Multiverse Computing and Single Quantum Launch Materials Science Research Contract with German Aerospace Center

$1.4 million hardware and software contracts to focus on improving superconducting single photon detectors, a building block of quantum communications

SAN SEBASTIÁN, SPAIN, February 6, 2024 /EINPresswire.com/ -- Multiverse Computing, a global leader in value-based quantum computing solutions, and Single Quantum, the global market leader in superconducting nanowire single photon detectors, today announced an industrial materials science research and development project under a USD $1.4 million contract with the German Aerospace Center's DLR Quantum Computing Initiative (DLR QCI).

DLR researchers expect this work to enable quantum applications that outperform classical methods in the short- to mid-term on quantum hardware currently under development. The two quantum companies won funding through a competitive bidding process to use quantum simulation to improve the transmission capabilities of superconducting nanowire single photon detectors. These detectors are essential for quantum communications devices and more accurate than other types of photon detectors.

> Finding new methods to efficiently simulate materials using quantum computing has great potential, and it is a problem worth investing in the long term due to its high value."
>
> *Enrique Lizaso-Olmos, CEO of Multiverse Computing*

There are multiple additional use cases for single photon detectors ranging from quantum computing to deep-space communication and bio-imaging. DLR's exploration of these use cases aims to achieve quantum applications that outperform classical methods across

transport, energy and security.

Multiverse Computing and Single Quantum will use quantum simulation to improve the superconducting film that allows the hardware to detect photons.

“Materials simulation is a huge research area where we know classical computing has significant limitations,” said Enrique Lizaso-Olmos, co-founder and CEO of Multiverse Computing. “Finding new methods to efficiently simulate materials using quantum computing has great potential, and it is a problem worth investing in the long term due to its high value.”

Multiverse’s quantum algorithm experts will work with hardware engineers at Single Quantum to create an algorithm specifically designed for the DLR QCI’s quantum computers. Single Quantum specializes in fast and highly sensitive light sensors based on a superconducting nanowire single photon architecture. The company was among the first to manufacture and commercialize superconducting nanowire single photon detectors.

“Our technology combines unparalleled detection efficiency and time resolution to make our superconducting detectors the ideal choice for many use cases, including quantum communication and cryptography,” said Andreas Fognini, Chief Technology Officer at Single Quantum. “We expect this work with Multiverse Computing and DLR to refine these capabilities even further.”

Other teams within the larger DLR QCI initiative will be able to use the knowledge from this project to simulate other materials or conduct additional quantum simulations, according to the researchers.

Launched in 2021, the objective of the DLR QCI is to develop and expand the agency’s quantum competencies and strengthen the quantum computing ecosystem. The Algorithms for Quantum Computer Development in Hardware-Software Codesign (ALQU) is one of many application projects within the DLR QCI. The materials science research led by Multiverse and Single Quantum will support two goals in the ALQU’s work: the efficient compilation of circuits on quantum hardware and the development of quantum algorithms for industrial use. Winning this project strengthens Multiverse Computing’s position in the country’s quantum computing ecosystem and builds on its previous work with other major German companies, including Bosch, ZF, BASF and others.

The DLR Institute of Software Technology supports cutting-edge research at the German

Aerospace Center and offers its expertise for projects in all of DLR's subject areas: aerospace, energy, transport and security. The quantum initiative commissions industrial companies to develop quantum computers and the necessary supporting technologies.

###

About Single Quantum

Single Quantum pioneers the innovation and commercialization of superconducting nanowire single photon detection systems. The systems are designed for demanding applications in quantum information technology, quantum communication, quantum cryptography, infrared time-resolved spectroscopy, and laser ranging and remote sensing (LiDAR). With more than 250 systems sold worldwide, Single Quantum is recognized for high quality and reliability of its products.

Single Quantum Media Contact

Single Quantum B.V.

info@singlequantum.com

About DLR QCI

The DLR Quantum Computing Initiative (DLR QCI) involves partners from industry and business, start-ups and research in order to jointly develop quantum computers, enabling technologies, software & applications and the necessary economic environment. The Federal Ministry of Economics and Climate Protection (BMWK) has provided DLR with funding for this purpose. At two innovation centres in Hamburg and Ulm, DLR offers quantum start-ups and industrial consortia laboratories, workshops and office space, thereby pooling infrastructure, expertise and resources for effective technology transfer. This creates the industrial basis and the economic environment for quantum computers from Germany, the quantum computing ecosystem.

DLR QCI Media Contact

Felix Knoke

DLR QCI Communications

felix.knoke@dlr.de

+49 30 67055-8417

About Multiverse Computing

Multiverse Computing is a leading quantum software company that applies quantum and quantum-inspired solutions to tackle complex problems in finance, banking, manufacturing, energy, and cybersecurity to deliver value today and enable a more resilient and prosperous economy. The company's expertise in quantum algorithms and quantum-inspired algorithms means it can secure maximum results from current quantum devices as well as classical high-performance computers. Its flagship product, Singularity, allows professionals across all industries to leverage quantum computing to speed up and improve the accuracy of optimization and AI models with existing and familiar software tools. The company also has developed CompactifAI, a compressor which uses quantum-inspired tensor networks to make AI systems such as large language models more efficient and portable. In addition to finance and AI, Multiverse serves enterprises in the mobility, energy, life sciences and industry 4.0 sectors. The company is based in San Sebastian, Spain, with branches in London, Toronto, Paris and Munich. For more information about Singularity and CompactifAI, contact Victor Gaspar at victor.gaspar@multiversecomputing.com

Multiverse Computing Media Contact

Veronica Combs

veronica@hkamarcom.com

812-987-6076

Veronica Combs
HKA Marketing Communications
+1 714-422-0927
email us here
