PhD project at IDQ, in the framework of the MSCA QSI network, on the topic of:

**Architecture and hardware for a high-performance quantum-safe internet**

At IDQ, we change the world, one photon at a time. We harness light to develop and industrialize the most advanced quantum products and technologies and help to build long-term trust. We offer Quantum Key Distribution (QKD) systems and quantum random number generators (QRNG), and with them we provide the highest level of future-proof security.

As the world leader in quantum technologies, IDQ is a fast-growing company, creating new activities in new markets, worldwide. ID Quantique is looking for a **PhD student** to join the R&D team based in Geneva, Switzerland.

The goal of this project is to contribute to outstanding advancements of IDQ's industry-focused QKD systems in a context of rapid progress of this technology. As part of the QKD innovation team, the candidate will work on the development of some of the key sub-systems of our commercial platform based on the BB84 protocol. The focus of the work will range from hardware components like single-photon detectors and QRNGs to processing modules like error correction and privacy amplification algorithms.

The PhD work will be supervised by Dr. Gianluca Boso, System Architect at IDQ, in collaboration with Dr. Rob Thew, at the Group of Applied Physics at the University of Geneva. The PhD degree will be awarded by the University of Geneva.

The ideal candidate is capable of **taking the initiative to drive projects** and quickly **solve technical problems** by drawing from a proven track record of past experiences. As a forward-looking problem solver, you will be able to **deliver creative solutions** in a collaborative manner to support the product development and roadmap. You have **strong communication** skills, both with your colleagues and with external members. You have an **open mind**, a **positive attitude** and you are an **avid learner** with the desire and ability to have a strong impact on **R&D in an industrial context**.
Key Functions and Responsibilities:

- Understand the current state-of-the-art of QKD systems, both in the academic and the private R&D landscape
- Master the functioning of a QKD system (optics, HW, processing) to become a subject matter expert on the topic.
- Design and test QKD sub-systems (like single-photon detectors, QRNGs and/or processing algorithms) and integrate them in a commercial platform.
- Imagine and develop new concepts and ideas relevant to the progress of the main theme of the project.
- Constantly and clearly communicate the status of your project to your peers, supervisors, and stakeholders of the QSI project.
- Contribute to the networking activities of the MSCA QSI network, under which this project is going to take place.
- Realize secondments as per the requirements of the network.

Desired Profile and required expertise:

- M.Sc. in physics, electronics engineering, opto-electronics engineering or equivalent.
- Some experience in (or a strong desire to learn and master) at least two of the followings:
  - Optical fiber components (detectors, lasers, passive components, electro-optical modulators etc.)
  - Single-photon detectors (SPADs)
  - Optical Quantum Random Number Generators
  - Development of analog/mixed-signal electronic boards
  - Python programming (data analysis and control of lab instrumentation)
- The capacity to understand and master the functioning of a QKD system, to monitor progress in the field and to be the main contributor in the research project.
- Autonomous and capable of working in a dynamic environment, alone or within a team.
- Fluency in English.

To be eligible, the candidate must not have resided or carried out their main activity (work, studies, etc.) in Switzerland for more than 12 months in the 3 years immediately before the recruitment date.

Note: The salary for this position follows the MSCA allowance guidelines and ranges between CHF 55’000.- and CHF 60’000.- gross per year. A family allowance can also be attributed depending on the candidate situation.

The position is open immediately.

Should you be interested by this opportunity, please send a full application (with PhD QSI mentioned in the subject) to: HR@idquantique.com

ID Quantique is an equal opportunity employer and considers qualified applicants for employment without regard to race, color, religion, national origin, sexual orientation, gender identity, age, disability, veteran status or any other status protected by law.