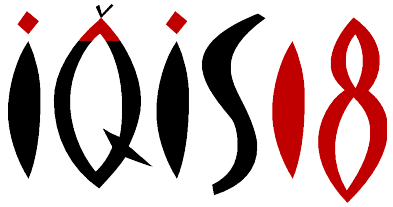
11th Italian Quantum Information Science Conference



September 17th-20th 2018
Catania

Scientific Programme

Monday 17/09/18 (Auditorium)	
8:20	Registration
8:50	Welcome
9:00	**M. Paternostro** *Quantum gate design via supervised learning of time-independent Hamiltonians*
9:40	M. Campisi *Quantum Measurement Cooling*
10:05	P. Facchi *Strong coupling limits and adiabatic decoupling*
10:30	A. Apollaro *Entanglement entropy and critical scaling under periodic driving in the quantum Ising chain*
10:50	*Coffee Break*
11:15	P. Verrucchi *Entanglement protection by critical environment*
11:40	F. Ciccarello *Exciting dressed BICs via photon scattering and delayed quantum feedback*
12:05	A. Smirne *Quantum coherence and non-classicality in Markovian processes*
12:25	M. Brunelli *Linear-and-quadratic reservoir engineering of non-Gaussian states in cavity optomechanics*
12:45	*Break (Lunch)*
14:40	**T. Donner** *Driven-dissipative crystals of matter and light*
15:20	N. Spagnolo *Machine Learning for Quantum Metrology*
15:45	A. Crespi *Experimental investigation of quantum decay via integrated photonics*
16:05	G. Guccione *Optical hybrid entanglement: a resource for quantum networks*
16:25	A. Cerè *Randomness extraction from Bell violation with continuous parametric down conversion*
16:45	*Coffee Break*
17:15	L. Maccone *Sum uncertainty relations*
17:40	R. Floreanini *Fluctuation relations for quantum thermalizing maps*
18:00	M. Bina *Quantum probing of structured environments*
18:20	
18:40	*Guided Tour* *Benedettini Monastery*

Tuesday 18/09/18 (Auditorium)	
8:50	**M. Lewenstein** *Quantum Simulators: Where do we stand?*
9:30	G. Benenti *Dynamical Casimir effect in quantum information processing and in quantum thermodynamics*
9:55	S. Montangero *Optimal control, lattice gauge theories, and quantum annealing*
10:20	M. Rossi *Continuous-time quantum walks on graphs affected by classical noise*
10:40	*Coffee Break*
11:05	D. Vitali *Tailoring the Dynamics of a Nanomechanical resonator with feedback*
11:30	V. Giovannetti *Reciprocal quantum channels*
11:55	M. Genoni *Restoring Heisenberg scaling in noisy quantum metrology by monitoring the environment*
12:20	G. Giorgi *Unified framework for coherence and correlations*
12:40	*Break (Lunch)*
15:00	F. Plastina *Work extraction from quantum systems and the thermodynamics of correlations*
15:25	G. Roati *Out-of-equilibrium dynamics of atomic Fermi gases quenched to strong repulsions*
15:50	G. Manzano *Autonomous thermal machine for amplification and control of energetic coherence*
16:10	D. Rossini *Persistent currents by reservoir engineering*
16:30 18:40	*Coffee Break @ Chiostro* POSTER SESSION @ Chiostro di Ponente
20:00	Public Lecture: **R. Fazio** (Palazzo della Cultura)

Wednesday 19/09/18

8:30	F. Vedovato (Auditorium) *Testing Quantum Mechanics with Satellite Quantum Communications*		
8:50	**C. Marcus** (Auditorium) *Using topology to build a better qubit*		
9:30	*Coffee Break Chiostro & Registration Flagship day*		
	Young IQIS (Auditorium)		**Flagship day** (Coro di Notte)
10:00 10:15 10:30 10:45 11:00 11:15	Agresti *Quantum Violation of an Instrumental Test* Avesani *Secure heterodyne-based quantum random number generator at 17 Gbps* Paesani *High-dimensional entanglement generation and processing in large-scale integrated quantum photonics circuits* Chesi *The squeezing as a resource for phase-shift-keyed binary communication in noisy channels* Losero *Quantum enhanced optical measurements: from ultra-high sensitivity in absorption measurements to ghost microscopy* Elliott *Extreme memory advantages when simulating continuous-time stochastic processes with quantum devices*	9:50 10:25 10:50 11:50	Introduzione e saluti Istitutional La Quantum Flagship: stato e opportunità Infrastrutture, Industria & Impresa Le Istituzioni e la Q-Flagship
11:30	*Break*		
11:50 12:05 12:20 12:35 12:50 13:05	Pappalardi *Scrambling and entanglement spreading in long-range regular/chaotic spin chains* Mascherpa *Equivalence between unitary and dissipative bosonic environments* Passarelli *May a dissipative environment be beneficial for quantum annealing?* Saggio *Experimental resource-efficient entanglement detection* Castellini *Multiple Entanglement Swapping with Identical Particles* Fanizza *Optimal universal learning machines for quantum state discrimination*	12:30	*Buffet @ "Chiostro di Levante"*
13:20	*Break (Lunch)*	13:15 14:45	**Inside Quantum: Research & Education** Analysis of the calls, Quantera2, Italian strategies, High education, IBM Q-experience
15:00 20:00	*Etna excursion* *Conference Dinner* (Cantine Nicosia) *Best Young IQIS oral and poster prize by Schwinger foundation* *Presentation of IQIS2019*		

Thursday 20/09/18 (Auditorium)	
9:00	**S. Filipp** *Quantum chemistry calculations on a superconducting quantum computer*
9:40	F. Tafuri *Superconducting hybrids for quantum interfaces*
10:05	A. Zorin *Traveling-wave parametric amplifier based on non-centrosymmetric Josephson metamaterial*
10:25	S. Felicetti *Ultrastrong coupling regime of nondipolar light-matter interaction*
10.45	A. Ridolfo *Generation of photon pairs in the light-matter ultrastrong coupling regime: From Casimir radiation to stimulated Raman adiabatic passage*
11:05	*Coffee Break*
11:25	F. Troiani *Strong coupling between molecular spins and microwave photons in superconducting resonators*
11:45	N. Bruno *A versatile neutral-atom microtrap to study light-matter interaction in the single particle regime*
12:05	D. Gerace *Universal quantum simulators with electromechanical qubits*
12:25	F. Pellegrino *1/f critical current noise in short ballistic graphene Josephson junctions*
12:50	*Break (Lunch)*
14:40	A. Carollo *Uhlmann curvature in dissipative phase transitions*
15:00	G. Rastelli *Effects of frustration in dissipative 1D many-body systems*
15:20	M. Dalmonte *Entanglement field theories: a novel way to probe and understand quantum correlations*
15:45	A. Allevi *Preserving nonclassicality in noisy communication channels*
16:05	*Coffee Break*
16:30	T. Roscilde *Quantum Correlations and Entanglement from Statistical Physics*
16:55	A. Pecoraro *Continuous variable entanglement in non-zero orbital angular momentum states*
17:15	J. Tura *Bell inequalities for maximally entangled states*
17:35	IQIS18 Closing remarks
17:40	*Consegna Premio "Giuseppe Davide Paparo"* *for a young researcher in Quantum Technologies*

IQIS18 Catania – Scientific Programme

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20:00	Public Lecture: **R. Fazio** (Palazzo della Cultura)

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8:50	**C. Marcus** (Auditorium)
9:30	*Coffee Break Chiostro & Registration Flagship day*

Young IQIS (Auditorium)

10:00	Agresti Avesani Paesani Chesi Losero
11.15	Elliott
11:30	*Break*
11:50	Pappalardi Mascherpa Passarelli Saggio Castellini
13:05	Fanizza
13:20	*Break (Lunch)*

Flagship day (Coro di Notte)

9:50	Introduzione e saluti Institutional
10:25	La Quantum Flagship: stato e opportunità
10:50	Infrastrutture, Industria & Impresa
11:50	Le Istituzioni e la Q-Flagship
12:30	*Buffet @ "Chiostro di Levante"*
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15:00	*Etna excursion*
	Conference Dinner (Cantine Nicosia)
20:00	*Consegna Premi Fondazione Schwinger* *Presentazione di IQIS2019*

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Special selected topics	Fundam. Quantum Science	Quantum Technologies	Quantum Hardware