

High Performance Computing and Quantum Computing – Fifth Edition

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HPCQC Organizing Committee

Local Organizers: Christian Fiori¹, Emanuele Triuzzi¹

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09:15 – 10:00 Check-in

10:00 – 10:10 Welcome

Session 1: European and Italian initiatives – Chairman Daniele Ottaviani

- 10:10 – 10:25 Paolo Cremonesi (Politecnico di Milano)
The Italian Research Center in High Performance Computing, Big Data and Quantum Computing
- 10:25 – 10:40 Simone Montangero (University of Padua)
The Quantum Computing and Simulation Center at Padova University
- 10:40 – 10:55 Kristel Michielsen (Jülich Supercomputing Centre) [Remote Talk]
HPCQS – Preparing Europe for the deployment and federated use of QCS integrated with HPC systems
- 10:55 – 11:10 Sabine Mehr (GENCI)
EuroQCS-France - Paving the way to a federated European HPC-QCS ecosystem
- 11:10 – 11:25 Bertrand Le Saux, Alessandro Sebastianelli (ESA)
Bringing the power of quantum machine learning to Earth observation

11:25 – 11:40 Break

Session 2: Start-ups – Chairman Lorenzo Moro

- 11:40 – 11:55 Caterina Taballione (Quix Quantum)
Quantum Computing based on Photonics
- 11:55 – 12:10 Artur Garcia (Qilimanjaro) [Remote talk]
Coherent quantum annealing in the cloud with Qilimanjaro
- 12:10 – 12:25 Niccolò Somaschi (Quandela)
Modular optical quantum computing
- 12:25 – 12:40 Joseph Chreim (Quantum Brilliance)
The Untouchable Room Temperature Quantum Computer for your HPC Centre
- 12:40 – 13:00 Keynote: Annarita Giani (GE)
Quantum Computers Industrial Applications

13:00 – 14:30 Lunch

Session 3: Big industries – Chairman Riccardo Mengoni

- 14:30 – 14:45 Fabio Scafirimuto (IBM)
Building the future of quantum computing
- 14:45 – 15:00 Andy Mason (D-Wave)
Practical Quantum Computing – Live!
- 15:00 – 15:15 Kemal Bidzhiev, Anton Quelle (Pasqal)
Cloud on-demand quantum dynamics with Tensor Networks

15:15 – 15:40 Break

Session 4: Universities and research centers – Chairman Enrico Prati

- 15:40 – 15:50 Enrico Prati (University of Milan, CNR-IFN)
Introduction
- 15:50 – 16:10 Leonardo Guidoni (University of L'Aquila)
Quantum Computing for Quantum Chemistry
- 16:10 – 16:30 Fabio Sciarrino (University of Rome "Sapienza")
Quantum advantage with integrated photonics
- 16:30 – 16:50 Dario Gerace (University of Pavia)
*Comparing Quantum and Classical Machine Learning for Vector Boson Scattering
Background Reduction at the Large Hadron Collider*

16:50 – 17:05 Break

Students' talks

- 17:05 – 17:20 Marco Ballarin (University of Padua)
Quantum matcha tea: an efficient matrix product state simulator for quantum circuits
- 17:20 – 17:35 Sebastiano Corli (Politecnico di Milano, CNR-IFN)
Simulation and Embedding of measurement based quantum computing algorithms
- 17:35 – 17:50 Lorenzo Moro (Politecnico di Milano)
On the speed-up of adiabatic quantum computers by anomaly detection on IP traffic datasets

17:50 – 18:00 Greetings