



12th ITALIAN QUANTUM INFORMATION
SCIENCE CONFERENCE
IQIS 2019
September 9th - 12th, 2019 - Milan, Italy



Conference Program

*last update
5th September 2019*

Mon., 9th Sept. 2019

8:30 Registration
9:10 Welcome

Chair: **M. G. A. Paris**

9:15 A. Serafini
9:55 N. Malossi
10:20 M. Brunelli
10:35 L. Ferialdi

10:50 Coffee break

Chair: **B. Vacchini**

11:30 A. Crespi
11:55 P. Bordone
12:20 C. Benedetti
12:45 N. Dalla Pozza

13:00 Lunch

Chair: **C. Silberhorn**

15:00 I. Degiovanni
15:25 P. Villoresi
15:50 D. Dequal
16:05 S. Marcantoni

16:20 Coffee break

Chair: **M. G. A. Paris**

16:50 L. Pezzè
17:15 T. Tufarelli
17:40 M. Barbieri
18:05 F. Albarelli

Tue., 10th Sept. 2019

Chair: **M. Bondani**

9:00 C. Silberhorn
9:40 G. Carvacho
10:05 F. Cardano
10:30 A. Seri
10:45 V. Cimini

11:00 Coffee break

Chair: **R. Zambrini**

11:30 E. Prati
11:55 L. Banchi
12:20 P. Perinotti
12:45 G. De Palma
13:00 R. Augusiak

13:15 Lunch

Chair: **V. Giovannetti**

15:00 A. Acin
15:40 F. Buscemi
16:05 B. Bellomo
16:20 M. Lostaglio

16:35 Coffee break

Chair: **S. Olivares**

17:00 A. Ferraro
17:25 G. Ferrini
17:50 Z. Huang

18:05 Happy hour

Wed., 11th Sept. 2019

Chair: **A. Serafini**

9:00 R. Zambrini
9:40 S. Lorenzo
10:05 A. Ridolfo
10:30 A. Smirne
10:45 D. De Santis

11:00 Coffee break

Chair: **M. Genovese**

11:30 A. Allevi
11:55 I. Ruo-Berchera
12:20 M. D'Angelo
12:45 D. Farina
13:00 A. Karsa

13:15 Lunch

Chair: **S. Mancini**

15:00 V. Giovannetti
15:25 A. Bassi
15:50 A. Belenchia
16:05 S. Felicetti
16:20 M. Gessner
16:35 N. Shammah

16:50 **Poster session**

Happy hour during and
after the Poster session

Thu., 12th Sept. 2019

Chair: **M. G. Genoni**

9:00 L. Memarzadeh
9:40 S. Montangero
10:05 F. Plastina
10:30 F. Ciccarello
10:45 G. Guarnieri

11:00 Coffee break

Chair: **A. Serafini**

11:30 T. Mendes-Santos
11:55 T. Apollaro
12:20 S. Carretta
12:45 M. Müller
13:00 A. Mandarino

13:15 Lunch

Chair: **L. Memarzadeh**

15:00 E. Ercolessi
15:25 M. Gregoratti
15:50 P. Giorda
16:05 L. Mancino
16:20 K. Hovhannisyan

16:35 Coffee break

Chair: **M. G. A. Paris**

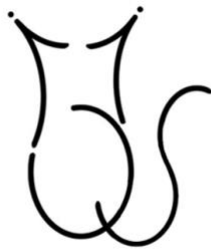
17:00 F. Illuminati
17:25 F. Caruso
17:50 G. Chesì

18:05 Closing

Keynote (40')

Invited (25')

Contributed (15')



Monday, 9th September 2019

8:30 Registration
9:10 Welcome

9:15	Alessio Serafini – <i>University College London (UK)</i> Gaussian thermal operations and the limits of algorithmic cooling
9:55	Nicola Malossi – <i>Università di Camerino</i> Interference based multi-mode electro-opto-mechanical transducers
10:20	Matteo Brunelli – <i>University of Cambridge (UK)</i> Directional amplification in driven-dissipative bosonic chains is topological
10:35	Luca Ferialdi – <i>University of Trieste</i> Optimal control for feedback cooling in cavityless levitated optomechanics

10:50 Coffee break

11:30	Andrea Crespi – <i>Politecnico di Milano and IFN CNR (Milano)</i> Generation and manipulation of single-photon states in femtosecond-laser written waveguide circuits
11:55	Paolo Bordone – <i>University of Modena and Reggio Emilia</i> Continuous-time quantum walks of a charged particle on planar lattice graphs in the presence of a magnetic field
12:20	Claudia Benedetti – <i>University of Milan</i> Non-classicality of quantum walks
12:45	Nicola Dalla Pozza – <i>University of Florence</i> Smart noisy quantum walks

13:00 Lunch

15:00	Ivo Degiovanni – <i>INRIM</i> Genetic Quantum Measurements: Estimating an expectation value by measuring a single photon
15:25	Paolo Villoresi – <i>University of Padova - DEI</i> New developments in daylight free-space QKD
15:50	Daniele Dequal – <i>Agenzia Spaziale Italiana</i> Feasibility of continuous variable QKD from satellite
16:05	Stefano Marcantoni – <i>University of Trieste</i> Fluctuation Relation and Quantum Detailed Balance in open quantum systems

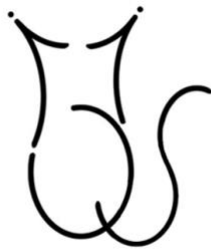
16:20 Coffee break

16:50	Luca Pezzè – <i>CNR-INO (Firenze)</i> Multipartite entanglement in topological quantum systems
17:05	Tommaso Tufarelli – <i>University of Nottingham (UK)</i> Non-orthogonal bases for quantum metrology
17:40	Marco Barbieri – <i>Roma Tre University</i> Dynamical quantum phase estimation
18:05	Francesco Albarelli – <i>University of Warwick (UK)</i> Evaluating the Holevo Cramér-Rao bound for multi-parameter quantum metrology

Keynote (40')

Invited (25')

Contributed (15')



Tuesday, 10th September 2019

9:00	Christine Silberhorn – <i>Paderborn University (Germany)</i> Nonlinear integrated devices for quantum information systems
9:40	Gonzalo Carvacho – <i>Sapienza University of Rome</i> Experimental quantum tests of causal structures
10:05	Filippo Cardano – <i>University of Naples Federico II</i> Probing bulk topological phenomena in quantum walks of structured light
10:30	Alessandro Seri – <i>ICFO (Spain)</i> Quantum storage of frequency-multiplexed heralded single photons
10:45	Valeria Cimini – <i>Roma Tre University</i> Tracking enzyme activity with quantum light

11:00 Coffee break

11:30	Enrico Prati – <i>CNR-INF (Milano)</i> Deep learning for quantum technologies
11:55	Leonardo Banchi – <i>University of Florence</i> Machine-Learning-Assisted Many-Body Entanglement Measurement
12:20	Paolo Perinotti – <i>University of Pavia</i> Higher order quantum theory
12:45	Giacomo De Palma – <i>MIT Boston (USA)</i> New lower bounds to the output entropy of multi-mode quantum Gaussian channels
13:00	Remigiusz Augusiak – <i>Center for Theoretical Physics, Polish Academy of Sciences (Poland)</i> Self-testing quantum systems of arbitrary local dimension

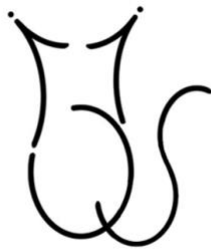
13:15 Lunch

15:00	Antonio Acin – <i>ICFO (Spain)</i> Certification of many-body quantum systems
15:40	Francesco Buscemi – <i>Nagoya University (Japan)</i> Statistical aspects of quantum devices: characterization and data-driven inference
16:05	Bruno Bellomo – <i>Institut UTINAM, Université de Franche-Comté (France)</i> Energy bounds for entangled states
16:20	Matteo Lostaglio – <i>ICFO (Spain)</i> Coherence and asymmetry cannot be broadcast

16:35 Coffee break

17:00	Alessandro Ferraro – <i>Queen's University Belfast (UK)</i> Resource theory of quantum non-Gaussianity and Wigner negativity
17:25	Giulia Ferrini – <i>Chalmers (Sweden)</i> Quantum advantage in Continuous-Variable architectures
17:50	Zixin Huang – <i>University of Sheffield (UK)</i> Boson sampling private-key quantum cryptography

18:05 Happy hour



Wednesday, 11th September 2019

9:00	Roberta Zambrini – <i>IFISC (Spain)</i> Quantum complex networks
9:40	Salvatore Lorenzo – <i>University of Palermo</i> Graphs synchronization through chiral coupling
10:05	Alessandro Ridolfo – <i>University of Catania</i> Adiabatic Quantum Operations with Ultra-strongly Coupled Light-Matter Systems
10:30	Andrea Smirne – <i>University of Ulm (Germany)</i> Nonperturbative approach to general open quantum system dynamics
10:45	Dario De Santis – <i>ICFO (Spain)</i> Equivalence between non-Markovian dynamics and backflows of correlation measures

11:00 Coffee break

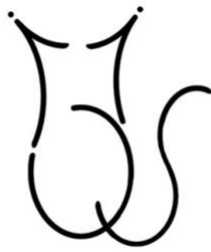
11:30	Alessia Allevi – <i>University of Insubria</i> Homodyne-like detection for quantum information science
11:55	Ivano Ruo-Berchera – <i>INRIM</i> Quantum enhanced imaging optimized in realistic conditions
12:20	Milena D'Angelo – <i>University of Bari</i> Advances in correlation plenoptic imaging
12:45	Donato Farina – <i>Scuola Normale Superiore (Pisa)</i> Quantum bath statistics tagging
13:00	Athena Karsa – <i>University of York (UK)</i> Entanglement-free quantum radar

13:15 Lunch

15:00	Vittorio Giovannetti – <i>Scuola Normale Superiore (Pisa)</i> Maximum Power Efficiency for Two-Level Quantum Engines
15:25	Angelo Bassi – <i>University of Trieste</i> Models of spontaneous wave function collapse: an introduction and some recent results
15:50	Alessio Belenchia – <i>Queen's University Belfast (UK)</i> Entropy Production in Continuously Measured Quantum Systems
16:05	Simone Felicetti – <i>Universidad Autonoma de Madrid (Spain)</i> Finite-size phase transitions for quantum metrology
16:20	Manuel Gessner – <i>École normale supérieure (France)</i> Nonlinear spin squeezing
16:35	Nathan Shammah – <i>Riken (Japan)</i> Quantum Information Science with QuTiP, the Quantum Toolbox in Python

16:50	Poster session (suggested poster size: A1, 594 x 841 mm)
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Happy hour during and after the Poster session



Thursday, 12th September 2019

9:00	Laleh Memarzadeh – <i>Sharif University of Technology (Iran)</i> Quantum channels and their building blocks
9:40	Simone Montangero – <i>University of Padova</i> Quantum technologies for lattice gauge theories
10:05	Francesco Plastina – <i>University of Calabria</i> Decoherence in a synthetic fermion environment: from orthogonality catastrophe to Fano physics
10:30	Francesco Ciccarello – <i>University of Palermo & NEST</i> Decoherence-free mediated Hamiltonians in waveguide QED
10:45	Giacomo Guarnieri – <i>Trinity College Dublin (Ireland)</i> Autonomous phonon-induced steady-state coherence in double quantum dot systems

11:00 Coffee break

11:30	Tiago Mendes-Santos – <i>Abdus Salam International Centre for Theoretical Physics (ICTP)</i> Measuring entanglement in many-body systems via thermodynamics
11:55	Tony Apollaro – <i>University of Malta (Malta)</i> n -qubit quantum state transfer
12:20	Stefano Carretta – <i>University of Parma</i> Molecular magnetism: a promising route towards the realization of quantum computers
12:45	Matthias Müller – <i>Institute of Quantum Control (Germany)</i> Quantum sensing via coherent and dissipative control
13:00	Antonio Mandarino – <i>ICTQT - University of Gdansk (Poland)</i> Quantum thermal analogues of electronic devices

13:15 Lunch

15:00	Elisa Ercolessi – <i>University of Bologna</i> From one to two dimensions: topological phases in quantum spin ladders
15:25	Matteo Gregoratti – <i>Politecnico di Milano</i> Uncertainty relations and information loss
15:50	Paolo Giorda – <i>University of Pavia</i> State independent uncertainty relations from eigenvalue minimization
16:05	Luca Mancino – <i>Queen's University Belfast (UK)</i> Non-equilibrium quantum thermometry
16:20	Karen Hovhannisyan – <i>Abdus Salam International Centre for Theoretical Physics (ICTP)</i> Quantum measurements of work fluctuations

16:35 Coffee break

17:00	Fabrizio Illuminati – <i>University of Salerno</i> Quantum Resource Theory of Coherence: Criteria, Measures, and Applications
17:25	Filippo Caruso – <i>University of Florence</i> Stabilizing Open Quantum Batteries by Sequential Measurements
17:50	Giovanni Chesi – <i>University of Insubria</i> Quantifying nonclassicality and qualifying photodetectors through autocorrelation functions

18:05 Closing

Keynote (40')	Invited (25')	Contributed (15')
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