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Quantities in a General Class of Quantum Systems Asao Arai; 1. Introduction

2. A Free Relativistic Quantum Particle Revisited3. Uniqueness Theorem on a Decomposition of a Linear Operator and Some Consequences; 4. Existence Theorems; 4.1. Bounded Conserved Quantities; 4.2. Unbounded Conserved Quantities; Acknowledgments; References; Oscillations and Rolling for Duffing's Equation Irina Ya. Aref 'eva, Evgeny V. Piskovskiy and Igor V. Volovich; 1. Introduction; 2. Higgs equation and anharmonic oscillator; 3. Solution to the Higgs equation; 4. Approximate solutions; 5. Nonlocal Nonlinear Equation; 6. Conclusion; Acknowledgments; References

General Formalism of Decision Making Based on Theory of Open Quantum Systems Masanori Asano, Masanori Ohya, Irina Basieva and Andrei Khrennikov1. Introduction; 2. Problem solving as decoherence; 3. Dynamics of decision making; Conclusion; References; Quantum-Like Representation of Non-Bayesian Inference Masanori Asano, Masanori Ohya, Irina Basieva, Andrei Khrennikov and Yoshiharu Tanaka; 1. Bayesian inference; 2. Prediction State Vector; 3. Quantum-like Bayesian Updating; 3.1. Biased Posterior Probability; 3.2. Reliability of Knowledge; 3.3. Irrationality

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Sommario/riassunto

This volume is based on the fifth international conference of quantumbio-informatics held at the QBI Center of Tokyo University of Science. This volume provides a platform to connect mathematics, physics, information and life sciences, and in particular, research for new paradigm for information science and life science on the basis of quantum theory. The following topics are discussed: Cryptographic algorithms; Quantum algorithm and computation; Quantum entanglement; Quantum entropy and information dynamics; Quantum dynamics and time operator; Stochastic dynamics and white noise analysis; Brain

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