

## Program

### Monday, June 27th

**08:00**

**Registration open**

**09:00 – 09:30**

**Opening, Presentation of the Vendors**

**ID QUANTIQUE SA**, Carouge/Geneva, Switzerland,

**MICRO PHOTON DEVICES S.r.l.**, Bozen, Italy,

**PicoQuant GmbH**, Berlin, Germany,

**qutools GmbH**, Munich, Germany,

**09:30 – 10:30**

**Applications**

09:30 – 10:00

Figer (invited)

Single Photon Imaging Array Detectors for Astrophysics and Biophotonics

10:00 – 10:15

Krainak

Photon number detectors for NASA applications

10:15 – 10:30

Krichel

Time-of-Flight Depth Profiling Applications Based on Single-Photon Detection

**10:30 – 11:00**

**Coffee break**

**11:00 – 12:30**

**Optical Communication and Quantum Information Processing**

11:00 – 11:30

Farr (invited)

Single Photon Detectors for Capacity Achieving Optical Communication

11:30 – 11:45

Gerrits

Characterization of high-purity, pulsed squeezed light at telecom wavelengths from pp-KTP for quantum information applications

11:45 – 12:00

Guha

Superadditive Optical Communications: New Applications of Integrated Coherent Photonics and Single Photon Detectors

12:00 – 12:15

Walther

Challenges in Photonic Quantum Information Processing

12:15 – 12:30

Ma

Single photon frequency up-conversion and its applications in quantum information systems

**12:30 – 13:30**

**Lunch break**

**13:30 – 15:00**

**Superconducting Detectors I**

13:30 – 14:00

Nam (invited)

Optical and near-infrared photon detection with superconducting devices

14:00 – 14:15

Gerrits

Extending Single-Photon Optimized Superconducting Transition Edge Sensors Beyond the Single-Photon Counting Regime

14:15 – 14:30

Bagliani

Hundred parallel connected TES array for single photon detection

14:30 – 14:45

Akhlaghi

Quantum Tomography and Modelling of a Superconducting Nanowire Single Photon Detector

14:45 – 15:00

Tanner

Spatially Dependent Timing in a Superconducting Single Photon Detector

**15:00 – 15:30**

**Coffee break**

**15:30 – 17:00**

**Single Photon Avalanche Detectors I**

15:30 – 16:00

Smith (invited)

Quantum-enhanced metrology in the real world: Losses, decoherence, and noise make life on the quantum edge challenging

16:00 – 16:15

Itzler

What Does SPAD Afterpulsing Actually Tell Us About Defects in InP?

16:15 – 16:30 Bahgat Shehata  
InGaAs/InP single-photon detection module with clean temporal response

16:30 – 16:45 Patel  
Gigacounts-per-Second Single Photon Detection Based on a Single-Pixel Avalanche Photodiode

16:45 – 17:00 Acerbi  
Dark counts, afterpulsing and timing jitter of latest InGaAs/InP Single-Photon Avalanche Diodes

**Tuesday, June 28th**

**08:00 Registration open**

**09:00 – 10:30 Quantum Information Processing, Quantum Key Distribution, Theory**

09:00 – 09:30 Kwiat (invited)  
Optimized (Non)Entanglement: Designer Sources for Next-Generation Quantum Information

09:30 – 09:45 Almeida  
Exponentially faster measurements of quantum dynamics via compressive sensing

09:45 – 10:00 Collins  
An Analysis of Single-Photon Detectors in a GigaHertz Clock Rate Robust Quantum Key Distribution System

10:00 – 10:15 Lenhart  
Latest Results on the Standardization of Quantum Key Distribution

10:15 – 10:30 Meyer-Scott  
Demonstration of Quantum Key Distribution System Suitable for High Loss Satellite Uplink

**10:30 – 11:00 Coffee break**

**11:00 – 12:30 Superconducting Detectors II**

11:00 – 11:15 Leoni  
Waveguide superconducting single photon detectors

11:15 – 11:30 Baek  
Single-Photon Detectors Based on a Superconducting a-WxSi1-x Nanowire

11:30 – 11:45 Correa  
Single infrared-emitting nanocrystal fluorescence dynamics using superconducting nanowire detectors

11:45 – 12:00 Grein  
A Photon-Counting Optical Receiver Based on Superconducting Nanowire Detector Arrays for the Lunar Laser Communications Demonstration

12:00 – 12:15 Natarajan  
High Efficiency Superconducting Nanowire Single-Photon Detectors For Optical Quantum Information Science Applications

12:15 – 12:30 Zwiller  
Detecting single photons with superconducting nanowires

**12:30 – 13:30 Lunch break**

**13:30 – 15:00 FPGA and Multichannel**

13:30 – 13:45 Crotti  
High performance Time-to-Amplitude Converter array

13:45 – 14:00 Pooser  
FPGA-based gating and logic for multichannel single photon counting

14:00 – 14:15 Cuccato  
Ultra-Compact Single-Channel Acquisition System For TCSPC Measurements

14:15 – 14:30 Chen  
Experimental Demonstration of the Conditional Nulling Receiver

14:30 – 14:45 Williams  
64-Channel Binary Pulse Processing Instrument

14:45 – 15:00 Dell'Anna  
Prototype of THz photon spectroscopic camera based on mesoscopic devices

**15:00 – 15:30 Coffee break**

**15:30 – 17:00 Single Photon Avalanche Detectors II**

15:30 – 16:00 Gulnatti (invited)  
New Silicon SPAD technology for enhanced red-sensitivity, high-resolution timing and system integration

16:00 – 16:15 Rochas

Asynchronous & 100MHz-gated photon detection at telecom wavelengths

16:15 – 16:30 Restelli  
Time-domain measurements of afterpulsing in a periodically-gated InGaAs SPAD  
16:30 – 16:45 Bülter  
A new red sensitive single photon counting module for timing applications  
16:45 – 17:00 Williams  
Single Photon Counting Linear-Mode Avalanche Photodiodes

**18:00 – 20:00 Poster session (poster size: 1.18 m x 1.45 m)**

Lunghi  
Free Running Single Photon Detection based on a negative feedback InGaAs APD  
Heath  
Nano-optical studies of single and parallel nanowire superconducting single photon detectors  
Blazej  
Picosecond stability photon counting detector package for space missions  
Hepp  
Color Centers in Diamond for Bright, Narrow-Band Single Photon Emission  
Villegier  
SWIFTS-SNSPD micro-spectrometer integration with a SiN waveguide  
Slattery  
Towards narrow linewidth non-degenerate correlated photon pairs  
Racu  
Impurity centres in GaN and AlN for novel single photon sources  
Lamas-Linares  
Multimode fiber coupling to transition edge sensors in the visible range  
Gu  
Photon-number-resolving detection based on synchronized frequency upconversion at 1.04  $\mu\text{m}$   
Senekane  
Review of Single Photon Detectors and Their Applicability to Quantum Key Distribution  
Witek  
Engineering quantum dots for single photon to single spin interfaces  
Wu  
1550nm laser ranging with a quasi-continuous mode InGaAs APD single-photon detector  
Lemmens  
Control of Spontaneous Emission and Dynamics of Quantum Dots, Organic Dyes and Molecular Magnets in Confinement  
Zhang  
Multi-Channel 30 MHz Gating InGaAs/InP Single-Photon Avalanche Diodes for Practical Decoy-State Quantum Key Distribution  
Polyakov  
Field Programmable Gate Array Technology – enabling real-time data handling in photon-counting applications  
Heindel  
Quantum key distribution using electrically triggered quantum dot - micropillar single photon sources

**Wednesday, June 29th**

**08:00 Registration open**

**09:00 – 10:30 Entanglement and Photon Manipulation**

09:00 – 09:30 Zbinden (invited)  
What are Single Photons good for?  
09:30 – 09:45 Chen  
Entangled Photons from a Si-on-Insulator Microring  
09:45 – 10:00 Grice  
Photon Pair Source Optimized for Multi-Photon Entanglement  
10:00 – 10:15 Beveratos  
Purcell effect for high fidelity entangled photon pairs  
10:15 – 10:30 Evans  
Polarization Manipulating Quantum Lightwave Circuits

**10:30 – 11:00 Coffee break**

**11:00 – 12:15 Sources I**  
11:00 – 11:30 Wrachtrup (invited)  
Interfacing diamond defects  
11:30 – 11:45 Stevens  
Third-Order Antibunching of a Single-Photon Source  
11:45 – 12:00 Steudle  
Fiber-Integrated Single-Photon Generation and Detection  
12:00 – 12:15 Wahl  
High Speed Quantum Random Number Generator with Provably Bounded Bias

**12:30 – 13:30 Lunch break**

**13:30 – 15:00 Detection efficiency**  
13:30 – 14:00 Andrew Shields / Oliver Thomas (invited)  
Resolving the Photon Number with fast-gated Silicon Avalanche Photodiode  
14:00 – 14:15 Guerreiro  
Quantum Cloning Radiometer: towards higher accuracy  
14:15 – 14:30 Müller  
Towards Traceable Calibration of Single Photon Detectors Using Synchrotron Radiation  
14:30 – 14:45 Taralli  
Quantum characterization of photon number resolving Transition-Edge Sensor  
14:45 – 15:00 Brida  
Multimode Spatial Correlation in PDC: Sub-Shot-Noise Quantum Imaging and CCD Calibration

**15:00 – 15:30 Coffee break**

**15:30 – 17:15 Special session: Towards realizing photon-based standards**  
15:30 – 16:00 Migdall (invited)  
Single-Photon Tools, Techniques, and Prospects for Metrology  
16:00 – 16:30 Rastello (invited)  
Metrology Towards Quantum-Based Photon Standards  
16:30 – 16:45 Porrovecchio  
A transfer standard for the low power / few photon regime – the trap detector plus switched integrator amplifier  
16:45 – 17:00 Schmunk  
Relative detection efficiency calibration of single photon avalanche photo detectors using non-classical light  
17:00 – 17:15 Degiovanni  
Experimental realization of a shuttered heralded single-photon source

**19:00 – 22:00 Conference Dinner - Barbecue**

**Thursday, June 30th**

**08:00 Registration open**

**09:00 – 10:30 Sources II**  
09:00 – 09:30 Goetzinger (invited)  
Planar dielectric antennas for collecting photons from a single emitter with near unity efficiency  
09:30 – 09:45 Goldschmidt  
Toward single photon generation and storage in a rare-earth ion-doped crystal  
09:45 – 10:00 Lukishova  
Room-Temperature Single-Photon Sources with Definite Circular and Linear Polarizations  
10:00 – 10:30 Bleuse (invited)  
Quantum Dots in Tapered Photonic Wires: towards Unit-Efficiency Single-Photon Sources

**10:30 – 11:00 Coffee break**

**11:00 – 12:15 Sources III**  
11:00 – 11:30 Rarity (invited)  
Progress in single photon sources, heralded versus true single photons  
11:30 – 11:45 Michler  
High-frequency electrically driven quantum dot single-photon source

11:45 – 12:00 Reimer  
Single photon emitter in a tapered nanowire waveguide  
12:00 – 12:15 Zwiller  
Slow single photons: merging quantum dots and atomic vapors

**12:15 – 12:30 Closing session**  
**12:30 – 13:30 Lunch**

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