



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

47th Symposium on Mathematical Physics

Toruń, Poland, June 19–21, 2015

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

Friday, June 19, 2015

Morning session. Chairman: J. Kijowski

- 9.30-11.20 *Registration*
- 11.20-11.30 *Opening address*
- 11.30-12.00 A. Buchleitner (Freiburg, Germany): A statistical benchmark for Boson Sampling
- 12.00-12.30 T. Tylec & M. Kuś (Warszawa, Poland): Non-signaling theories and generalized probability
- 12.30-13.00 F. Pollock (Melbourne, Australia): What a biased two-level system can tell you about its environment
- 13.00-15.00 *Lunch & Posters*

Afternoon session. Chairman: A. Grudka

- 15.00-15.30 S. Iriyama (Noda, Japan): On Quantum Algorithm for Binary Search and Its Computational Complexity
- 15.30-16.00 P. Waluk (Warszawa, Poland): Physics of a qubit from geometric quantization
- 16.00-16.30 M. Mozrzyms (Wrocław, Poland): Separable decomposition and quantum correlations in Toeplitz matrices
- 16.30-17.00 *Coffee break*
- 17.00-17.30 Y. Tanaka (Noda, Japan): Bayesian inference in visual perception process and quantum probabilities
- 17.30-18.00 P. Należyty (Toruń, Poland): On admissible memory kernels for random unitary qubit evolution
- 18.00-18.30 S. Filippov (Moscow, Russia): Microscopic collision models of non-Markovian dynamics

Morning session. Chairman: A. Buchleitner

- 9.00-9.30 K. Życzkowski (Kraków, Poland): Distinguishing random quantum states
- 9.30-10.00 Z. Ficek (Riyadh, Saudi Arabia): Non-Markovian dynamics of atoms interacting with negative index materials
- 10.00-10.30 P. Horodecki (Gdańsk, Poland): Does the quantum uncertainty determine nonlocality of quantum mechanics?
- 10.30-11.00 K. Kowalski (Łódź, Poland): Coherent states for the quantum mechanics on a circle and sphere
- 11.00-11.30 *Coffee break*
- 11.30-12.00 J. Rembieliński (Łódź, Poland): Lorentz covariance in the Hořava quantum gravity
- 12.00-12.30 D. Goyeneche (Concepcion, Chile): Genuinely multipartite entangled states and orthogonal arrays
- 12.30-13.00 A. Tossini (Pavia, Italy): Quantum walks without coin: the role of the lattice in determining the walk dynamics
- 13.00-13.30 *Lunch & Posters*
ROMP & OSID Editorial Board Meetings

Afternoon session. Chairman: K. Życzkowski

- 15.00-15.30 N. Watanabe & M. Ohya (Noda, Japan): Note on Entropies for Quantum Dynamical Systems
- 15.30-16.00 J. Domsta (Gdańsk, Poland): Non-unitary quantum evolution: by expectation or by reduction?
- 16.00-16.30 T. Matsuoka (Chiba, Japan): On entanglement encoding
- 16.30-17.00 *Coffee break*
- 17.00-17.30 A. Rutkowski (Gdańsk, Poland): Unbounded violation of quantum steering inequalities
- 17.30-18.00 K. Stefański (Toruń/Bydgoszcz, Poland): A statistical tool used for non-statistical transient chaos description
- 18.00-18.30 M. Studziński (Gdańsk, Poland): Using non positive maps to construct entanglement witnesses
- 18.30 *Reception*

Sunday, June 21, 2015

Morning session. Chairman: Z. Ficek

- 9.00-9.30 J. Maćkowiak (Toruń, Poland): Stochastic Bose Superfluid
- 9.30-10.00 A. Grudka (Poznań, Poland): Do black holes violate monogamy of entanglement?
- 10.00-10.30 G. Sarbicki (Toruń, Poland): On linear maps preserving k-rank projectors
- 10.30-11.00 L. Accardi, A. Pechen (Rome, Italy): Breaking of the similarity principle in the low density limit
- 11.00-11.30 *Coffee break*
- 11.30-12.00 K. Urbanowski (Zielona Góra, Poland): Energy and decay rate of unstable states at late times
- 12.00-12.30 S. Kondej (Zielona Góra, Poland): Leaky quantum wires: relation between geometry and spectrum
- 12.30-13.00 J. Tuziemski (Gdańsk, Poland): Spectrum Broadcast Structures in Quantum Brownian Motion
- 13.00-13.30 *Lunch & Posters*



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Posters are displayed outside lecture hall 20

POSTERS

1. Michał Białończyk (Kraków, Poland): Spectral properties of quantum operation and algebra generated by its Kraus operators
2. Artur Czerwiński (Toruń, Poland): Quantum Tomography for Systems with Evolution Given by Double Commutators
3. Anita Dąbrowska (Bydgoszcz, Poland): A posteriori evolution of light for single and double homodyne observations
4. Takeo Kamizawa (Toruń, Poland): Quasi-Diagonalisation and its Applications to Control Systems
5. Ninni Messina (Palermo, Italy): Exactly Solvable Time-Dependent Many-Spin Hamiltonian Model
6. Adam Rutkowski (Gdańsk, Poland): Construction and properties of a class of private states in arbitrary dimensions
7. Katarzyna Siudzińska (Toruń, Poland): Geometrical description of Lindblad equations with Gell-Mann matrices
8. Krzysztof Szczygielski (Gdańsk, Poland): Completely positive evolution of periodically controlled open systems
9. Piotr Witas (Bari, Italy): Equivalence principle in classical and quantum dynamics with constraints
10. Ryszard Wojnar (Warszawa, Poland): Kinetic Equation for the Self-correlation Function in the Dilute Gas Under the Influence of an External Field

Timetable (update 17.06.2015)

	Friday, June 19	Saturday, June 20	Sunday, June 21
		Chairman: A. Buchleitner	Chairman: Z. Ficek
9.00	<i>Registration</i>	K. Życzkowski	J. Maćkowiak
9.30		Z. Ficek	A. Grudka
10.00		P. Horodecki	G. Sarbicki
10.30		K. Kowalski	L. Accardi
11.00		<i>Opening address</i> Chairman: J. Kijowski	<i>Coffee break</i>
11.20			
11.30	A. Buchleitner	J. Rembieliński	K. Urbanowski
12.00	T. Tylec & M. Kuś	D. Goyeneche	S. Kondej
12.30	F. Pollock	A. Tossini	J. Tuziemski
13.00	<i>Lunch & Posters</i>	<i>Lunch/ ROMP & OSID meeting</i>	<i>Lunch</i>
14.00		<i>Lunch/Posters</i>	
	Chairman: A. Grudka	Chairman: K. Życzkowski	
15.00	S. Iriyama	N. Watanabe	
15.30	P. Waluk	J. Domsta	
16.00	M. Mozrzymas	T. Matsuoka	
16.30	<i>Coffee break</i>	<i>Coffee break</i>	
17.00	Y. Tanaka	A. Rutkowski	
17.30	P. Należyty	K. Stefański	
18.00	S. Filippov	M. Studziński	
18.30		<i>Reception</i>	