

**26th Conference: Quantum Probability and Infinite Dimensional Analysis**

Joint with

**The mid-term meeting and 4th Plenary Conference of the EC network:**

**QP-Applications**

**Levico (Trento), Italy, 20-26 February, 2005**

**Centro V. Volterra, Università di Roma Tor Vergata**

**Centro Internazionale per la Ricerca Matematica (CIRM), Istituto Trentino di Cultura**

**European Union Research Training Network: QP-Applications**

**International Association for Quantum Probability and Infinite Dimensional Analysis**

**Monday, Feb. 21**

**9.00 – 9.05** Welcome address.

*Opening*

**9.05 – 9.40** *K.R. PARTHASARATHY (New Delhi)*: Some open problems in quantum information and estimation

**9.40 – 10.10** *Marek BOZEJKO (Wroclaw)*: Free Levy Meixner processes

**10.10 – 10.40** Coffee Break

**Chair: Takeyuki HIDA (Nagoya)**

**10.40 – 11.10** *Luis G. GOROSTIZA (Mexico)*: Long-range dependence in fluctuations of particle systems

**11.10 – 11.40** *Masanori OHYA (Tokyo)*: Adaptive dynamics in quantum information

**11.40 – 12.10** *Renè SCHOTT (Nancy I)*: Dynamic random walks on Heisenberg groups

**12.10 – 12.40** *J. Martin LINDSAY (Nottingham)*: Operator Markovian cocycles

**12.40 – 13.10** *Pradip Kumar DAS (Kolkata)*: Dynamics of quantum mechanical feedback control systems in interacting Fock space

**13.10 – 15.00** Lunch Break

**Chair: Luis G. GOROSTIZA (Mexico)**

**15.00 – 15.30** *Takeyuki HIDA (Nagoya)*: Note on the time operator

**15.30 – 16.00** *Franco FAGNOLA (Milano)*: Quantum Markov semigroups

**16.00 – 16.30** *Oleg SMOLYANOV (Moscow)*: Heat and Schroedinger equations with Levy Laplacians on some manifolds of trajectories

**16.30 – 17.00** Coffee Break

**17.00 – 17.30** *Un Cig JI (Cheongju)*: Characterization of symbols of operators on Boson Fock space and its applications

**17.30 – 18.00** *Noboru WATANABE (Tokyo)*: Some aspects of quantum mutual entropy and capacity

**18.00 – 18.10** Break

**18.10 – 18.40** *Alex GOTTLIEB (Vienna)*: Convergence of rescaled affine quantum walks

**18.40 – 19.10** *Si SI (Aichi)*: Characterization of Poisson noise

**19.10 – 19.40** *Giacomo Mauro D'ARIANO (Pavia)*: Mappings between the convex structures of states, POVM's and channels, and their physical meaning

**Tuesday, Feb. 22**

**Chair: Marek BOZEJKO (Wroclaw)**

**9.00 – 9.30** *Sergio ALBEVERIO (Bonn)*: Some new developments in infinite dimensional oscillatory integrals and applications

**9:30 – 10:00** *Romuald LENCZEWSKI (Wroclaw)*: The hierarchy of m-monotone Gaussian operators

**10.00 – 10.30** *Stephen SONTZ (Guanajuato)*: A  $\mu$ -deformed Segal-Bargmann space and its relation to  $\mu$ -deformed heat analysis

**10.30 – 11.00** Coffee Break

**Chair: Denes PETZ (Budapest)**

**11.00 – 11.30** *Izumi OJIMA (Kyoto)*: Measurement scheme in QFT as micro-macro duality

**11.30 – 12.00** *Roberto QUEZADA (Iztapalapa)*: The two-photon absorption and emission process

**12.00 – 12.30** *Habib OUERDIANE (Tunis)*: Solutions of the stochastic heat equation of convolution type

**12.30 – 13.00** *Kimiaki SAITO (Nagoya)*: A construction of an infinite dimensional stochastic process generated by the Lévy Laplacian

**13.00** Lunch Break

**14.00** Excursion (for those who are not members of the EC network)

**15.00–20:20: The mid-term meeting and 4th Plenary Conference of the QP-EC network**

(cf. separate program)

**20.00** Dinner

**20.45** The mid-term meeting and 4th Plenary Conference of the QP-EC network

**Wednesday, Feb. 23**

**Chair: Sergio ALBEVERIO (Bonn)**

**9.00 – 9.30** *Michel EMERY (Strasbourg)*: Which multidimensional Azema martingales have the Chaotic Representation Property

**9.30 – 10.00** *Alberto BARCHIELLI (Milano)*: Instruments and mutual entropies in quantum information

**10.00 – 10.25** Coffee Break

**Chair: Heinz–Dietrich DOEBNER (Clausthal)**

**10.25 – 10.55** *Robin HUDSON (Nottingham)*: The double product integral  $\Pi^*(1 + da \otimes dA^\psi - da^\psi \otimes da)$

**10.55 – 11.25** *Wilhelm von WALDENFELS (Heidelberg)*: Creation and annihilation operators on locally compact spaces

**11.25 – 11.55** *Yun Gang LU (Bari)*: A quantum central limit theorem

**12.00 – 13.00** Open Discussion within the network QP–Applications (outsiders are welcome)

**13.00** End of the mid-term meeting and 4th Plenary Conference of the QP-EC network

**13.00 – 14.00** Lunch Break

**Young researchers (pre– and post–doc) session  
(the session ends on Thursday 24 at 17.30 pm )**

**Chair: Michael SCHÜRMAN (Greifswald)**

**14.00 – 14.30** *Guillaume ADENIER (Vaxjo)*: On the fair sampling assumption in EPR experiments

**14.30 – 15.00** *Wided AYED (Tunis)*: White noise flows

**15.00 – 15.30** *Abdessatar BARHOUMI (Nabeul)*: A quantum approach to Laplace operators

**15.30 – 16.00** *Alexander BELTON (Lyon 1)*: Self-adjoint quantum semimartingales

**16.00 – 16.30** Coffee Break

**Chair: Habib OUERDIANE (Tunis)**

**16.30 – 17.00** *Anis BEN GHORBAL (Roma II)*: Constructive quantum stochastic independence and quantum central limit theorem

**17.00– 17.30** *Yana BUTKO (Moscow)*: Functional integrals representing solutions of the Cauchy-Dirichlet problem for evolution equations in a domain of a compact Riemannian manifold

**17.30 – 18.00** *Vitonofrio CRISMALE (Bari)*: A central limit theorem based on interacting Fock space

**18.00– 18.30** *Veronica UMANITA' (Genova)*: On the decomposition of quantum Markov semigroups

**18.30– 19.00** *Alexander NOU (Besancon)*: Asymptotic matricial model and QWEP for  $q$ -Araki-Woods algebras

**Chair: Renè SCHOTT (Nancy I)**

**21.00 – 22.00: Baby talk**

*Malte HENKEL (Nancy I)*: Introduction to conformal invariance

**Thursday, Feb. 24**

**Chair: Roberto QUEZADA (Iztapalapa)**

**9.00 – 9.30** *Fernando GOMEZ CUBILLO (Valladolid)*: Dispersion relations in the stochastic limit of quantum theory

**9.30 – 10.00** *Marcin ZYGMUNT (Wroclaw)*: Noncommutative  $C^*$ -algebras with applications to solid state physics

**10.00 – 10.30** *Anna JENCOVA (Bratislava)*: Sufficiency in quantum statistical inference

**10.30 – 11.00** Coffee Break

**Chair: Burkhard KÜMMERER (Darmstadt)**

**11.00 – 11.30** *Liudmila JOUKOVSKAYA (Vaxjo)*: Dynamics with infinite number of derivatives for level truncated non-commutative interaction

**11.30 – 12.00** *Lukasz WOJAKOWSKI (Wroclaw)*: New associative convolutions arising from the conditionally free convolution (I)

**12.00 – 12.30** *Anna KRYSTEK (Wroclaw)*: New associative convolutions arising from the conditionally free convolution (II)

**12.30 Conference photo outside in the garden**

**13.00 – 14.00** Lunch Break

**Chair: Masanori OHYA (Tokyo)**

**14.00–14.30** *Hajime MORIYA (Bures-sur-Yvette)*: On the univalence superselection rule

**14.30 – 15.00** *Gavriel SEGRE (Vaxjo)*: Physical complexity of classical and quantum objects and their dynamical evolution from an information-theoretic viewpoint

**15.00 – 15.30** *Stoimen STOIMENOV (Nancy I)*: On Lie symmetries of nonlinear Schrodinger equation

**15.30 – 16.00** *Adam SKALSKI (Nottingham)*: Completely positive convolution cocycles

**16.00 – 16.30** Coffee Break

**Chair: Romuald LENCZEWSKI (Wroclaw)**

**16.30 – 17.00** *Jeremie UNTERBERGER (Nancy)*: The infinite-dimensional Schroedinger algebra and Schroedinger field theory

**17.00 – 17.30** *Yaroslav VOLOVICH (Vaxjo)*: Particle scattering and interference in quantum mechanics and in discrete time formalism

**End of Young Research Session**

**Chair: Izumi OJIMA (Kyoto)**

**17.30 – 18.00** *Paolo GIBILISCO (Roma II)*: Schur–monotonicity of curvature for statistical models: classical and quantum aspects

**18.00 – 18.30** *Rolf GOHM (Greifswald)*: Beurling type decompositions of  $E_0$ -semigroups

**18.30 – 19.00** *Wojciech MLOTKOWSKI (Wroclaw)*: Some class of polynomial hypergroups

**19.00 – 19.30** *Nicolas PRIVAULT (La Rochelle)*: A probabilistic interpretation to the symmetries of a discrete heat equation

Friday, Feb. 25

**Chair: Wilhelm von WALDENFELS (Heidelberg)**

9.00 – 9.30 *Joachim KUPSCH (Kaiserslautern)*: A theorem on liftings of statistical operators

9.30 – 10.00 *Aurel STAN (Shreveport)*: Moments and commutators of probability measures

10.00 – 10.30 Coffee Break

**Chair: Giacomo Mauro D'ARIANO (Pavia)**

10.30 – 11.00 *Piotr SNIADY (Wroclaw)*: Asymptotic theory of representations of symmetric groups

11.00 – 11.30 *Andreas BOUKAS (Athens)*: Renormalized powers of white noise

11.30 – 12.00 *Janusz WYSOCZANSKI (Wroclaw)*: Monotonic independence and weakly monotonic Fock space

12.00 – 12.30 *Luigi ACCARDI (Roma II)*: Almost any state of any amplitude Markov chain is recurrent

13.00 – 15.00 Lunch Break

**Chair: J. Martin LINDSAY (Nottingham)**

15.00 – 15.30 *Andrei KHRENNIKOV (Vaxjo)*: Reconstruction of quantum theory starting with the formula of total probability

15.30 – 16.00 *Stephen WILLS (Cork)*: Dilation of completely positive semigroups

16.00 – 16.30 Coffee Break

**Chair: Andrei KHRENNIKOV (Vaxjo)**

16.30 – 17.00 *Satoshi IRIYAMA (Tokyo)*: On generalized quantum Turing machine and its application

17.00 – 17.30 *Francesco FIDALEO (Roma II)*: Quantum Markov states and chains on the CAR algebra

17.30 – 18.00 *Matteo GREGORATTI (Milano)*: On dilations of classical Markov chains

18.00 – 18.30 *Olga CHOUSTOVA (Vaxjo)*: Quantum (Bohmian) model for financial market

18.30 – 19.00 *Michael SKEIDE (Campobasso)*: Von Neumann modules

**Saturday, Feb. 26**

**Chair: Joachim KUPSCH (Kaiserslautern)**

**9.00 – 9.30** *Viacheslav BELAVKIN (Nottingham)*: On quantum stochastic martingales and their representation

**9.30 – 10.00** *Staszek GOLDSTEIN (Lodz)*: Compactness properties of multiplication operators between noncommutative  $L^p$ -spaces

**10.00 – 10.30** *Adam MAJEWSKI (Gdansk)*: Positive maps, states and entanglement

**10.30 – 11.00** Coffee break

**Chair: Oleg SMOLYANOV (Moscow)**

**11.00 – 11.30** *Carlo CECCHINI (Udine)*: Independence and Markovianity on von Neumann algebras

**11.30 – 12.00** *Marcin MARCINIAK (Gdansk)*: Decomposability of positive maps on low dimensional algebras

*Closing*

**12.00 – 13.00** Lunch Break

**13.00** Bus departure