

Contents

| | | |
|----------------|---|-----|
| | <i>Preface</i> | V |
| 1 | <i>Hans Liljenström & Uno Svedin</i> System Features, Dynamics, and Resilience – Some Introductory Remarks | 1 |
| PART I | THE “VERTICAL” SYSTEM STRUCTURE AND MESO-LEVEL CHARACTERISTICS | |
| 2 | <i>Hermann Haken</i> Mesoscopic Levels in Science – Some Comments | 19 |
| 3 | <i>Walter J. Freeman</i> The Necessity for Mesoscopic Organization to Connect Neural Function to Brain Function | 25 |
| 4 | <i>Peter Århem, Hans A. Braun, Martin T. Huber & Hans Liljenström</i> Dynamic State Transitions in the Nervous System: From Ion Channels to Neurons to Networks | 37 |
| 5 | <i>Robert E. Ulanowicz</i> A Revolution in the Middle Kingdom | 73 |
| 6 | <i>Abir U. Igamberdiev</i> The Meso-Scale Level of Self-Maintained Reflective Systems | 91 |
| PART II | INNER AND OUTER DYNAMICS | |
| 7 | <i>Igor Rojdestvenski & Michael G. Cottam</i> Time Rescaling and Generalized Entropy in Relation to the Internal Measurement Concept | 115 |
| 8 | <i>Leif Gustafsson</i> Studying Dynamic and Stochastic Systems Using Poisson Simulation | 131 |

| | | |
|----|--|-----|
| 9 | <i>Alla Mashanova & Richard Law</i> Resource Dynamics, Social Interactions, and the Tragedy of the Commons | 171 |
| 10 | <i>Sjur D. Flåm</i> Stability of Social Interaction | 185 |

PART III RESILIENCE AND SHOCKS

| | | |
|----|--|-----|
| 11 | <i>Nick Winder</i> Systems, Shocks and Time Bombs | 199 |
| 12 | <i>Charlotte Borrvall, Maria Christianou & Bo Ebenman</i> Biodiversity Decreases the risk of Collapse in Model Food Webs | 209 |
| 13 | <i>Sander E. van der Leeuw & Christina Aschan-Leygonie</i> A Long-Term Perspective on Resilience in Socio-Natural Systems | 227 |
| 14 | <i>Roger Seaton</i> Resilience in Utility Technologies | 265 |
| 15 | <i>Yuri M. Ermoliev, Tatiana Y. Ermolieva & Vladimir I. Norkin</i> Economic Growth under Shocks: Path Dependencies and Stabilization | 289 |
| 16 | <i>Koen Bertels, Jean-Marie Jacques & Magnus Boman</i> Risk and Crises Management in Complex Systems | 305 |
| 17 | <i>Uno Svedin & Hans Liljenström</i> Bridges, Connections and Interfaces – Reflections over the Meso Theme | 317 |
| | <i>Index</i> | 331 |
| | <i>List of Authors</i> | 361 |