

Contents

Preface	vii
1 Dynamic Properties of Biological Processes	1
2 Types of Dynamic Behavior of Biological Systems	17
3 Kinetics of Enzyme Processes	35
4 Distributed Biological Systems. Chaotic Processes	45
5 Mathematical Models in Ecology	61
6 Thermodynamics of Irreversible Processes in Biological Systems Near Equilibrium	77
7 Thermodynamics of Systems Far from Equilibrium	93
8 Physicochemical Principles of Biopolymer Structure	101
9 Intramolecular Dynamics of Proteins	121
10 Physical Models of Protein Dynamic Mobility	133
11 Energy Migration and Electron Transport in Biological Structures	141
12 Mechanisms of Enzyme Catalysis	151
13 Physicochemical Features of Biological Membranes. Ionic Equilibria	157
14 Passive Transport of Substances Across Membranes	171

vi CONTENTS

15 Channels and Carriers. Active Transport	179
16 Transport of Ions in Excitable Membranes	185
17 Primary Processes of Energy Transformation in Photosynthesis	191
18 Energy Transformation in Biological Membranes	199
Further Reading	207
Index	209