

## CONTENTS

Preface	v
Classical and Quantum Conditioning: Mathematical and Information Theoretical Aspects <i>L. Accardi</i>	1
Dynamics and Potentials <i>F. Araki</i>	17
Kossakowski–Ohya Teleportation Scheme and its Applications <i>M. Asano, M. Ohya and Y. Tanaka</i>	23
Utility and Value of Information in Cognitive Science, Biology and Quantum Theory <i>R. V. Belavkin</i>	33
Spectral Properties of Entanglement Witnesses and Positive Maps <i>D. Chruściński</i>	49
Quantum Entanglement and Multipartite Symmetric States <i>D. Chruściński</i>	59
On a Quantum Model of Brain Activities <i>K.-H. Fichtner, L. Fichtner, W. Freudenberg and M. Ohya</i>	81
Some of the Recent Topics in White Noise Theory <i>T. Hida</i>	93
Note on Generalized White Noise Functionals <i>T. Hida</i>	101
On Estimation of the Position Distribution of the Ideal Bose Gas <i>K.-H. Fichtner, K. Inoue and M. Ohya</i>	111

On Generalization of Quantum Mutual Entropy by Using Liftings <i>S. Iriyama and M. Ohya</i>	127
A New Approach to Stroboscopic Tomography of Open Systems <i>A. Jamiołkowski</i>	137
An Introduction to Frames and Their Applications to Quantum Optics <i>A. Jamiołkowski</i>	147
Memory in a Nonlocally Damped Oscillator <i>D. Chruściński and J. Jurkowski</i>	155
An Introduction to Quantization of Dissipative Systems. The Damped Harmonic Oscillator Case <i>J. Jurkowski</i>	167
Classical and Quantum Probability for Biologists – Introduction <i>A. Khrennikov</i>	179
2-Adic Degeneration of the Genetic Code and Energy of Binding of Codons <i>A. Yu. Khrennikov and S. V. Kozyrev</i>	193
On Positive Maps; PPT States and Entanglement <i>W.A. Majewski</i>	205
Detecting Entanglement in Spin Lattice Models <i>M. Michalski</i>	217
How to Detect Entanglement in Quantum Systems <i>M. Michalski</i>	231
Tunneling Study on High- $T_c$ Superconductors <i>M. Minematsu, S. Kawashima and N. Miyakawa</i>	251
Quantum Dynamics of Superconducting Qubit Readout with a Driven Nonlinear Josephson Oscillator <i>H. Nakano</i>	265

Roles of Asymptotic Condition and $S$ -Matrix as Micro-Macro Duality in QFT <i>I. Ojima</i>	277
Gaussian Markov Triplets <i>D. Petz and J. Pitrik</i>	291
<i>pre</i> -mRNA Introns as a Model for Cryptographic Algorithm: Theory and Experiments <i>M. Regoli</i>	305
Duality Arising from Multiple Markov Gaussian Processes <i>Si Si and W. W. Htay</i>	317
Novel Computational Approaches to Drug Discovery <i>J. Skolnick and M. Brylinski</i>	327
Feynman Type Formulae for Quantum Evolution and Diffusion on Manifolds and Graphs <i>O.G. Smolyanov</i>	337
Poisson Noise and the Dynamics of Infinite Particle Systems <i>L. Streit</i>	349
Replica-Exchange Molecular Dynamics Simulations of Amyloid Precursor Protein Dimer in Membrane <i>N. Miyashita and Y. Sugita</i>	361
Comparison of Square Contingency Tables Using Measure of Departure from Marginal Homogeneity <i>K. Tahata, K. Yamamoto, N. Miyamoto and S. Tomizawa</i>	369
On the Statics for Micro-Array Data Analysis <i>T. Urushibara, S. Akasaka, M. Ito, T. Suzuki and S. Miyazaki</i>	381
Functional Mechanics and Time Irreversibility Problem <i>I.V. Volovich</i>	393

Regulatory Networks: Inferring Functional Relationships through Co-expression <i>D. Wanke, A. Hahn, J. Kilian, K. Harter and K.W. Berendzen</i>	405
On Entropies of Quantum Dynamical Systems <i>N. Watanabe</i>	425
Significant Improvement of Sequence Alignment can be Done by Considering Transition Probability between Two Consecutive Pairs of Residues <i>T. Hara, K. Sato and M. Ohya</i>	443
A Computational Approach to Explore Protein Translocation through Type III Secretion Apparatus <i>T. Rathinavelan and W. Im</i>	453
Carbon Nanotubes for Building Blocks of Quantum Computing Devices <i>K. Ishibashi, S. Moriyama, T. Fuse, Y. Kawano and T. Yamaguchi</i>	465
In Silico Analysis for the Study of Botulinum Toxin Structure <i>T. Suzuki and S. Miyazaki</i>	481
Gene Discovery Methods from Large-scale Gene Expression Data <i>A. Shimizu and K. Yano</i>	489