



UNIWERSYTET GDAŃSKI



National Quantum Information Centre in Gdańsk  
and

International Centre for Theory of Quantum Technologies

X Jubilee SYMPOSIUM KCIK

I Symposium ICTQT-KCIK

*Quantum Resources and Their Application*

MAY 23-25, 2019

PROGRAMME

Thursday, May 23

08:30 – 09:00	Registration and coffee	
09:00 – 09:10	<b>Paweł Horodecki, Steering Committee, ICTQT</b> <b>Wiesław Laskowski, Deputy Dean, Faculty of Mathematics, Physics and Informatics, UG</b>	Opening ceremony
	Chair: Karol Życzkowski	
09:10 – 09:40	Barbara Kraus	<i>From Compressible to universal Quantum computation</i>
09:40 – 10:10	Ignacio Cirac	<i>Symmetries, entanglement, and state transformations with tensor networks</i>
10:10 – 10:40	Martin Plenio	<i>Methods for Efficient Quantum State Tomography: Theory and Experiment</i>
10:40 – 11:10	Coffee break	
	Chair: Jakub Rembieliński	
11:10 – 11:40	Jakub Zakrzewski	<i>Recent advances in many-body localization</i>
11:40 – 12:10	Fabio Benatti	<i>Dynamical monotones and information back-flow</i>

12:10 – 12:40	Arul Lakshminarayan	<i>Entangling power of time-evolution operators: from bipartite to many-body systems</i>
12:40 – 14:00	<b>Lunch break</b>	
	Chair: Ryszard Tanaś	
14:00 – 14:30	Gulia Rubino	<i>Experimental Entanglement of Temporal Orders</i>
14:30 – 15:00	Karol Życzkowski	<i>Five Isoentangled Mutually Unbiased Bases and Mixed-states <math>t</math>-designs</i>
15:00 – 15:30	Piotr Mironowicz	<i>Symmetries, designs and semidefinite programming</i>
15:30 – 15:50	<b>Coffee break</b>	
	Chair: Ravishankar Ramanathan	
15:50 – 16:20	Jitendra Prakash	<i>Non-closure of the set of quantum correlations</i>
16:20 – 16:50	Alessandro Ferraro	<i>Resource theory of quantum non-Gaussianity and Wigner negativity</i>
16:50 - 17:20	Caslav Brukner	<i>The covariance of physical laws in quantum reference frames</i>
18:00 – 20:30	<b>Dinner</b>	

## Friday, May 24

	Chair:	
09:20 – 09:50	Fernando Brandao	<i>Applications of Near-Term Quantum Computers</i>
09:50 – 10:20	Jan-Åke Larsson	<i>Quantum computation and the additional degrees of freedom in a physical system</i>
10:20 – 10:50	Felix Leditzky	<i>Quantum codes from neural networks</i>
10:50 – 11:10	<b>Coffee break</b>	
	Chair: Mohamed Bourennane	
11:10 – 11:40	Michał Oszmaniec	<i>Relative power of projective and generalized measurements in quantum information theory</i>
11:40 – 12:10	Markus Aspelmeyer	<i>Towards Witnessing System-Observer Entanglement of a Massive Object</i>
12:10 – 12:40	Nicolas Treps	<i>Tailored non-Gaussian multimode optical states</i>
12:40 – 13:10	Konrad Banaszek	<i>Beating the Rayleigh limit using two-photon interference</i>
13:10 – 14:30	<b>Lunch break</b>	
	Chair: Erik Aurell	
14:30 – 15:00	Robert Alicki	<i>A quantum theory of triboelectricity</i>
15:00 – 15:30	Kamil Korzekwa	<i>Avoiding irreversibility: engineering resonant conversions of quantum resources</i>
15:30 – 16:00	Alex Retzker	<i>Overcoming resolution limits with quantum sensing</i>
16:00 – 16:20	<b>Coffee break</b>	
	Chair: Fabio Benatti	
16:20 – 16:50	Bob Coecke	<i>Diagrams in practical quantum computing.</i>
16:50 – 17:20	Mario Ziman	<i>Quantum learning of quantum gates</i>
17:20 – 17:50	Paweł Caban	<i>Nonlinear evolution and nonsignaling</i>

## Saturday, May 25

09:00 – 09:30	<b>Coffee break</b>	
	Chair: Michał Horodecki	
09:30 – 10:00	Mark Hillery	<i>Wave particle duality relations: coherence and group asymmetry</i>
10:00 – 10:30	Marek Czachor	<i>Time travel in a space-time ring resonator</i>
10:30 – 11:00	Ravishankar Ramanathan	<i>Optimal Randomness Amplification schemes from Hardy paradoxes</i>
11:00 – 11:30	Paweł Horodecki	<i>On relativistic causality and no-signaling</i>
11:30 – 12:00	<b>Coffee break</b>	
	Chair: Andrzej Grudka	
12:00 – 12:30	Marek Żukowski	<i>Entanglement conditions for quantum optical fields</i>
12:30 – 13:00	Maciej Stankiewicz	<i>Semi-Device Independent Quantum Money</i>
13:00 – 13:30	Marcin Karczewski	<i>Extracting entanglement from the indistinguishability of particles</i>
13:30 – 14:00	Artur Barasiński	<i>Role of multipartite entanglement in quantum teleportation</i>
14:00 – 15:30	<b>Lunch</b>	