Masovian Symposium on Quantum, Optical and Atomic Physics
MASQOT

Institute of Physics PAN, 10-11.06.2024

Detailed program

Monday, 10.06.2024

Session I (chair: Krzysztof Pawłowski)
8:30 Registration
8:50 MASQOT Opening: Emilia Witkowska
9:00 Kazimierz Rzążewski "Hybrid algorithm for Bose statistics"
9:20 Jan Kołodyński "Quantum sensors operated in real time"
9:40 Krzysztof Jachymski "Hybrid quantum systems"
10:00 Piotr Szańkowski "Towards solving the Measurement Problem of Quantum Theory"

10:20-11:00 Coffee break

Session II (chair: Michał Tomza)
11:00 Andrzej Opala "Harnessing exciton-polaritons for classical and quantum neuromorphic computing"
11:20 Michał Karpiński "Time-resolved second order correlation of multimode thermal light"
11:40 Anna Dawid "Interpretable machine learning for quantum physics"
12:00 Paweł Jung "Optical thermodynamics"

12:20-13:40 Lunch break

Session III (chair: Michał Karpiński)
13:40 Michał Parniak "Rydberg atoms for quantum sensing and transduction"
14:00 Jacek Szczepkowski "Electron structure of metal dimers- spectroscopic studies"
14:20 Mariusz Semczuk "Towards ground polar state molecules"
14:40 Michał Tomza "Ultracold highly polar and paramagnetic molecules"

15:00-15:30 Coffee break

Session IV (chair: Krzysztof Jachymski)
15:30 Piotr Deuar "Scalable quantum description of dissipative and self-organized cavity bosons"
15:50 Paweł Zin "Quantum droplets above local density approximation"
16:10 Marcin Napiórkowski "Proof of symmetry breaking and ODLRO in a weakly interacting Bose gas"
16:30 Miłosz Panfil "Navier- Stokes equations for nearly integrable quantum gases"

16:50-18:30 Poster session
19:00 Conference Dinner at Centrum Barnabitów

Tuesday, 11:06

Session V (chair: Emilia Witkowska)
9:00 Łukasz Cywiński “Towards semiconductor-based quantum computer”
9:20 Jarosław Korbicz “Broadcasting classicality”
9:40 Jan Chwedeńczuk “Signal speed: quantum information perspective”
10:00 Magdalena Stobińska “Enhancing free space DI QKD via employing NPA hierarchy method”

10:20-11:00 Coffee break

Session VI (chair: Magdalena Stobińska)
11:00 Remigiusz Augusiak “Certification of composite quantum measurments in quantum networks”
11:20 Rafał Demkowicz-Dobrzański “Quantum metrology using quantum combs and tensor network formalism”
11:40 Alex Streltsov “Catalytic and asymptotic equivalence for quantum entanglement”
12:00 Piotr Magierski “Quantum vortices in fermionic superfluids: from ultracold atoms to neutron stars”

12:20-13:40 Lunch break

Session VII (chair: Piotr Magierski)
13:40 Marek Tylutki “Mixtures of Superfluid Quantum Gases”
14:00 Gabriel Wlazłowski “Dynamics of superfluid Fermi gases: a density functional theory approach”
14:20 Daniel Pęcak “Traveling through a nuclear medium: How is energy dissipated?”
14:40 Paweł Jakubczyk “Can Bose-Einstein condensation occur via a first-order transition?”

15:00-15:30 Cofee break

Session VIII (chair: Łukasz Cywiński)
15:30 Piotr Fita “Time-resolved spectroscopy as a tool in studies of biomaterials”
15:50 Mircea Trif “Non-Hermitian persistent current transport”
16:10 Radek Łapkiewicz “Quantum Imaging Lab -- our research directions”
16:30 Adam Sawicki “Efficient quantum gates and t-designs”
16:50 MASQOT Closing: Krzysztof Pawłowski

List of poster contributions:

1. Danish Hamza “Bell Correlations of a Spin Chain sytem Near Critical Point.”
2. Ubaldo Cavazos Olivas “Ionic polaron and bipolar on in a Bose gas”
3. Michał Suchorowski “Rotation of a molecular impurity in two-dimensional Bose-Einstein condensate”
4. Alexandre Orthey “Semi-device-independent certification of generalized measurements”

5. Sk Sazim “Higher-order incompatibility improves distinguishability of causal quantum networks”
6. Wojciech Bruzda “Perfect tensors and multipartite entanglement”
7. Hubert Dunikowski “Effective light-induced Hamiltonian for atoms with large nuclear spin”
8. Juan Camilo López Carreño “Experimental Quantum Excitation of a Quantum Emitter”
9. Andrzej Frączak “Electrical switching of spin-orbit coupled exciton-polariton condensates in liquid crystal microcavities”
10. Eryk Imos “Training a Neural Network via All-Optical Coupling Control in Polariton Condensate Lattices”
11. Lewis Clark “Efficient Inference of quantum system parameters by approximate Bayesian computation”
12. Tejas Joshi “Condensate dynamics of wave dark matter”
13. Jan Mostowski “Generalized Bell inequalities for large angular momenta”
14. Júlia Amorós Binefa ” Noisy atomic magnetometry with Kalman Filters”
15. Piotr Kulik “Microscopic derivation of Bose-Hubbard parameters for dipolar particles in optical lattice”
16. Maciej Zaremba “Polarisation-selective Condensates in CsPbBr3 as a way to Non-resonant Polariton Vortices”
17. Felipe Taha Sant'Ana “TBA”
18. Klaudia Dilcher “Atomic Magnetometry with Kalman Filters”
19. Michał Mikołajczyk “Simulataneous quantum frequency conversion and spectro-temporal shaping”
20. Jerzy Szuniewicz “Quantum-compatible, spectral-temporal photonic interfaces”
21. J. Ernesto Alba-Arroyo “Binary collisions between mixed quantum droplets”
22. Emad Rezaei Fard Boosari “Quantum Data Compression algorithms”
23. Maciej Łebek “Navier-Stokes equations for nearly integrable quantum gases”
24. Herbert Potrykus “TBA”
25. Maciej Ogrodnik “Efficient detection of multidimensional single-photon time-bin superpositions”
26. Sanjay Kapoor “Phase-only spectral shaping of single photons from a quantum dot source”
27. King Lun Ng “Emergent Lee-Huang-Yang corrections in phase-space representation of Bose field”
28. Jan Krzyżanowski “Enabling two-photon interference with time-lensing”
29. Maciej Bartłomiej Kruk “Hybrid Metropolis Approach to BEC Fluctuations”
30. Marek Trippenbach “Spin dependent optical lattice”
31. Om Sarveshwarpati Tripathi “Laser frequency stabilization with a Sagnac interferometer”
32. Mateusz Bocheński “Feshbach resonances in potassium-cesium mixtures”
33. Michał Marynowski “Simulation of 2D + 3D magneto-optical traps for Cs, K and Ag”
34. Jakub Dobosz “Laser system for noise suppression in a distributed optical clock”
35. Yi Zhang “Towards ultracold diatomic molecules”
36. Paulina Rajchel-Mieldzioć “Unraveling Photoluminescence in a Gold Nanoparticles–Aryl Iodides System”

37. Agata Zdanowicz “Towards effective model of neutron star crust: dynamics of impurity in superfluid neutron matter”
38. Kamil Dutkiewicz “Energy levels in a 2D spin dependent optical lattice”
39. Marcin Koźbiał “Spin noise spectroscopy of an alignment-based atomic magnetometer”
40. Andrzej Makowski “Pairing dynamics in nuclear collisions”
41. Emad Rezaei Fard Boosari “Quantum image compression”
42. Maciej Pylak “A stability problem and zero-energy modes of two-component quantum droplets.”
43. Michał Siemaszko “Time series prediction with quantum memristor”
44. Jayanth Jayakumar “Quantum-enhanced joint estimation of phase and phase diffusion”
45. Radosław Zagajewski “Quantum Image Processing”
46. Maryam Afsary “Enhancing the performance of DI-QKD protocols”
47. Bohnishikha Ghosh “A tale on the interference of two beams”
48. Buğra Tüzemen “Restored condensate fraction in one-dimensional dipolar Bose gas with anti-bunching properties”
49. Maciej Marciniak “Exploring Novel States in 1D Dipolar Gases with Topological Pumping”
50. Stanisław Świerczewski “From the Exciton-Polariton Oscillator to a Quantum Reservoir Neural Network”
51. Kacper Cybiński “TetrisCNN: Interpretable machine learning of phases of matter”