QT4HEP Programme

https://indico.cern.ch/event/1433194

Column 1 — Day 1: Communication

Welcome introduction
500/1-001 - Main Auditorium, CERN

CERN QTI2
500/1-001 - Main Auditorium, CERN

The European Commission Joint Research Centre's contribution to quantum and pre
Petra Scudo

Coffee break
500/1-001 - Main Auditorium, CERN

High-speed SNSPDs for clock-rate scaling in quantum networks
500/1-001 - Main Auditorium, CERN

Photon-number-resolving SNSPDs and their applications for quantum networks and
[IDQuantique]
Félix Bussières

Metropolitan-scale entanglement generation between quantum processors: from the
Arian Stolk

Lunch
500/1-001 - Main Auditorium, CERN

The Entanglement Fabric: enabling distributed quantum computing with quantum ne
Simone Severine Barker

Entanglement Networking Hardware: Driving Real-World Applications Beyond QKD [
500/1-001 - Main Auditorium, CERN

The Road to a Quantum-Connected World: Insights from Deutsche Telekom's Activiti
500/1-001 - Main Auditorium, CERN

Building physics-centric Quantum Networks [Stony Brook University]
500/1-001 - Main Auditorium, CERN

Coffee break
500/1-001 - Main Auditorium, CERN

Open discussion session on synchronisation for quantum communication
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Column 2 — Day 2: Colloquia / Computing / Posters

Quantum network technology – the second life of rare-earth crystals [Univers
81/R-003C - Science Gateway Auditorium C, CERN

Quantum computing roadmaps toward fault-tolerance
81/R-003C - Science Gateway Auditorium C, CERN

Coffee
81/R-003C - Science Gateway Auditorium C, CERN

The Quantum Internet: Applications, Challenges and Opportunities
81/R-003C - Science Gateway Auditorium C, CERN

The Open Quantum Institute (OQI)
81/R-003C - Science Gateway Auditorium C, CERN

Conference Photo
500/1-001 - Main Auditorium, CERN

Lunch
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Efficient Use of Quantum Computers for Collider Physics
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Quantum Machine Learning with Physics-Informed and Symmetry-Aware Mod
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Prof. Fabio Maltoni - Quantum Observables in HEP
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Coffee break
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Jad Halimeh - quantum simulation in lattice gauge theories and long-range qu
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The quantum life of a Feynman propagator as a qubit
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Column 3 — Day 3: Sensing

Overview Quantum Sensors for particle physics
500/2-001 - Main Auditorium, CERN

Atom interferometry
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High Tc superconducting particle detectors
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Coffee Break
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Superconducting Calorimeters
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Chromatic calorimetry (quantum dots)
500/2-001 - Main Auditorium, CERN

Nuclear clocks for fundamental and particle physics
500/2-001 - Main Auditorium, CERN

SRF / heterodyne cavity applications for axion searches
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Lunch
500/2-001 - Main Auditorium, CERN

QSNET: network of clocks for measuring the stability of fundamental con
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Superconducting Qubits as Particle Detectors
500/2-001 - Main Auditorium, CERN

High-Q cavity with high permittivity dielectric resonator for sensing applications
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Magnetic techniques for quantum sensing using single molecule magnets in the NAMASSTE experimen
Giuseppe Labbo

Towards realisation of long-lived chains of circular Rydberg atoms for quantum simulatio
500/2-001 - Main Auditorium, CERN

Characterization of a Rubidium based Four Way Mixing Entangled Photon Pair Source with SNSPDs
Federica Facchin

Highly Sensitive Optical Quantum Sensors
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Coffee break
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On multivariate polynomials achievable with quantum signal processing
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Complementary polynomials in quantum signal processing
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Estimates of loss function concentration in noisy parametrized quantum circuits
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Break
81/R-003C - Science Gateway Auditorium C, CERN

Guarantees for smart initializations in variational quantum computing
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Neural quantum states for lattice field theory
81/R-003C - Science Gateway Auditorium C, CERN

Prospects for the quantum simulation of quark-gluon plasma
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Column 4 — Day 4: Computing

Some recent progress in the description of atomic nuclei using qua
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Engineering periodic boundary conditions with circuit cutting for hi
500/1-001 - Main Auditorium, CERN

Efficient Encoding of Quantum States for Hamiltonian Simulation of
Reita Maeno

Enhancing quantum field theory simulations on NISQ devices with
JAMES ALLAN INGOLDBY

Projected Entangled Pair States for Lattice Gauge Theories with Dyr
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Fault-tolerant simulation of Lattice Gauge Theories with gauge cova
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Coffee break
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Building quantum event generators through path integral-based formulat
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Quantum Chebyshev Generative Models for Fragmentation Functions
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Efficient calculation of Green's functions on quantum computers via
Francesco Tacchino

Learning to generate high-dimensional distributions with low-dimen
Cenk Tüysüz

Towards quantum advantage with photonic state injection
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Closing
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Lunch
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Today we are at the Science Gateway

- Coffee breaks are on the ground floor
- Lunch is served here

- To visit exhibitions use the public entrance.
- Conference badge will get you 10% discount at the CERN store

Conference Photo at 1215, before lunch

Poster Session and Conference Cocktail tonight in the Science Gateway
Don't forget to bring your poster here!

Quantum network technology – the second life of rare-earth crystals
Wolfgang Tittel

Quantum computing roadmaps toward fault-tolerance
Olivier Ezratty

COFFEE !!!

The Quantum Internet: Applications, Challenges and Opportunities
Arian Stolk

The Open Quantum Institute
Marianne Schoerling