1. Record Nr. UNINA9910616210003321

Autore	Accardi Luigi
Titolo	Infinite dimensional analysis, quantum probability and applications : QP41 Conference, Al Ain, UAE, March 28-April 1, 2021 / / Luigi Accardi, Farrukh Mukhamedov, and Ahmed Al Rawashdeh
Pubbl/distr/stampa	Cham, Switzerland : , : Springer International Publishing, , [2022] ©2022
ISBN	3-031-06170-5
Descrizione fisica	1 online resource (369 pages)
Collana	Springer Proceedings in Mathematics & Statistics
Disciplina	530.8
Soggetti	Dimensional analysis Probabilities Anàlisi dimensional Probabilitats Teoria quàntica Congressos Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Organization -- Preface -- Contents -- Part I Quantum Probability Methods -- The Non-linear and Quadratic Quantization Programs -- 1 Introduction -- 1.1 Quadratic Quantization -- 2 Some Properties of *-Lie Algebras -- 2.1 The Complex d-Dimensional Heisenberg Algebra: heis1,d(0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) -- 2.2 The Complex d-Dimensional Quadratic Heisenberg Algebra heis2,d(0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) -- 3 The Symplectic Approach to Homogeneous Quadratic Boson Fields -- 3.1 The *-Lie Algebra of Homogeneous Quadratic Boson Fields -- 3.2 Identification of the *-Lie Algebra of Homogeneous Quadratic Boson Fields with heis2,d(0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) -- 3.3 Central Decomposition of heis2,d(0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900): heis2,d,cls(0=Ctoheight0.900 0=Ctoheight0.900

0=Ctoheight0.900 0=Ctoheight0.900) -- 4 The Complex Symplectic *-Lie Algebra sp(2d, 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) -- 4.1 The Involution on sp(2d, 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) : sp(2d, 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) -- 4.2 *-Isomorphism Between heis2,d, cls(0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) and sp(2d,0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) -- 4.3 The Isomorphism Between heis2,d(0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) and sp(2d, 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) : Direct Proof -- 5 Real Lie Sub-algebras of heis2,d(0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) and spskew,(2d,0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900).
5.1 Real *-Lie Algebra-Isomorphism Between spskew,(2d, 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900 0=Ctoheight0.900) and sp-(2d,IR) -- 6 Vacuum Averages -- 7 Lie Groups Associated with the Symplectic Algebra -- 7.1 The Siegel Unit Disk -- 7.2 The Metaplectic Group -- 7.3 The Abstract Symplectic Algebra and Its Lie Groups -- 8 The Problems of Diagonalizability and Vacuum Factorizability -- 8.1 Diagonalizability and Factorizability of Quadratic Fields -- 8.2 Diagonalizability Implies Vacuum-Factorizability -- References -- A Pedagogical Note on the Computation of Relative Entropy of Two n-Mode Gaussian States -- 1 Introduction -- 2 Preliminary Concepts on Gaussian States -- 3 Williamson's Theorem Applied to n-Mode Gaussian Covariance Matrix -- 4 Structure Theorem for n-Mode Gaussian States -- 5 Relative Entropy S(vertvert) of Two Gaussian States -- 6 Petz-Rényi Relative Entropy S(vertvert), 0&lt -- &lt -- 1 of Two Gaussian States -- References -- Quantum Operators of the Semicircle Distributions -- 1 Introduction -- 2 Background -- 3 Position-(0-Momentum) Decomposition of the Semicircle Distributions -- References -- Quantum Probability for Modeling Cognition, Decision Making, and Artificial Intelligence -- 1 Introduction -- 2 Classical Versus Quantum Probability -- 2.1 Interference of Probabilities -- 2.2 Bayesian Versus Non-Bayesian Inference -- 3 Quantum-Like Paradigm -- 4 Paradoxes of CP Decision Theory and Their QP Resolution -- 5 Quantum Scheme of Decision Making -- 6 Interference in Decision Making -- 6.1 Savage Sure Thing Principle as the Rationality Axiom -- 6.2 Is CP-Irrationality Just QP-Rationality? -- 6.3 Logic and Rationality -- 6.4 Social Laser -- 7 Quantum-Like AI -- References -- Part II Quantum Information Methods -- Note on Complexity of Communication Processes -- 1 Introduction -- 2 Quantum Channels.
2.1 Quantum Communication Processes -- 3 Entropy and Mutual Entropy for General Quantum Systems -- 4 Compound States -- 5 Conclusion -- References -- Trace Decreasing Quantum Dynamical Maps: Divisibility and Entanglement Dynamics -- 1 Introduction -- 2 Trace Distance Approach to Non-Markovianity -- 3 System-Ancilla Entanglement Dynamics -- 4 Generalized Erasure Dynamics -- 5 Conclusions -- References -- Compound State, Its Conditionality and Quantum Mutual Information -- 1 Introduction -- 2 Quantum Compound States and CP Maps -- 2.1 Preliminaries -- 2.2 Duality Between Quantum States and Linear Maps, and Their Classification -- 2.3 Quantum Compound State Versus Classical Joint Probability -- 3 Quantum Mutual Information on Quantum Bayes Formula -- 3.1 Compound State via Choi-Jamiokowski Isomorphism -- 3.2 Quantum Mutual Information via Quantum Channel ast -- 4 Conclusions --

References -- Block Markov Chains on Trees -- 1 Introduction -- 2 Rooted Trees -- 3 Some Reminders on Markov Fields -- 4 Structure of Block Markov Chains on Trees -- 5 Connection with MCs and MRFs -- 6 One-Dimensional BMC -- 7 Counter-Example -- 8 Conclusion -- References -- Part III Quantum Dynamical Systems -- Hilbert von Neumann Modules Versus Concrete von Neumann Modules -- 1 Von Neumann Modules: Comparison -- 2 Self-duality -- 3 Von Neumann Correspondences, Connes Correspondences, and Their Tensor Products -- References -- Absorption and Fixed Points for Semigroups of Quantum Channels -- 1 Introduction -- 2 Preliminaries on Semigroups of Quantum Channels -- 3 Absorption Operators to Describe Fixed Points -- 4 Reducibility of Recurrent Semigroups -- References -- Characterization of Gaussian Quantum Markov Semigroups -- 1 Introduction -- 2 Gaussian States -- 3 Gaussian Maps -- 4 Gaussian Quantum Markov Semigroups -- References -- A Mean-Field Laser Quantum Master Equation.
1 Introduction -- 2 The Quantum Master Equation -- 3 Quantum Hopf Bifurcation -- 3.1 Long-Time Behaviour -- 4 Conclusions and Outlook -- References -- Unique Ergodicity and Weakly Monotone Fock Space -- 1 Introduction -- 2 Preliminaries -- 3 Weakly Monotone Fock Space -- 4 Shift-Invariant States on Weakly Monotone upper C Superscript asteriskC*-Algebra -- References -- Part IV Infinite Dimensional Analysis -- Solutions of Infinite Dimensional Partial Differential Equations -- 1 Introduction and Background -- 1.1 Young Functions -- 1.2 Functional Spaces -- 1.3 Formal Power Series Spaces -- 1.4 Taylor Map -- 1.5 Laplace Transform -- 2 Convolution Calculus -- 2.1 Convolution of Two Distributions -- 2.2 White Noise Gel'fand Triple -- 2.3 Convolution Functionals -- 3 Initial-Valued Evolution Equation -- 3.1 Main Theorem -- 4 Gross Laplacian -- 4.1 Gross Laplacian as a Convolution Operator -- 5 Concluding Remarks -- 5.1 Interpretation of the Solutions of the Evolution Equation -- 5.2 Heat Equation Associated to the Gross Laplacian -- References -- On Some Properties of Solution Sets of Discontinuous Quantum Stochastic Differential Inclusions -- 1 Introduction -- 2 Notations and Fundamental Structures -- 3 Preliminary Results and Assumptions -- 4 Main Result -- References -- Fractional Operators from Vanishing Morrey to Vanishing Campanato Spaces in the Variable Exponent Setting on Quasi-metric Measure Spaces -- 1 Introduction -- 2 Preliminaries -- 2.1 Quasi-metric Measure Spaces -- 2.2 Variable Exponent Spaces -- 3 Boundedness Result -- References -- Part V Operator Algebras -- Characterization of Certain Traces on von Neumann Algebras -- 1 Introduction -- 2 Definitions and Notation -- 3 Trace Characterization on upper C Superscript asteriskC*-Algebras -- References -- Actions of *-Morphisms on Certain Projections of C*-Matrix Algebras -- 1 Introduction.
2 Preliminaries -- 3 Actions of *-Morphisms on Pi,j(a) -- References -- Part VI Stochastic Operators -- Compatible Linear Lypunov Function for Infinite Dimensional Volterra Quadratic Stochastic Operators -- 1 Introduction -- 2 Main Results -- References -- Bijectivity of a Class of Lotka-Volterra Operators Defined on 2D-Simplex -- 1 Introduction -- 2 Preliminaries -- 3 Main Result -- 4 Conclusion -- References -- Dynamics of Stochastic Cesaro Operators -- 1 Introduction -- 2 Nonlinear Stochastic Operators Generated by Linear Ones -- 3 Riesz Stochastic Operators -- 4 Cesaro Operators -- References -- The Dynamics of a Volterra Cubic Operator -- 1 Introduction -- 2 Preliminaries -- 3 Main Results -- References -- The Dynamics of Superposition of Non-Volterra Quadratic Stochastic Operators on upper S squaredS2 -- 1 Introduction -- 2 Preliminaries -- 3 Superposition of

Operators -- 4 Notes and Comments -- References -- A Quadratic Worm Propagation Model -- 1 Introduction -- 2 Preliminaries -- 3 Discrete Time SIR-models -- References -- Author Index.