



Institute of Physics, Nicolaus Copernicus University
Reports on Mathematical Physics, The Editors
Open Systems & Information Dynamics, The Editors

51th Symposium on Mathematical Physics

Toruń, Poland, June 16–18, 2019

Lectures take place in the lecture hall 20 of the Institute of Physics,
Nicolaus Copernicus University, Grudziądzka 5/7

Sunday, June 16, 2019

10.00-11.50 *Registration*

Morning session

Chairman: M. Ziman

11.50-12.00 *Opening address*

12.00-12.30 P. Horodecki (Gdańsk): *Relativistic causality and no-signaling*

12.30-13.00 F. Fagnola (Milano): *Mathematical models of Markovian dephasing*

13.00-13.30 R. Augusiak (Warszawa): *Self-testing quantum systems of arbitrary local dimension*

13.30 *Lunch*

Afternoon session

Chairman: D. Chruściński

15.00-15.30 F. Buscemi (Nagoya): *Data-driven inference and observationally complete devices*

15.30-16.00 M. Oszmaniec (Gdańsk): *Nonuniform losses and classical simulation in linear optics*

16.00-16.30 Ł. Paweła (Gliwice): *Distinguishability of quantum measurements*

Coffee break

Chairman: F. Buscemi

17.00-17.30 R. Kostecki (Gdańsk): *(Post)quantum Bregman divergences, nonlinear resource theories, and renormalisation*

17.30-18.00 T. Biswas (Gdańsk): *Operational relevance of resource theory of quantum measurements*

18.00-18.30 T. Matsuoka (Chino): *Quantum mutual information based on quantum conditional probability*

18.30-19.00 K. Siudzińska (Toruń): *On the geometry of one-mode Gaussian channels*

Monday, June 17, 2019

Morning session

Chairman: A. Streltsov

9.00-9.30 M. Demianowicz (Gdańsk): *Genuinely entangled subspaces: constructions and properties*

9.30-10.00 A. Rutkowski (Gdańsk): *Necessary and sufficient condition of separability for D-symmetric diagonal states*

10.00-10.30 G. Baio (Glasgow): *Observations on maximally entangled mixed states in higher dimensional systems*

10.30-11.00 G. Scala (Bari): *Is ESIC stronger than Realignment criterion?*

Coffee break

Chairman: F. Fagnola

- 11.30-12.00 M. Kuś (Warszawa): *Fidelity susceptibility in Gaussian random ensembles*
12.00-12.30 D. Lonigro (Bari): *The Friedrichs-Lee Hamiltonian and its singular coupling limit*
12.30-13.00 L. Mattioli (Warszawa): *Membership problem in quantum computing*
13.00-13.30 A. Sawicki (Warszawa): *Mathematics of efficient quantum compilers*
13.30 *Lunch*
OSID & ROMP Editorial Board Meetings

Afternoon session

Chairman: J. Piilo

- 15.00-15.30 F. vom Ende (Munich): *Reachability in infinite dimensional unital open quantum systems with switchable GKS-Lindblad generators*
15.30-16.00 M. Studziński (Gdańsk): *Group theoretical structures in multiport quantum teleportation protocols and fundamental bounds on their performance*
16.00-16.30 J. Tura (Munich): *Faster ground state preparation and high-precision ground energy estimation with fewer qubits*
Coffee break and Poster session
Chairman: A. Jamiolkowski
17.30-18.00 S. Filippov (Moscow): *Complete positivity and positivity of quantum dynamical maps under time deformations*
18.00-18.30 M. Ziman (Bratislava): *Divisibility of qubit channels and dynamical maps*
18.30-19.00 K. Życzkowski (Kraków): *Pauli channels accessible by a Lindblad semigroup*
19.30 *Conference dinner at the "Nicolaus" restaurant, 28 Kopernika St.*

Tuesday, June 18, 2019

Morning session

Chairman: K. Życzkowski

- 9.00-9.30 J. Piilo (Turku): *Stochastic unravellings of master equations: Markovian, non-Markovian - and in-between*
9.30-10.00 A. Streltsov (Warszawa): *Entanglement negativity as a universal non-Markovianity witness*
10.00-10.30 J. Kołodyński (Warszawa): *Quantum frequency estimation with local decoherence of arbitrary type*
10.30-11.00 S. Denisov (Oslo): *Ensembles of random generators of Markovian quantum evolution: spectral properties and universality*
Coffee break
Chairman: S. Filippov
11.30-12.00 N. Watanabe (Noda City): *On entropy for quantum compound systems*
12.00-12.30 K. Luoma (Dresden): *When is a Szilárd demon really quantum?*
12.30-13.00 D. Jakubczyk (Rzeszów): *Schur-Weyl duality in one-dimensional Hubbard model*
13.00-13.30 T. Kamizawa (Noda City): *On some computational method for the explicit forms of the decompositions of Master equations*
13.30 *Lunch*



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Posters are displayed in the Institute atrium

POSTERS

1. R. Augusiak (Warszawa): *Scalable Bell inequalities for graph states and robust self-testing*
2. U. Chakraborty (Kolkata): *Generic contractive states and quantum monitoring of free masses and oscillators* (co-authors: Priyanshi Bhasin, S. M. Roy)
3. A. Dąbrowska (Bydgoszcz): *Quantum trajectories and a priori evolution for two-level atom interacting with a single-photon wavepacket*
4. G. Gramegna (Bari): *Product formulae and quantum control*
5. P. Jakubczyk (Rzeszów): *Symmetry adapted basis in coupled spin systems*
6. M. Łabuz (Rzeszów): *Three-diagonal blocks of two-magnon Hamiltonians with specified wavenumbers for Heisenberg rings* (co-author: J. Milewski)
7. M. Moorzymas (Wrocław): *Some mathematical aspects of port-based teleportation* (co-author: M. Studziński)
8. D. Pomarico (Bari): *Bound states in the continuum for an array of quantum emitters*
9. K. Słowik (Toruń): *Tailoring properties of atomic systems using photonic environment: analysis beyond electric dipole approximation* (co-authors: M. Kosik, O. Burlayenko)
10. O. Słowik (Warszawa): *Symmetries of LME states and asymptotic SLOCC equivalence in multipartite quantum systems*
11. K. Szczygielski (Gdańsk): *Time-independent formalism for CP-divisible quantum dynamical maps governed by periodic Lindbladians in finite dimension* (co-author: R. Alicki)
12. M. Winczewski (Gdańsk): *No purification in all discrete theories and the power of complete extension*
13. R. Wojnar (Warszawa): *Kinetic equation for a heavy marked particle in an external field*