## Contents

Part I Physiological Rhythmicity and Synergetics	
Physiology of Rhythms and Control Systems: An Integrative Approach By H.P. Koepchen (With 12 Figures)	3
Synergetics - Can It Help Physiology? By H. Haken (With 7 Figures)	21
Part II Cardiovascular Rhythms	
Autorhythmicity in Blood Vessels: Its Biophysical and Biochemical Bases By G. Siegel, H.W. Hofer, A. Walter, K. Rückborn, F. Schnalke and H.P. Koepchen (With 25 Figures)	35
Role of the Rostroventrolateral Medulla in the Generation of Rhythmicities of the Sympathetic Activity By A. Trzebski and S. Baradziej (With 5 Figures)	61
Noninvasive Methods for Studying Rhythmic Nervous Control of Human Circulation  By A. Lindqvist (With 4 Figures)	69
The High Pressure System of the Mammalian Circulation as a Dynamic Self-Organizing System  By H. Schmid-Schönbein and S. Ziege (With 7 Figures)	77
Spectral Analysis of Circulatory Rhythms and Baroreflex Sensitivity in Man By N. Honzíková and B. Fišer (With 4 Figures)	97
Spectral Analysis of Cardiovascular Variables as a Tool to Quantify Neural Cardiovascular Control in the Laboratory and Real Life Conditions By M. Pagani, O. Rimoldi, P. Pizzinelli, D. Lucini, and A. Malliani (With 9 Figures)	103
Cardiorespiratory Variability: Fractals, White Noise, Nonlinear Oscillators, and Linear Modeling. What's to Be Learned?  By J. P. Saul (With 10 Figures)	115

Spectral Analysis as an Assessment of the Neural Control of the Heart:  A Methodological Comparison	107
By R. Stark and D. Vaitl (With 1 Figure)	127
Power Laws, Transients, Attractors, and Entropy: Possible Implications for Cardiovascular Dynamics By J.P. Zbilut (With 11 Figures)	139
Part III Respiratory Rhythms	
The Respiratory System – Features of Modulation and Coordination  By F. Raschke (With 7 Figures)	155
Phase Resetting of Respiratory Rhythm –  Experiments in Animals and Models  By F.L. Eldrige (With 13 Figures)	165
Rhythmogenesis of Deterministic Breathing Patterns By C.L. Webber, Jr. (With 12 Figures)	177
Part IV Motor Coordination	
Synergetic Dynamics of Biological Coordination with Special Reference to Phase Attraction and Intermittency By J.A.S. Kelso, G.C. DeGuzman, and T. Holroyd (With 9 Figures)	195
Synchronization of Rhythm in Motor Actions By M. Stadler, S. Vogt and P. Kruse (With 15 Figures)	215
Part V Basis of Circadian Rhythmicities	
Interactions Between Human Circadian and (About 90 min) Sleep Rhythms: Problems in the Simulation and the Analysis By R.A. Wever (With 10 Figures)	235
Part VI Rhythms in Electrical Activity of the Brain	
The Information Content of the Human EEG By H. Petsche (With 1 Figure)	257
Synergetics of Evoked Alpha and Theta Rhythms in the Brain: Topographic and Modality-Dependent Aspects By E. Başar, C. Başar-Eroglu, E. Rahn, and M. Schürmann (With 11 Figures)	273
EEG Rhythms – Event-Related Desynchronization and Synchronization By G. Pfurtscheller (With 7 Figures)	289

Part VII Rhythms in Perception	
Psychological Modification and Synergetic Modelling of Perceptual Oscillations By P. Kruse, M. Stadler, and D. Strüber (With 13 Figures)	299
Part VIII Aspects of Systems Theory	
Spatio-Temporal EEG Patterns By R. Friedrich, A. Fuchs, and H. Haken (With 15 Figures)	315
Information Processing by Systems with Chemical Communication By A.S. Mikhailov	339
Criteria for the Relative Degree of Order in Self-Organization Process By Yu.L. Klimontovich	
Index of Contributors	363