Trieste, 08.03.2018

Quantum Computing: The Dawn of a New Industrial Revolution

The future of quantum technologies, which promise to revolutionize entire sectors from pharmacology to meteorology, will be discussed in a public meeting organized by the International Center for Theoretical Physics Abdus Salam (ICTP) and the International School of Advanced Studies (SISSA) of Trieste, under the patronage of Confindustria

A new kind of computing is on the horizon, one that could revolutionize the way complex problems are solved: quantum computing will be the main topic of a public roundtable hosted by ICTP and SISSA on March 14th, featuring high level panellists from IBM and Google as well as a scientist involved in the EC Flagship on Quantum Technologies. In addition, ICTP and SISSA will make a major announcement about a new institute related to quantum computing in Trieste, a joint initiative with the University of Trieste.

Quantum computing, which just a few years ago seemed pure fantasy, is slowly becoming a reality, promising a future of unprecedented computing speed. Major computer manufacturers such as Intel and IBM, along with search engine giant Google, are already producing quantum computing chips that will someday drive a quantum machine.

When fully realized, quantum computers could become indispensable development tools in the search for new materials or pharmaceuticals. They could also be used by cryptographers to devise more secure systems, or by engineers to improve the safety and performance of self-driving cars.

What are the next steps in this rapidly developing field? How soon will a functioning quantum computer be available? In what ways could quantum computing change our world?

To address these questions and provoke further discussions, ICTP and SISSA present a public forum featuring representatives from three key players in quantum computing:

- Hartmut Neven, Google's Director of Engineering
- Alessandro Curioni, Vice President of IBM Europe and Director of the IBM Research Lab in Zurich
- Tommaso Calarco, Director, Institute for Complex Quantum Systems, University of Ulm and member of the expert group for the European Commission's Quantum Technology Flagship

The event, which is open to the public and free of charge, will take place on 14 March, starting at 18:30, at the Savoia Excelsior Palace, Trieste. Simultaneous translation will be provided.

Earlier on the same day, ICTP's 2017 Dirac Medal Ceremony will take place at the institute's Miramare campus, starting at 14:30. This year, the prize, which recognizes outstanding contributions to theoretical physics, has been awarded to three pioneers of quantum computing: Charles H. Bennett (IBM TJ Watson Research Center), David Deutsch (University of Oxford) and Peter W. Shor (Massachusetts Institute of Technology).

About the speakers:

Alessandro Curioni is an internationally recognized leader in the area of high-performance computing and computational science, where his innovative thinking and seminal contributions have helped solve some of the most complex scientific and technological problems in healthcare, aerospace, consumer goods and electronics. He was a member of the winning team recognized with the prestigious Gordon Bell Prize in 2013 and 2015. He is Vice President of IBM Europe and Director of the IBM Research Lab in Zurich.

Hartmut Neven is a scientist working in quantum computing, computer vision, robotics and computational neuroscience. He is best known for his work in face and object recognition, and his contributions to quantum machine learning. He is currently Director of Engineering at Google, where he is leading the Quantum Artificial Intelligence Laboratory. As the former head of Google's Visual Search team, Neven led the development of the visual search service which today is used by a large number of Google products, including Image Search, Google Photos, YouTube, Street View and Google Goggles.

Tommaso Calarco's research interests in quantum science include quantum and atom optics, quantum control and quantum information. He is co-author of a blueprint behind the EC Quantum Technology Flagship initiative, and serves on the initiative's High-Level Steering Committee. He is director, Institute for Complex Quantum Systems, University of Ulm, as well as director, Centre for Integrated Quantum Science and Technology, Universities of Ulm and Stuttgart and Max-Planck Institute for Solid-State Research.

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