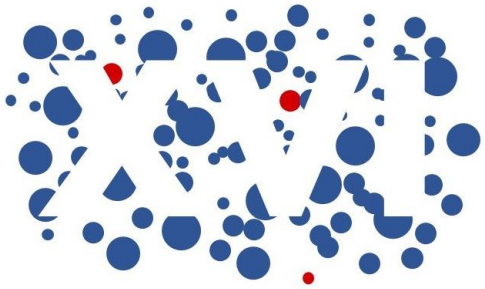

XVI Symposium KCIK-ICTQT on QUANTUM INFORMATION

7-10 May 2025, Gdańsk-Sopot, Poland

PROGRAMME

The National Science Centre (NCN), as the coordinator of the European QuantERA program, will host the "Quantum Horizons" conference under Poland's EU Presidency. The cooperation between the organizers – NCN, KCIK and ICTQT UG – has enabled the integration of these two events. On May 7, 2025, a scientific poster session in the evening and a banquet at the European Solidarity Centre will mark the conclusion of the "Quantum Horizons" conference while inaugurating the XVI KCIK-ICTQT Symposium. The detailed program of the "Quantum Horizons" can be found at: https://quantera.eu/quantum-horizons-conference-science-policy-society/.

Wednesday, May 7

Venue: European Solidarity Center, Solidarności Square 1, **Gdańsk**

10:00 - 11:15	Registration
11:15 – 18:00	**"Quantum Horizons" event**
18:00 – 18:30	Coffee break & Registration
18:30 – 20:00	**Poster Session of the KCIK-ICTQT Symposium**
20:00	Gala dinner

Thursday, May 8

Venue: Centrum Dydaktyczno-Konferencyjne (Conference Centre), University of Gdańsk, Piaskowa Street, 9, **Sopot**

10:00 – 11:30	Registration & networking	
Session I	Chair: Marek Kuś	
11:30 – 11:40	**Welcome Speeches**	
11:40 – 12:05	**Michael Berry**	Geometric phases old and new
12:05 – 12:30	**Wojciech Żurek**	Decoherence and Quantum Darwinism
12:30 – 12:55	**Tomasz Dietl**	Understanding of Quantum Hall Effects in Topological Quantum Wells
12:55 – 13:20	**Karol Ławniczak**	Quantum selective measurement as a nonlinear evolution
13:20 – 13:35	**Conference Photo**	
13:35 – 15:00	Lunch	

Session II	Chair: Marek Żukowski	
15:00 – 15:25	**Anton Zeilinger**	Schrödinger's cat is never dead and alive (on-line presentation)
15:25 – 15:50	**Nicolas Gisin**	Three ways beyond Bell inequalities
15:50 – 16:15	**Jarosław Korbicz**	Decoherence from the light bending interaction
16:15 – 16:40	**Robert Fickler**	Spin-Orbit Quantum Frequency Conversion
16:40 – 17:25	Coffee break	
Session III	Chair: Paweł Machnikowski	
17:25 – 17:50	**Giovanna Morigi**	Searching a quantum graph with long-range hopping
17:50 – 18:15	**Erik Aurell**	Average entanglement entropy of a subsystem in a constrained pure Gaussian state ensemble
18:15 – 18:40	**Łukasz Cywiński**	Towards scalable quantum computer based on silicon quantum dots

Friday, May 9

Venue: Centrum Dydaktyczno-Konferencyjne (Conference Centre), University of Gdańsk, Piaskowa Street, 9, **Sopot**

Session IV	Chair: Dariusz Chruściński	
09:30 – 09:55	**Charles Bennett**	Can we reason about our place in the universe without defining “us?”
09:55 – 10:20	**Maciej Lewenstein**	QI@ICFO-QOT
10:20 – 10:45	**Klaus Mølmer**	The state of monitored quantum systems – more than meets the eye
10:45 – 11:10	**Zbigniew Puchała**	Advances in Discrimination and Certification of Quantum Operations and Measurements
11:10 - 11:55	Coffee break	
Session V	Chair: Adam Miranowicz	
11:55 – 12:20	**Martin Plenio**	Numerical Methods for Open Quantum Systems: From Biology to Tensor Networks
12:20 – 12:45	**Janine Splettstösser**	Bounds on noise in quantum transport of fermions and bosons
12:45 – 13:10	**Kay Brandner**	Dynamics of Open Quantum Systems in the Weak-Memory Regime: A Mathematical Framework Beyond the Markov Approximation
13:10 – 13:35	**Borhan Ahmadi**	Nonreciprocal Quantum Batteries
13:35 – 15:00	Lunch	
Session VI	Chair: Jakub Rembieliński	
15:00 – 15:25	**Karol Życzkowski**	Discrete dynamics in the set of quantum measurements
15:25 – 15:50	**Shukla Pragya**	Many body quantum state ensembles: a complexity parameter formulation
15:50 – 16:15	**Saverio Pascazio**	Statistical mechanics of multipartite entanglement
16:15 – 17:00	Coffee break	

Session VII	Chair: Gerd Leuchs	
17:00 – 17:25	**Volodymir Tkachuk**	Entanglement in Quantum Hypergraph States and Its Quantification on a Quantum Computer
17:25 – 17:50	**Khrystyna Gnatenko**	Detection of properties of multi-qubit quantum states corresponding to networks with quantum programming
17:50 – 18.15	**Gniewomir Sarbicki**	Entanglement detection by randomised measurement

Saturday, May 10

Venue: Centrum Dydaktyczno-Konferencyjne (Conference Centre), University of Gdańsk, Piaskowa Street, 9, **Sopot**

Session VIII	Chair: Dariusz Chruściński	
09:30 – 09:55	**Erika Andersson**	Quantum cryptography beyond quantum key distribution: variants of quantum oblivious transfer
09:55 – 10:20	**Konrad Banaszek**	From multimode quantum information to optical communication in space
10:20 – 10:45	**Zbigniew Ficek**	Creation and conversion of correlations in a system of coupled bosonic modes
10:45 – 11:10	**Marcin Syperek**	Deterministically fabricated semiconductor quantum dot-based single-photon source for on-chip and telecom applications
11:10 - 11:55	Coffee break	
Session IX	Chair: Łukasz Pawela	
11:55 – 12:20	**Matteo Paris**	Information scrambling in quantum metrology
12:20 – 12:45	**Patrycja Tulewicz**	Resource-Efficient Quantum Correlation Measurement: A Multicopy Neural Network Approach for Practical Applications
12:45 – 13:10	**Marek Mozrzymas**	From port-based teleportation to Frobenius reciprocity theorem: partially reduced irreducible representations and their applications
13:10 – 13:30	**Final Speech**	
13:30 – 15:00	Lunch	
14:00 – 15:30	Meeting of the KCIK Scientific Council	
	Break	

PUBLIC SESSION

Venue: Gdańsk University of Technology (Main auditorium hall), Gabriela Narutowicza Street, 11/12, **Gdańsk**

Session X	Chair: Józef Sienkiewicz	
17:00 – 17:45	**Charles Bennett**	Quantum Information's birth and maturation
17:45 – 18:30	**Michael Berry**	How quantum physics democratised music: a meditation on physics and technology

List of posters

1.	**Aaqib Ali**	Optimized Error Filtration for Noise Mitigation in Quantum Systems
2.	**André Hernandes Alves Malavazi**	Two-time weak measurement protocol for ergotropy protection in open quantum batteries
3.	**Bihalan Bhattacharya**	Qubit Schwarz maps with diagonal unitary and orthogonal symmetries
4.	**Rafał Bistroń*, Marcin Rudziński***	Benchmarking quantum devices beyond classical capabilities
5.	**Wojciech Bruzda**	Quantum Circuits for High-Dimensional Absolutely Maximally Entangled States
6.	**Paweł Cieśliński**	Conservation of coherence and entanglement under quantum reference frame transformations
7.	**Piotr Dulian**	QMetro++ - Python package for large scale quantum metrology
8.	**Karol Horodecki**	Bound on repeated key for all key correlated states
9.	**Ryszard Kukulski**	Quantum key distribution based on indefinite causal order
10.	**Moein Naseri**	Scalable Noisy Quantum Circuits for Biased Noise Qubits
11.	**Yasser Omar**	Towards Energetic Quantum Advantage in Trapped-Ion Quantum Computation
12.	**Vivek Pandey**	Fundamental limitations on the recoverability of quantum processes
13.	**Łukasz Pawela**	Quantum-aware Transformer model for state classification
14.	**Sumit Rout**	Non-local correlations enhance classical channel in minimal prepare and measure scenario
15.	**Abhyoudai Sajeevkumar Shaleena**	A semi-analytical optimization of Bell inequalities in a tripartite scenario
16.	**Marek Sewerwain*, Joanna Wiśniewska, Roman Gielerak**	FredLib: The Fredholm determinant for Schmidt decomposition of quantum continuous registers
17.	**Leonard Sikorski**	Quantification of the energy consumption of entanglement distribution
18.	**Maciej Stankiewicz**	SVTest: general purpose software for testing weakly random sources with exemplary application to seismic data analysis enabling quantum amplification
19.	**Alexander Streltsov**	Advances in entanglement catalysis
20.	**Gerardo Suarez**	Modeling Quantum Environments with QuTiP
21.	**Abdelmalek Taoutioui**	Certifying asymmetry in the configuration of three qubits
22.	**Gianluigi Tartaglione**	Geometric measure of nonlocality
23.	**Anuradha Tonipe**	Towards violation of Bell inequalities by position measurements for Dirac particles
24.	**Masood Valipour**	The role of entanglement in the excitation of a three-level atom by a propagating two-photon light

* person presenting a poster

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