Contents

Preface vii
Acknowledgements viii
About the Editors ix
List of Contributions xi

Chapter 1 Introduction 1
Mohammad Ashrafuzzaman and Jack A. Tuszynski

Chapter 2 A Brief History of Quantum Biology 7
Mohammad Ashrafuzzaman

Chapter 3 The Quantization Paradigm in Physics and Biology: Cell Metabolism, Brain Dynamics and the Biological "Planck" Quantum of Action 37
Lloyd A. Demetrius, Menas Kafatos, and Jack A. Tuszynski

Chapter 4 Chaos to Coherence: A Path to Molecular Organization 66
Jessie J. Grazier and Paul W. Sylvester

Chapter 5 Protein Energy Landscapes Probed by Neutron Scattering 85
Gerald R. Kneller and Judith Peters

Chapter 6 Modeling of Photosynthetic Spectra 120
Johan Antowan Nöthling and Tjaart Krüger

Chapter 7 Toward Verification of Quantum Brain Dynamics 157
Akihiro Nishiyama, Shigenori Tanaka, and Jack A. Tuszynski

Chapter 8 Quantum Processes of Life 174
Mohammad Ashrafuzzaman

Chapter 9 Quantum Mechanical View of Genetic Code 191
Chih-Yuan Tseng

Chapter 10 Quantum and Tempus Theories of Functional Food Science 204
Gulcin Yildiz and Gökçen Yıldız

Index 223