

Pixel Photonics will deliver single photon detectors as sub-contractor for QuiX in DRL development project on a photonic quantum computer with 64 qubits

Münster, 27th of October 2022 - Pixel Photonics, a start-up out of the WWU Münster was chosen as sub-contractor for a 14 million euros development contract from the DLR (Deutsches Zentrum für Luft- und Raumfahrt), going to quantum computing start-up QuiX from Enschede (NL). The project, with a duration of four years, has the goal to develop a photonic quantum computer with a minimum of 64 qubits. Pixel Photonics will deliver high performance single photon detectors, which are playing a decisive role in in the realization of photonic-based quantum computers. With this very important industry contract Pixel Photonics can accelerate its effort in the commercialization of the scalable WI-SNSPD technology for quantum computing, microscopy, and quantum communication.



Picture 1: The founding team of Pixel Photonics: Dr. Wladick Hartmann, Christoph Seidenstücker, Fabian Beutel, Nicolai Walter and Martin Wolff (from left). © Peter Leßmann, Münster, 2022.

Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages

"We are thrilled with the trust that QuiX has placed in us as a company in this cutting-edge development project with DLR. The secured contract enables us to hire more talented staff and to double the outstanding research team over the upcoming 12 months. In addition, we can initiate important developments earlier than planned and enter the future market for hardware for quantum computers, while strengthening the still young industry for quantum technology in Germany and Europe." (Dr. Wladick Hartmann, CTO and co-founder Pixel Photonics GmbH)

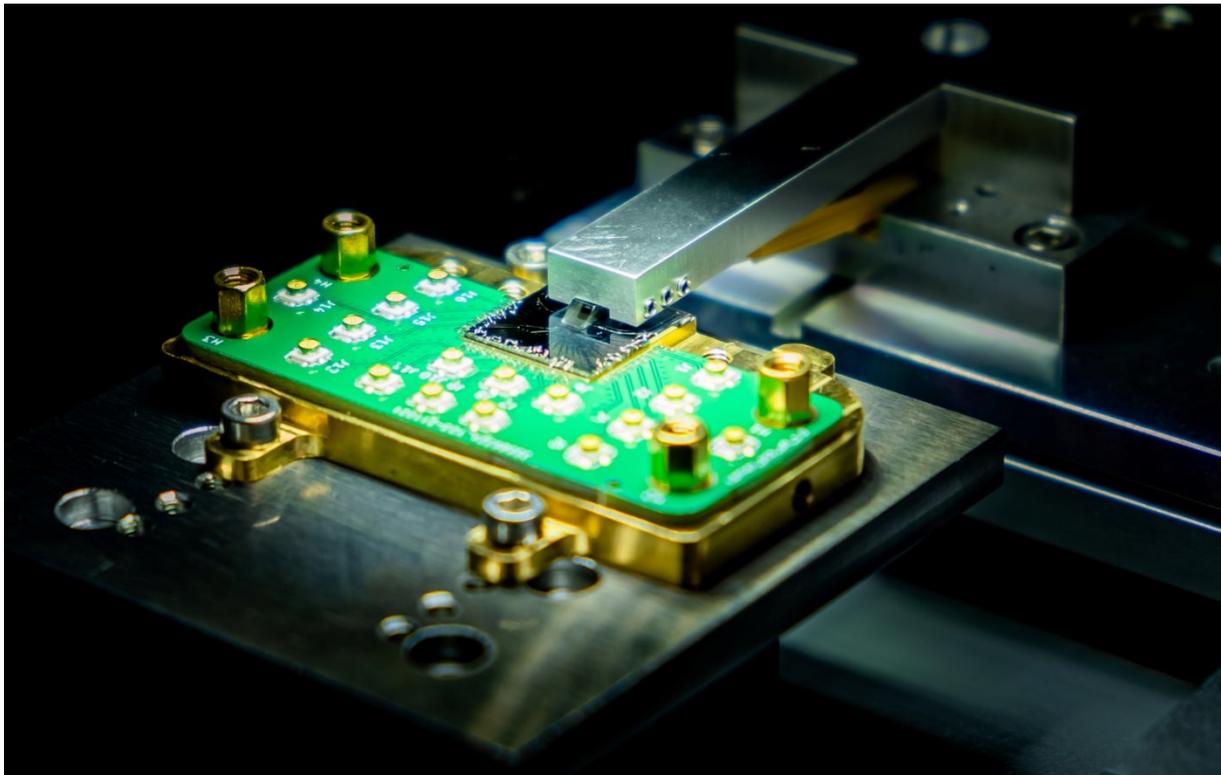
Quantum computers are an important technology for the future, as they are believed to perform calculations and simulations on numerous applications not possible today on classical supercomputers. Quantum computers are based on quantum bits (qubits) and compared to classical processors, they can assume the states 0 and 1 simultaneously - and not just one or the other. This allows computing power to grow exponentially, and the most complex calculations can be solved in a matter of minutes. Utilizing light particles (so-called photons) as computational building blocks is a promising approach to realizing quantum computers. However, building a quantum processor based on light particles is challenging and less advanced compared to other platforms. But, photon-based qubits are robust to ambient noise, can remain coherent over long distances, and can be manipulated using proven optical methods. These characteristics in combination with promising recent achievements in single photon detection and photonic quantum processing could help this technology to achieve a breakthrough.

"In addition to the outstanding technical properties of the single photon detectors, we also appreciate the uncomplicated cooperation between our two start-ups and the extremely high development speed of Pixel Photonics. The team at Pixel has an excellent understanding of how to implement the requirements of photonic quantum computing in their prototypes and adapt them to our interfaces. We look forward to working with Pixel on building and commissioning the first European photonic quantum computer for the DLR." (Dr. Stefan Hengesbach, CEO of QuiX)

DLR is involving companies, start-ups and other research institutions in its Quantum Computing Initiative (www.dlr.de/quantencomputing-initiative) so that all of the partners can make significant advances together. DLR has received funding for this purpose from the German Federal Ministry for Economic Affairs and Climate Action (Bundesministerium für Wirtschaft und Klimaschutz; BMWK), enabling it to award large-scale contracts to companies through a competitive tendering process. DLR is also contributing its own capabilities and expertise to the research and development work.

Pixel Photonics graduated as a start-up from the renowned accelerator program Creative Destruction Lab for quantum technology ventures earlier this year and received venture funding from Quantonation and HTGF. In addition to venture capital funding, Pixel Photonics has been awarded 1.6 million euros in research funding from the Federal Ministry of Education and Research (BMBF) to use quantum physics to improve data security as well as EXIST II from the Federal Ministry for Economic Affairs and Climate Action (BMWK). During the foundation of Pixel Photonics, the founders have been supported by the REACH EUREGIO Start-up Center Münster.

"Pixel Photonics' unique technological approach to SNSDPs combines scalability with high detection efficiency at very high speed. This is a key advancement to reach large scale photonic quantum computers which are one of the very promising path towards useful quantum computation. Since its foundation Pixel Photonics has demonstrated a strong operational and scientific efficiency that has been rewarded when reaching this critical milestone." (Jean-Gabriel Boinot, principal at Quantonation)



Picture 2: Impressions from the lab – multi-channel single photon detector from Pixel Photonics GmbH. © Pixel Photonics GmbH 2022 / Dr. Wladick Hartmann.

About Pixel Photonics: Pixel Photonics was founded in 2020 as a spin-off from the groups of Prof. Wolfram Pernice and Prof. Carsten Schuck at WWU Münster by Nicolai Walter, Dr. Wladick Hartmann, Fabian Beutel, Martin Wolff and Christoph Seidenstücker with the goal to commercialize highly scalable single-photon detectors based on a waveguide integrated SNSPD approach. Applications for Pixel Photonics' technology range from optical quantum computing, Quantum key distribution (QKD), microscopy to metrology and sensing. The company consists of an international team with 10 FTEs and has received venture funding from Quantonation and HTGF as well as research funding from the Federal Ministry of Education and Research (BMBF) in addition to the EXIST research transfer grant.

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QuiX Quantum: Start-up QuiX Quantum was founded in January 2019 and specializes in photonic quantum computing technology. The company has been offering market-leading photonic quantum processors since late 2020. QuiX Quantum have low-loss, scalable, plug-and-play quantum computing solutions. They have offices in Enschede, Amsterdam, and Ulm. Learn more: <https://www.quixquantum.com>

About Quantonation: Quantonation is the first venture capital fund dedicated to quantum technologies and innovative physics. Areas such as material design, high-performance computing, cybersecurity or ultra-precise detection are now driven by innovation based on these disruptive technologies. Quantonation aims to support their transition to marketable products for the industry. Quantonation is headquartered in Paris, France, and invests worldwide. Learn more: <https://www.quantonation.com>

About High-Tech Gründerfonds: The seed investor High-Tech Gründerfonds (HTGF) finances tech start-ups with growth potential and has supported over 680 start-ups since 2005. With the launch of its fourth fund, HTGF now has over 1.3 billion euros under management. Its team of experienced investment managers and start-up experts support young companies with expertise, entrepreneurial spirit and passion. HTGF's focus is on high-tech start-ups in the fields of digital tech, industrial tech, life sciences, chemistry and related business areas. To date, external investors have injected more than 4 billion euros of capital into the HTGF portfolio via more than 1,900 follow-on financing rounds. In addition, HTGF has already successfully sold shares in more than 160 companies. Fund investors in this public-private partnership include the German Federal Ministry for Economic Affairs and Climate Action, KfW Capital and the Fraunhofer-Gesellschaft along with over 40 companies from a wide range of industries. www.htgf.de/en

About REACH: The North Rhine-Westphalian Ministry for Economic Affairs, Innovation, Digitalization and Energy has been funding the establishment and work of a start-up center under the leadership of the WWU with a total of around 20 million euros since 2019. This has resulted in the REACH EUREGIO Start-up Center with the participation of the cooperation partners Münster University of Applied Sciences, Digital Hub münsterLAND and the University of Twente. The Start-up Center provides the necessary infrastructure and resources to support those interested in founding their own start-ups in the universities. As a university start-up center, REACH is committed to the transfer of scientific knowledge into start-up practice. Learn more: <https://www.reach-euregio.de>