

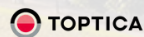
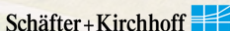
THE 29TH CENTRAL EUROPEAN WORKSHOP ON QUANTUM OPTICS CEWQ029, VILNIUS, LITHUANIA 23 - 27 JUNE 2025

PROGRAM

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PROGRAM

Sunday, 22 June

17:00 - 19:00

WALKING TOUR of the Old Town of Vilnius

Starting at the entrance to Vilnius Town Hall

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

TBA

Christoph Marquardt

10:00 - 10:15

Towards a 1D Array of Cold Rydberg Atoms Near the Surface of an Optical Nanofibre

Sile Nic Chormaic (QIST 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

Multiparameter quantum metrology with an array of entangled atomic sensors

Philipp Treutlein (University of Basel)

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	<u>Necessity of non-Gaussianity in the joint Estimation of Position and Momentum with arbitrarily high precision</u> <i>Massimo Frigerio (Sorbonne Université)</i>
12:45 - 14:15	LUNCH
14:15 - 15:45	SESSION 3 <i>Chair: Kęstutis Staliūnas</i>
14:15 - 14:45	Topological state transfer and PT/anti-PT symmetries in dissipatively coupled quantum networks <i>Natalia Korolkova (University of St. Andrews)</i>
14:45 - 15:00	<u>Interference of Photons from Independent Hot Atoms</u> <i>Jaromír Mika (Palacký University Olomouc)</i>
15:00 - 15:15	<u>A tensor network approach to sensing quantum light-matter interactions</u> <i>Francesco Albarelli (Scuola Normale Superiore)</i>
15:15 - 15:30	<u>Optical Key Distribution with a Noisy Laser Source</u> <i>Mateusz Kucharczyk (University of Warsaw)</i>
15:30 - 15:45	<u>Femtosecond laser-based creation of single-photon sources in hBN for quantum communications applications</u> <i>Tadas Paulauskas (FTMC)</i>
15:45 - 16:15	COFFEE BREAK
16:15 - 18:00	SESSION 4 <i>Chair: Karolina Słowik</i>
16:15 - 16:45	TBA <i>Matteo Paris (University of Milan)</i>
16:45 - 17:00	<u>Capacity of phase sensitive preamplified receivers</u> <i>Marcin Jarzyna (Centre of New technologies, University of Warsaw)</i>
17:00 - 17:15	<u>Parametric amplification for witnessing non-classicality and non-Gaussianity</u> <i>Marcello Henrique Marques Passos (Max Planck Institute for the Science of Light)</i>
17:15 - 17:30	<u>Experimental noiseless quantum amplification of coherent states of light by two-photon addition and subtraction</u> <i>Michal Neset (Palacký University Olomouc)</i>
17:30 - 17:45	TBA <i>TBA</i>
17:45 - 18:00	TBA <i>Giedrius Mikulis (Standa)</i>
18:00 - 21:00	WELCOME RECEPTION <i>Starting at the Conference Site</i>

Tuesday, 24 June

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

15:30 - 15:45	<u>Building a neutral atoms platform for the study of collective light-matter interactions</u> <i>Sara Pancaldi (Universite Paris Saclay)</i>
15:45 - 16:00	From Lasers for Quantum Technologies to Optical Clocks <i>Jennifer Koch (TOPTICA Photonics AG)</i>
16:00 - 19:00	COFFEE BREAK & POSTER SESSION 1

Wednesday, 25 June

08:30 - 09:00	Registration
09:00 - 10:30	SESSION 8 <i>Chair: Radim Filip</i>
09:00 - 09:30	Quantum Mechanics in a Quantum Reference Frame <i>Eugene Polzik (Copenhagen University)</i>
09:30 - 10:00	Exploiting Quantum Photonics for Quantum Machine Learning <i>Philip Walther (University of Vienna)</i>
10:00 - 10:15	<u>Interaction between atoms and light: the ultimate bounds precision for atomic clock frequency measurement</u> <i>Stefano Olivares (University of Milan)</i>
10:15 - 10:30	<u>Critical quantum metrology with KERR resonators</u> <i>Roberto Di Candia (Aalto University)</i>
10:30 - 11:00	COFFEE BREAK
11:00 - 12:45	SESSION 9 <i>Chair: Egidijus Anisimovas</i>
11:00 - 11:30	Intertwined entanglement in topological pumps <i>Tilman Esslinger (ETH Zürich)</i>
11:30 - 12:00	Vortex nucleations in spinor Bose condensates under localized synthetic magnetic fields <i>Yu-Ju Lin (Institute of Atomic and Molecular Sciences, Academia Sinica)</i>
12:00 - 12:15	<u>Self organisation and metastability of cavity bosons beyond the adiabatic elimination approximation</u> <i>Piotr Deuar (Polish Academy of Sciences)</i>
12:15 - 12:30	<u>Engineering interactions by collective coupling of atom pairs to cavity photons for entanglement generation</u> <i>Tomasz Wasak (Nicolaus Copernicus University in Toru)</i>
12:30 - 12:45	<u>Quantum Morse-Smale topology for Kerr-Cat qubits</u> <i>Kilian Seibold (University of Konstanz)</i>
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

Stabilization of Spin Mixtures and Sub-Microsecond Feshbach Resonance Probing in Dipolar Bose Gases

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 (Vilnius University)

15:15 - 15:30

Memory-Dependent Quantum Transformations with a Photonic Quantum Memristor

Karol Bartkiewicz (Adam Mickiewicz University)

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)

17:30 - 17:45

Control of Mechanical Systems in the Quantum Regime

Piotr T. Grochowski (Palacký University)

19:15 - 22:00

CONFERENCE DINNER

At the Palace of the Grand Dukes of Lithuania (Katedros Square 4, Vilnius)

Thursday, 26 June

08:30 - 09:00	Registration
09:00 - 10:30	SESSION 12 <i>Chair: Yvonne Gao</i>
09:00 - 09:30	TBA <i>Nikolay Vitanov (Sofia University)</i>
09:30 - 10:00	Quantum Theory of Rotor-Like Systems <i>Zdeněk Hradil (Palacký University)</i>
10:00 - 10:15	<u>Bosonic Two-Stroke Heat Engines with Polynomial Nonlinear Coupling</u> <i>Giovanni Chesi (Università degli Studi di Pavia)</i>
10:15 - 10:30	<u>Bosonic error mitigation and suppression with linear optics</u> <i>Yong Siah Teo (Seoul National University)</i>
10:30 - 11:00	COFFEE BREAK
11:00 - 12:45	SESSION 13 <i>Chair: N. Mayer</i>
11:00 - 11:30	Collective light matter interactions in free-space atomic ensembles <i>Igor Ferrier-Barbut (Institut d'Optique, CNRS)</i>
11:30 - 12:00	Critical parametric sensing with a Kerr superconducting resonator <i>Gheorghe-Sorin Paraoanu (Aalto University)</i>
12:00 - 12:15	<u>Towards generating a GKP Bell state by entangling two qunaught states with a beamsplitter</u> <i>Florence Berterottière (Institute for Quantum Electronics)</i>
12:15 - 12:30	<u>Strongly interacting counter propagating photons</u> <i>Aditya Prakash (Weizmann Institute of Science)</i>
12:30 - 12:45	<u>Unmasking the Polygamous Nature of Quantum Nonlocality</u> <i>Wiesław Laskowski (University of Gdansk)</i>
12:45 - 14:15	LUNCH
14:15 - 15:45	SESSION 14 <i>Chair: Michał Parniak</i>
14:15 - 14:45	Quantum dot-based non-classical light sources for quantum cryptography applications at telecom wavelengths <i>Anna Musiał (Wrocław University of Science and Technology)</i>
14:45 - 15:15	Applications of pulsed quantum light <i>Bejnamin Brecht (Paderborn University)</i>
15:15 - 15:30	<u>Quantum optimal precision by inner-variable resolving two-photon correlations</u> <i>Danilo Triggiani (Politecnico di Bari)</i>

15:30 - 15:45	<u>Distinguishability tomography of multiple interfering photons</u> <i>Emilio Annoni (C2N / Quandela)</i>
15:45 - 18:30	COFFEE BREAK & POSTER SESSION 2

Friday, 27 June

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