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2ND MASOVIAN SYMPOSIUM ON QUANTUM, OPTICAL AND ATOMIC PHYSICS

MaSQOT 2

10-11 JUNE 2026



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CENTRUM
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DAY 1 | Wednesday, June 10

08:00 - 9:00 | REGISTRATION

09:00 - 10:30 SESSION I

Chair: **K. Pawłowski**

09:00 – 09:10 | OPENING: **Emilia Witkowska**

09:10 – 09:30 **Kazimierz Rzążewski**

Center for Theoretical Physics Polish Academy of Sciences

Multicomponent quantum gases and spontaneous symmetry breaking

09:30 - 09:50 **Jacek Szczepkowski**

Institute of Physics Polish Academy of Sciences

Electronic structure of alkali-alkaline earth-like dimers

09:50 – 10:10 **Mariusz Gajda**

Institute of Physics Polish Academy of Sciences

Bose-Fermi droplets at nonzero temperature

10:10 – 10:30 **Piotr Deuar**

Institute of Physics Polish Academy of Sciences

Lee-Huang-Yang physics without a Lee-Huang-Yang term

10:30 - 11:00 | COFFEE BREAK

11:00 - 12:20 SESSION II

Chair: **Ł. Cywiński**

11:00 - 11:20 **Alex Streltsov**

Institute of Fundamental Technological Research Polish Academy of Sciences

Robustness of quantum data hiding against entangled catalysts and memory

11:20 - 11:40 **Remigiusz Augusiak**

Center for Theoretical Physics Polish Academy of Sciences

Device-independent certification of Majorana fermions and a new self-testing equivalence

11:40 - 12:00 **Jarosław Korbicz**

Center for Theoretical Physics Polish Academy of Sciences

Quantum potential and generative AI?

12:00 – 12:20 **Piotr Szańkowski**

Institute of Physics Polish Academy of Sciences

Does detailed balance explain thermalization?

12:20 - 13:20 | LUNCH BREAK

13:20 - 14:40 | POSTER SESSION 1

14:40 - 16:20 **SESSION III**

Chair: **M. Karpiński**

14:40 – 15:00 **Konrad Banaszek**

University of Warsaw

Towards more efficient and secure optical communication in space

15:00 – 15:20 **Michał Parniak**

University of Warsaw

Quantum radiometer based on Rydberg atoms

15:20 – 15:40 **Radosław Łapkiewicz**

University of Warsaw

Imaging through scattering media

15:40 - 16:00 **Oliver Reardon-Smith**

Center for Theoretical Physics Polish Academy of Sciences

Efficient simulation of free-fermionic dynamics with magic input states

16:00 - 16:20 **Jan Chwedeńczuk**

University of Warsaw

Propagation of information across many-body systems

16:20 - 16:50 | COFFEE BREAK

11:00 - 12:20 **SESSION IV**

Chair: **K. Jachymski**

16:50 – 17:10 **Guy Cohen**

Center for Theoretical Physics Polish Academy of Sciences

TBA

17:10 - 17:30 **Piotr Magierski**

University of Warsaw of Technology

Density functional theory of non-equilibrium superfluidity in Fermi systems

17:30 – 17:50 **Paweł Zin**

National Centre For Nuclear Research

Non-existence of causal classical electrodynamics of point charged particles

17:50 - 18:10 **Piotr Fita**

University of Warsaw

From classical to quantum light in molecular spectroscopy

18:30 - 21:00 | CONFERENCE DINNER

Centrum Kulturalne Ojców Barnabیتów

Ulica Smoluchowskiego 1, 02-679 Warszawa

DAY 2 | Thursday, June 11

09:00 - 10:20 **SESSION V**

Chair: **R. Augusiak**

09:00 – 09:20 **Rafał Demkowicz-Dobrzański**

University of Warsaw

Quantum error correction in quantum metrology

09:20 – 09:40 **Magdalena Stobińska-Moretto**

University of Warsaw

Long-range photonic device-independent quantum key distribution using SPDC sources and linear optics

09:40 - 10:00 **Patryk Lipka-Bartosik**

Center for Theoretical Physics Polish Academy of Sciences

Thermodynamic networks: harnessing non-equilibrium Steady States for Computation

10:00 - 10:20 **Tomasz Sowiński**

Institute of Physics Polish Academy of Sciences

Correlations in mesoscopic multi-component fermionic systems

10:20 - 10:50 | COFFEE BREAK

10:50 - 12:10 **SESSION VI**

Chair: **M. Tomza**

10:50 - 11:10 **Marcin Napiórkowski**

University of Warsaw

Local particle statistics in the mean-field Bose gas

11:10 - 11:30 **Paweł Jakubczyk**

University of Warsaw

The Lifshitz critical point

11:30 - 11:50 **Emanuel Gull**

University of Warsaw

Hybrid solution of quantum impurity models

11:50 - 12:20 | OPTICS SEMINAR TALK

Hilton B. de Aguiar

Laboratoire Kastler Brossel - École Normale Supérieure

High-speed and ultrafast chemical sensing enabled by quantum-optical resources

12:20 - 13:20 | LUNCH BREAK

13:20 - 14:30 | POSTER SESSION 2

14:30 - 16:10 **SESSION VII**

Chair: **T. Sowiński**

14:30 – 14:50 **Barbara Piętka**

University of Warsaw

Exciton-polariton semiconductor microcavities as hardware platforms for photonic neuromorphic computing

14:50 – 15:10 **Michał Matuszewski**

Center for Theoretical Physics Polish Academy of Sciences

Quantization of polaritons in dielectric structures

15:10 – 15:30 **Dominika Zgid**

University of Warsaw

Weakly correlated Green's function methods for materials calculations

15:30 – 15:50 **Gabriel Wlazłowski**

University of Warsaw of Technology

Dynamics of quantum vortices in superfluid Fermi gases

15:50 – 16:10 **Daniel Pęczak**

Institute of Physics Polish Academy of Sciences

Axial flow in neutron superfluid vortex

16:10 - 16:40 | COFFEE BREAK

16:40 - 18:00 **SESSION VIII**

Chair: **E. Witkowska**

16:40 – 17:00 **Michał Tomza**

University of Warsaw

Ultracold polar molecules for new physics searches

17:00 – 17:20 **Łukasz Cywiński**

Institute of Physics Polish Academy of Sciences

Coherent shuttling of spin qubits in silicon

17:20 – 17:40 **Rafał Ołdziejewski**

Center for Theoretical Physics Polish Academy of Sciences

Quantum sensors as inference devices in noisy dynamical systems

17:40 – 18:00 **Jan Kołodyński**

Institute of Physics Polish Academy of Sciences

Quantum information meets particle physics: detecting entanglement in para-positronium annihilation photons

18:00 -18:10 | CLOSING: **Krzysztof Pawłowski**

POSTER SESSION I

- 1. Vikash Mittal** (Institute of Physics PAS)
Locally Interacting Discrete-Time Quantum Walkers
- 2. Marek Teske** (Institute of Physics PAS)
Influence of the Impurity on Formation of Pair Correlations in Ultra-Cold Few-Fermion Systems
- 3. Jingsong Ao** (Institute of Fundamental Technological Research, Polish Academy of Sciences)
Advantage of Flexible Catalysis for Entanglement and Quantum Thermodynamics
- 4. Piotr Masajada** (Polish Academy of Sciences)
Optimizing Entanglement Distribution via Noisy Quantum Channels
- 5. J. Ernesto Alba-Arroyo** (University of Warsaw)
Local Quantum Cooling for Large Fermi Systems with Pairing
- 6. Michał Śliwiński** (University of Warsaw of Technology)
Kelvin–Helmholtz Instability in Fermionic Superfluids: Numerical Approach
- 7. Doruk Can Alyuruk** (Institute of Fundamental Technological Research PAN)
Thermodynamic Limits of the Mpemba Effect: A Unified Resource Theory Analysis of Correlation-Enabled Mechanisms
- 8. Hubert Dunikowski** (Institute of Physics PAS)
Spin Dynamics in the Strongly Interacting Mott Regime of $SU(d)$ Fermi–Hubbard Systems
- 9. Aby Philip** (IPPT PAN)
Robustness of Quantum Data Hiding Against Entangled Catalysts and Memory
- 10. Maksim Shundalau** (University of Warsaw)
Strongly Dipolar Alkali-Metal–Silver Molecules: Electronic Structure and Spectroscopic Properties

- 11. Przemysław Czapla** (Institute of Physics PAS)
Towards Rigorous Entanglement Detection of Scattered Photons in Para-Positronium Annihilation
- 12. João Pedro Mendonça** (Centre of New Technologies, University of Warsaw)
Role of Matter Interactions in Superradiant Phenomena and Applications
- 13. Buğra Tüzemen** (Institute of Physics PAS)
Impurity-Controlled Vortex Mobility and Pair-Breaking in Fermionic Superfluid Rings
- 14. Maciej Łebek** (University of Warsaw)
Thermalisation and Kinetic Theory of Nearly Integrable Quantum Gases
- 15. Vera Uzunova** (Centre of New Technologies, University of Warsaw)
Photon Key Efficiency of High-Dimensional Quantum Key Distribution
- 16. Pratham Hullamballi** (Institute of Fundamental Technological Research, Polish Academy of Sciences)
Distributed Quantum Dense Coding Enhanced with Non-Classical Routing
- 17. Danish Ali Hamza** (University of Warsaw)
Enhancing Sensitivity Using an Array of Double-Well Potentials
- 18. Maciej Bartłomiej Kruk** (Institute of Physics PAS)
Geometry and Fluctuations: Exploring 3D Bose–Einstein Condensates in Anisotropic Traps
- 19. Piotr Kulik** (University of Warsaw)
Quantum Engineering with Ultracold Polar Molecules Using Trap-Induced Resonances
- 20. Andrzej Tyc** (University of Warsaw)
Ultracold High-Spin Σ -State Polar Molecules for New Physics Searches – YbCr vs RaCr
- 21. Piotr Dulian** (Faculty of Physics, University of Warsaw; Centre for Quantum Optical Technologies, Centre of New Technologies, University of Warsaw)
QMetro++ – Python Optimization Package for Large-Scale Quantum Metrology with Customized Strategy Structures

22. Arkadiusz Kobus (University of Warsaw & Institute of Physics PAS)
Optimal Phase Estimation in the Presence of Correlated Dephasing

23. Stanisław Sieniawski (University of Warsaw)
Adaptive Quantum Channel Discrimination Using Methods of Quantum Metrology

24. Michał Suchorowski (University of Warsaw)
From Scale Invariance to Universal Droplets: Generalised GPE for Attractive 2D Bose Gases

25. Aleksander Macioch (University of Warsaw)
FLIM with a Widefield SPAD Array and Temporally Focused Two-Photon Excitation

26. Tejas Joshi (Institute of Physics Polish Academy of Sciences)
Solitonic Breathing in Virialised Fuzzy Dark Matter Halo Formation

27. Jakub Lewandowski (University of Warsaw)
Towards Structured Quantum Ghost Imaging – Theory and Current Progress

28. Jan Krzyżanowski (University of Warsaw)
Spectral-Temporal Profile Manipulation for Enabling Two-Photon Interference

29. Jędrzej Wardyn (University of Warsaw)
Exact Dimer States in Long-Range Anisotropic Spin Chains

POSTER SESSION II

- 30. Wiktor Krokosz** (University of Warsaw)
Electric-Field Metrology of a Terahertz Frequency Comb Using Rydberg Atoms
- 31. Antoni Skoczypiec** (University of Warsaw)
Heralding Sub-50 ps Time-Bin Photonic States via Temporal Imaging
- 32. Stanisław Świerczewski** (Center for Quantum Enabled-Computing, Center for Theoretical Physics PAS)
Quantum Reservoir Computing and Processing with a Photonic Interferometer
- 33. Michał Puza** (Quantum Imaging Lab, University of Warsaw)
Nonlinear Random Illumination Microscopy with Avalanching Nanoparticles
- 34. Marcin Gronowski** (University of Warsaw)
The Electronic Structure of AIF Molecule
- 35. Jakub Pawlak** (University of Warsaw)
Precise Spectroscopy of Molecular Iodine at 656 nm for Laser Cooling of Ag Atoms
- 36. Paweł Lubczański** (University of Warsaw)
Symmetrization Effects in Excitonic Interactions
- 37. Andrzej Kozłowski** (University of Warsaw)
Overcoming Light Scattering with High Optical Nonlinearity
- 38. Michał Mikołajczyk** (University of Warsaw)
Simultaneous Frequency Conversion and Spectral-Temporal Shaping of Single Photons in a Lithium Niobate Waveguide Chip
- 39. Jorge Mellado Muñoz** (University of Warsaw)
Experimental Prospects with Ultracold CsAg and KCs
- 40. Morteza Moradi** (University of Warsaw)
Long-Range Photonic DIQKD Using SPDC Sources and Linear Optics

- 41. Maciej Ogrodnik** (University of Warsaw)
High-Dimensional Quantum Key Distribution with Resource-Efficient Detection
- 42. Paweł Arciszewski** (University of Warsaw of Technology)
MAIUS – A New Chapter for BEC in Microgravity
- 43. Tomasz Prokop** (University of Warsaw)
Measuring Mean Rydberg Interaction Energy in Hot Vapors
- 44. Andrzej Opala** (Institute of Physics PAS and University of Warsaw)
Quantum and Classical Neuromorphic Computing with Quantum Fluids of Light
- 45. Saikat Santra** (University of Warsaw)
Crossover from Generalized to Conventional Hydrodynamics in Nearly Integrable Systems Under Relaxation Time Approximation
- 46. Anton Hul** (University of Warsaw)
Two Microwave-Shielded Ultracold Molecules in an Optical Tweezer
- 47. Navid Kazemiseresht** (Institute of Physics PAS)
Universal Spin-Squeezing Dynamics in Spinor Condensates
- 48. Tymon Kilich** (University of Warsaw)
Ultracold Highly Polar KAg and CsAg Molecules: Electronic Structure and Optical Formation
- 49. Bernard Gorzkowski** (University of Warsaw)
The Extended Hong–Ou–Mandel Effect
- 50. Arturo Konderak** (Center for Theoretical Physics PAS)
Local Content of Qubits Under Generalized Measurements
- 51. Rajendra Singh Bhati** (CFT PAN)
Security in a Prepare-and-Measure Quantum Key Distribution Protocol when the Receiver Uses Weak Values to Guess the Sender's Bits
- 52. Amir Rahmani** (Institute of Physics PAS, CFT)
Mollow Triplet as a Resource for Quantum Machine Learning
- 53. Sanjay Kapoor** (University of Warsaw)
Chronocyclic Tomography of High-Dimensional Time-Frequency Entangled Biphoton State

54. Juan Pablo Rubio Perez (Centre for Theoretical Physics PAS)
Efficient Classical Training of Quantum Circuit Born Machines Beyond Binary Outputs

55. Ritopriyo Pal (Center for Theoretical Physics PAS)
Persistent Local Content of GME Qubit States Under Finite von Neumann Measurements

56. King Lun Ng (Institute of Physics PAS)
Quantum Droplet Physics: A Stochastic Approach

57. Ubaldo Cavazos-Olivas (University of Warsaw)
Tan Contact in Hybrid Systems

58. Jan Okoński (University of Warsaw)
Mapping the Lieb–Liniger Model to a Single 2D Particle

59. Dawid Dąbrowski (University of Warsaw)
Excited Electronic States of the Helium Dimer Including Relativistic, Adiabatic, and QED Effects

2nd Masovian Symposium on Quantum, Optical and Atomic Physics (MaSQOT)

Wednesday 10.06

8:00-9:00	Registration
9:00-10:30	Session I (Chair: K. Pawłowski)
09:00	Opening: Emilia Witkowska
09:10	Kazimierz Rzążewski
09:30	Jacek Szczepkowski
09:50	Mariusz Gajda
10:10	Piotr Deuar
10:30-11:00	Coffee break
11:00-12:20	Session II (Chair: Ł. Cywiński)
11:00	Alex Streltsov
11:20	Remigiusz Augusiak
11:40	Jarosław Korbicz
12:00	Piotr Szańkowski
12:20-13:20	Lunch break
13:20-14:40	Poster Session
14:40 - 16:20	Session III (Chair: M. Karpiński)
14:40	Konrad Banaszek
15:00	Michał Parniak
15:20	Radosław Łapkiewicz
15:40	Oliver Reardon-Smith
16:00	Jan Chwedeńczuk
16:20-16:50	Coffee break
16:50-18:10	Session IV (Chair: K. Jachymski)
16:50	Guy Cohen
17:10	Piotr Magierski
17:30	Paweł Zin
17:50	Piotr Fita
18:30 - 21:00	Conference dinner

Thursday 11.06

9:00-10:20	Session V (Chair: R. Augusiak)
09:00	Rafał Demkowicz-Dobrzański
09:20	Magdalena Stobińska-Moretto
09:40	Patryk Lipka-Bartosik
10:00	Tomasz Sowiński
10:20-10:50	Coffee break
10:50-12:10	Session VI (Chair: M. Tomza)
10:50	Marcin Napiórkowski
11:10	Paweł Jakubczyk
11:30	Emanuel Gull
11:50	Hilton B. de Aguiar
12:20-13:20	Lunch break
13:20-14:30	Poster Session
14:30 - 16:10	Session VII (Chair: T. Sowiński)
14:30	Barbara Piętka
14:50	Michał Matuszewski
15:10	Dominika Zgid
15:30	Gabriel Włazłowski
15:50	Daniel Pęczak
16:10-16:40	Coffee break
16:40-18:00	Session VIII (Chair: E. Witkowska)
16:40	Michał Tomza
17:00	Łukasz Cywiński
17:20	Rafał Ołdziejewski
17:40	Jan Kołodzyński
18:00	Closing: Krzysztof Pawłowski

