THE 29TH CENTRAL EUROPEAN WORKSHOP ON QUANTUM OPTICS CEWQO29, VILNIUS, LITHUANIA 23 - 27 JUNE 2025

PROGRAM

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PROGRAM

DAY 0 | Sunday, 22 June

17:00 - 19:00	**WALKING TOUR of the Old Town of Vilnius** *Starting at the entrance to Vilnius Town Hall*

DAY 1 | Monday, 23 June

08:00 - 08:45	Registration
08:45 - 09:00	**OPENING**
09:00 - 10:30	**SESSION 1** *Chair: Gediminas Juzeliūnas*
09:00 - 09:30	**Vectorial light-matter interaction- imprinting polarisation textures into atoms** *Sonja Franke-Arnold (University of Glasgow)*
09:30 - 10:00	**Multiparameter quantum metrology with an array of entangled atomic sensors** *Philipp Treutlein (University of Basel)*
10:00 - 10:15	**Towards a 1D Array of Cold Rydberg Atoms Near the Surface of an Optical Nanofibre** *Sile Nic Chormaic (OIST Graduate University)*
10:15 - 10:30	**Cavity-Enhanced On-Demand Efficient Solid-State Quantum Memory** *Antariksha Das (ICFO)*
10:30 - 11:00	**COFFEE BREAK**
11:00 - 12:45	**SESSION 2** Chair: Yu-Ju Lin
11:00 - 11:30	**Testing the Interplay Between Gravity and Quantum Mechanics with Optomechanical Systems** *David Vitali (University of Camerino)*
11:30 - 12:00	**Challenges in Free Space Quantum Communication** *Christoph Marquardt (Universität Erlangen-Nürnberg)*
12:00 - 12:15	**Quantum Metrology in the Ultrastrong Coupling Regime of Light-Matter Interactions: Leveraging Virtual Excitations without Extracting Them** *Karol Gietka (University of Innsbruck)*
12:15 - 12:30	**Visualizing Quantum Dynamics in Phase Space using Wigner's Current** *Ole Steuernagel (NTHU)*

12:30 - 12:45	**Deterministic generation of large Schrödinger cat states beyond Gaussian coupling** *Michele Nicola Notarnicola (Palacky University in Olomouc)*
12:45 - 14:15	**LUNCH**
14:15 - 15:45	**SESSION 3** *Chair: Kęstutis Staliūnas*
14:15 - 14:45	**Topological state transfer and PT/anti-PT symmetries in dissipatively coupled quantum networks** *Natalia Korolkova (University of St. Andrews)*
14:45 - 15:00	**Interference of Photons from Independent Hot Atoms** *Jaromír Mika (Palacky University Olomouc)*
15:00 - 15:15	**A tensor network approach to sensing quantum light-matter interactions** *Francesco Albarelli (Scuola Normale Superiore)*
15:15 - 15:30	**Optical Key Distribution with a Noisy Laser Source** *Mateusz Kucharczyk (University of Warsaw)*
15:30 - 15:45	**Femtosecond laser-based creation of single-photon sources in hBN for quantum communications applications** *Tadas Paulauskas (FTMC)*
15:45 - 16:15	**COFFEE BREAK**
16:15 - 18:00	**SESSION 4** *Chair: Karolina Słowik*
16:15 - 16:45	**Enhanced quantum frequency estimation by nonlinear scrambling** *Matteo Paris (University of Milan)*
16:45 - 17:00	**Capacity of phase sensitive preamplified receivers** *Marcin Jarzyna (Centre of New technologies, University of Warsaw)*
17:00 – 17:15	**Parametric amplification for witnessing non-classicality and non-Gaussianity** *Marcello Henrique Marques Passos (Max Planck Institute for the Science of Light)*
17:15 - 17:30	**Experimental noiseless quantum amplification of coherent states of light by two-photon addition and subtraction** *Michal Neset (Palacký University Olomouc)*
17:30 - 17:45	**Control and Scattering Properties in Dipolar Spin Mixtures** *Louis Lafforgue (Universität Innsbruck)*
17:45 - 18:00	**STANDA UAB precision positioning products overview** *Giedrius Mikulis (Standa)*
18:00 - 21:00	**WELCOME RECEPTION** *At the Conference Site*

DAY 2 | Tuesday, 24 June

08:30 - 09:00	Registration
09:00 - 10:30	**SESSION 5** *Chair: Christoph Marquardt*
09:00 - 09:30	**Optical neural networks for computation and computer vision** *Aleksander Lvovski (University of Oxford)*
09:30 - 10:00	**Emergence of Quantum Coherence** *Radim Filip (Palacky University Olomouc)*
10:00 - 10:15	**Programmable quantum photonic circuit in free space** *Filippo Cardano (Università degli Studi di Napoli Federico II)*
10:15 - 10:30	**Disordered Gauge Fields for Atomic Bose Gases** *Edvinas Gvozdiovas (National Institute of Standards and Technology and University of Maryland, Vilnius University)*
10:30 - 11:00	**COFFEE BREAK**
11:00 - 12:45	**SESSION 6** Chair: Anna Musiał
11:00 - 11:30	**Photonic Interconnects: Advancing Quantum Networking for Communication and Computing** *Julien Laurat (Sorbonne Université)*
11:30 - 12:00	**Engineering Unitary and Dissipative Dynamics for Quantum Applications** *Chiao-Hsuan Wang (National Taiwan University)*
12:00 - 12:15	**Noise correlation measurements as a probe of spontaneously symmetry-broken phases in cold atoms** *Javier Argüello (Universitat Politècnica de Catalunya)*
12:15 - 12:30	**Inelastic Scattering of a Photon by a Quantum Phase-Slip** *Leonid Glazman (Yale University)*
12:30 - 12:45	**Is Diamagnetism Really Acausal?** *Niclas Westerberg (University of Glasgow)*
12:45 - 14:15	**LUNCH**
14:15 - 15:45	**SESSION 7** *Chair: Matteo Paris*
14:15 - 14:45	**Hybrid State Discrimination Strategy Exploiting Classical And Nonclassical Features** *Alessia Allevi (University of Insubria)*
14:45 - 15:15	**Light interactions with polar quantum systems** *Karolina Słowik (Nicolaus Copernicus University in Toruń)*
15:15 - 15:30	**Enabling Hybrid Quantum Networks: Protocols and Experimental Progress Toward Memory-Compatible Links** *Matteo Pasini (The Barcelona Institute of Science and Technology)*

15:30 - 15:45	**Building a neutral atoms platform for the study of collective light-matter interactions** *Sara Pancaldi (Universite Paris Saclay)*
15:45 - 16:00	**From Lasers for Quantum Technologies to Optical Clocks** *Jennifer Koch (TOPTICA Photonics AG)*
16:00 - 19:00	**COFFEE BREAK & POSTER SESSION I (NO. PI-1 – PI-48)**

DAY 3 | Wednesday, 25 June

08:30 - 09:00	Registration
09:00 - 10:30	**SESSION 8** *Chair: Radim Filip*
09:00 - 09:30	**Quantum Mechanics in a Quantum Reference Frame** *Eugene Polzik (Copenhagen University)*
09:30 - 09:45	**Measuring the Earth's rotation with entangled photons** *Raffaele Silvestri (University of Vienna, Austria)*
09:45 - 10:00	**Control of Mechanical Systems in the Quantum Regime** *Piotr T. Grochowski (Palacký University)*
10:00 - 10:15	**Interaction between atoms and light: the ultimate bounds precision for atomic clock frequency measurement** *Stefano Olivares (University of Milan)*
10:15 - 10:30	**Critical quantum metrology with KERR resonators** *Roberto Di Candia (Aalto University)*
10:30 - 11:00	**COFFEE BREAK**
11:00 - 12:45	**SESSION 9** *Chair: Egidijus Anisimovas*
11:00 - 11:30	**Intertwined entanglement in topological pumps** *Tilman Esslinger (ETH Zürich)*
11:30 - 12:00	**Vortex nucleations in spinor Bose condensates under localized synthetic magnetic fields** *Yu-Ju Lin (Institute of Atomic and Molecular Sciences, Academia Sinica)*
12:00 - 12:15	**Self organisation and metastability of cavity bosons beyond the adiabatic elimination approximation** *Piotr Deuar (Polish Academy of Sciences)*
12:15 - 12:30	**Engineering interactions by collective coupling of atom pairs to cavity photons for entanglement generation** *Tomasz Wasak (Nicolaus Copernicus University in Toru)*
12:30 - 12:45	**Quantum Morse-Smale topology for Kerr-Cat qubits** *Kilian Seibold (University of Konstanz)*
12:45 - 12:55	Conference PHOTO
12:55 - 14:15	**LUNCH**

14:15 - 15:45	**SESSION 10** *Chair: Mažena Mackoit*
14:15 - 14:45	**Manipulating Light with Bound States in the Continuum** *Grazia Salerno (Aalto University School of Science)*
14:45 - 15:00	**Probing Two-Body Contact Dynamics near a Narrow Feshbach Resonance** *Alexandre Journeaux (Laboratoire Kastler Brossel - ENS-PSL, Collège de France, CNRS)*
15:00 - 15:15	**Two-dimensional sub-wavelength topological lattices for dark-state ultracold atoms** *Domantas Burba (VilniusUniversity)*
15:15 - 15:30	**Unmasking the Polygamous Nature of Quantum Nonlocality** *Wiesław Laskowski (University of Gdansk)*
15:30 - 15:45	**Transfer and conversion of intra- and inter-mode correlations in a system of coupled bosonic modes** *Zbigniew Ficek (University of Zielona Gora)*
15:45 - 16:15	**COFFEE BREAK**
16:15 - 18:00	**SESSION 11** *Chair: Nikolay Vitanov*
16:15 - 16:45	**Preparation and Characterization of non-Gaussian Quantum States of Motion in a Mechanical Resonator** *Matteo Fadel (ETH Zurich)*
16:45 - 17:00	**Hierarchical verification of non-Gaussian coherence in bosonic quantum states** *Lukaš Lachman (Sorbonne Université)*
17:00 – 17:15	**Up-Conversion Photon-Number-Resolving Detector** *Silvia Cassina (University of Insubria)*
17:15 - 17:30	**Interaction-based and imaginary time-based bosonic pairing mechanisms** *Tomasz Polak (Adam Mickiewicz University in Poznań)*
19:15 - 22:00	**CONFERENCE DINNER** *At the Palace of the Grand Dukes of Lithuania (Katedros Square 4, Vilnius)*

DAY 4 | Thursday, 26 June

08:30 - 09:00	Registration
09:00 - 10:30	**SESSION 12** *Chair: Yvonne Gao*
09:00 - 09:30	**Quantum Control for Quantum Computation, Sensing and Imaging** *Nikolay Vitanov (Sofia University)*

09:30 - 10:00	**Quantum Theory of Rotor-Like Systems** *Zdeněk Hradil (Palacký University)*
10:00 - 10:15	**Bosonic Two-Stroke Heat Engines with Polynomial Nonlinear Coupling** *Giovanni Chesi (Universita degli Studi di Pavia)*
10:15 - 10:30	**Bosonic error mitigation and suppression with linear optics** *Yong Siah Teo (Seoul National University)*
10:30 - 11:00	**COFFEE BREAK**
11:00 - 12:45	**SESSION 13** *Chair: Nadine Mayer*
11:00 - 11:30	**Collective light matter interactions in free-space atomic ensembles** *Igor Ferrier-Barbut (Institut d'Optique, CNRS)*
11:30 - 12:00	**Critical parametric sensing with a Kerr superconducting resonator** *Gheorghe-Sorin Paraoanu (Aalto University)*
12:00 - 12:15	**Towards generating a GKP Bell state by entangling two qunaught states with a beamsplitter** *Florence Berterottière (Institute for Quantum Electronics)*
12:15 - 12:30	**Necessity of non-Gaussianity in the joint Estimation of Position and Momentum with arbitrarily high precision** *Massimo Frigerio (Sorbonne Université)*
12:30 - 12:45	**Memory-Dependent Quantum Transformations with a Photonic Quantum Memristor** *Karol Bartkiewicz (Adam Mickiewicz University)*
12:45 - 14:15	**LUNCH**
14:15 - 15:45	**SESSION 14** *Chair: Mlchał Parniak*
14:15 - 14:45	**Quantum dot-based non-classical light sources for quantum cryptography applications at telecom wavelengths** *Anna Musiał (Wrocław University of Science and Technology)*
14:45 - 15:00	**Fully reconfigurable quantum state interference in a frequency encoding** *Patrick Folge (Paderborn University)*
15:00 - 15:15	**Adressing Challenges in Near-Infrared Squeezed Light Generation: Absorption Effects and Phase Stabilization** *Santiago Tabares (ICFO)*
15:15 - 15:30	**Quantum optimal precision by inner-variable resolving two-photon correlations** *Danilo Triggiani (Politecnico di Bari)*
15:30 - 15:45	**Distinguishability tomography of multiple interfering photons** *Emilio Annoni (C2N / Quandela)*
15:45 - 18:30	**COFFEE BREAK & POSTER SESSION II (NO. PII-1 – PII-47)**

DAY 5 | Friday, 27 June

08:30 - 09:00	Registration
09:00 - 10:30	**SESSION 15** *Chair: David Vitali*
09:00 - 09:30	**Quantum information processing via on-demand light-matter interaction** *Yvone Gao (National University of Singapore)*
09:30 - 10:00	**Quantum Metrology with Rydberg Atoms** *Michał Parniak (University of Warsaw)*
10:00 - 10:15	**All-fiber microendoscopic polarization sensing at single-photon level aided by deep-learning** *Martin Bielak (Palacky University Olomouc)*
10:15 - 10:30	**Inhibition of circular Rydberg atoms decay: towards the realisation of quantum simulation of slow processes** *Guillaume Coeuret Cauquil (Sorbonne Universite)*
10:30 - 11:00	**COFFEE BREAK**
11:00 - 12:45	**SESSION 16** *Chair: Mariusz Gajda*
11:00 - 11:30	**Accelerated State Expansion of a Nanoparticle in a Dark Inverted Potential** *Nadine Meyer (ETH Zurich)*
11:30 - 12:00	**Entanglement distillation rates exceeding the direct transmission bound** *Farzad Ghafari (Griffith University)*
12:00 - 12:15	**Environment-Assisted Generation of Bosonic Wavepacket Quantum States** *Maryam Khanahmadi (Chalmers University of Technology)*
12:15 - 12:30	**A single emitter emitting resonance fluorescence into a coherent probe beam** *Tomas Lamich (The Barcelona Institute of Science and Technology)*
12:30 - 12:45	Closing remarks
12:45 - 14:15	**LUNCH**
14:30 - 19:00	**EXCURSION** *Starting at the entrance to Vilnius Town Hall*