dirksmeyer, R. Schmeling, J. Berkemeier, H.-G. Purwins	91	
STUDIES ON INSTABILITIES AND PATTERNS IN EVAPORATING LIQUIDS AT REDUCED PRESSURE AND/OR MICROWAVE IRRADIATION G. Bertrand, M. Lallemand, A. Steinchen, P. Gillon, P. Courville and D. Stuerga.....	109	
DIRECTIONAL SOLIDIFICATION : THEORETICAL METHODS AND CURRENT UNDERSTANDING H. Levine	123	
NEW INSTABILITIES IN DIRECTIONAL SOLIDIFICATION OF SUCCINONITRILE P.E. Cladis, J.T. Gleeson and P.L. Finn	135	

STATIONNARY CELLS IN DIRECTIONAL SOLIDIFICATION M. Mashaal and M. Ben Amar	147
RECENT PROGRESS IN THE THEORY OF THE GROWTH OF NEEDLE CRYSTALS M. Ben Amar and Y. Pomeau	159'
STRUCTURAL INVARIANTS AND THE DESCRIPTION OF THE LOCAL STRUCTURE OF CONDENSED MATTER A.C. Mitus and A.Z. Patashinskii	185
SIRUCTURAL ASPECTS OF DOMAIN PATTERNS IN CERAMICS AND ALLOYS Ch. Leroux, G. Van Tendeloo and J. Van Landuyt	195
SELF-ORGANIZATION IN FAR-FROM-EQUILIBRIUM REACTIVE POROUS MEDIA SUBJECT TO REACTION FRONT FINGERING P. Ortoleva and W. Chen	203
NONLINEARITY AND SELFORGANIZATION IN PLASTICITY AND FRACTURE E.C. Aifantis	221
PLASTIC INSTABILITIES AND THE DEFORMATION OF METALS H. Neuhäser	241
DISLOCATION PATTERNS AND PLASTIC INSTABILITIES L.P. Kubin, Y. Estrin and G. Canova	277
NUMERICAL SIMULATION OF DISLOCATION PATTERNS DURING PLASTIC DEFORMATION N.M. Ghoniem and R.J. Amodeo	303
PATTERN FORMATION DURING CW LASER MELTING OF SILICON K. Dworschak, J.S. Preston, J.E. Sipe and H.M. Van Driel	331
IRRADIATION-INDUCED CAVITY LATTICE FORMATION IN METALS J.H. Evans	347
THE FORMATION OF CLUSTERS OF CAVITIES DURING IRRADIATION S.M. Murphy	371
A MESOSCOPIC THEORY OF IRRADIATION-INDUCED VOID-LATTICE FORMATION P. Hähner and W. Frank	381
INDEX	383
PARTICIPANTS	389