

CONTENTS

Preface	v
Multiple Rhythms and Switches in the Nervous System <i>N. Kopell, D. Pervouchine, H. G. Rotstein, T. Netoff, M. Whittington and T. Gloveli</i>	1
Some Ideas on Action Potentials <i>D. Y. Hsieh</i>	19
Negative Feedback in Morphogen Gradients <i>M. Khong and F. Y. M. Wan</i>	29
CSAW: Stochastic Approach to Protein Folding <i>K. Huang</i>	53
“Collapse and Search” Dynamics of Protein Folding Detected by Time-Resolved Small-Angle X-Ray Scattering <i>S. Takahashi and T. Fujisawa</i>	69
Structural Transitions in Biopolymers: From DNA to Protein to Spider Silk <i>H. Zhou</i>	77
The Structure, Evolution and Instability of a Self-Gravitating Gaseous Disk under the Influence of Periodic Forcings <i>C. Yuan</i>	95
Dynamics of Spiral Galaxies <i>G. Bertin</i>	109
Dark Matter Dynamics in Galaxies <i>C.-P. Ma</i>	123
Asymptotics and Star Formation <i>F. H. Shu</i>	131

Solitary Waves from Optics to Fluid Dynamics <i>M. J. Ablowitz and A. Docherty</i>	155
Resonance Problems in Photonics <i>M. I. Weinstein</i>	187
Some Mathematical Properties of Long Waves <i>D. J. Benney</i>	205
New Solitary Wave Structures in Two-Dimensional Periodic Media <i>Z. Shi and J. Yang</i>	211