

Quantum photonics engineer/physicist - Roles

Three open positions

- the specific tasks can be modelled around your competences and aspirations!

At Sparrow we currently have 3 open positions for Quantum photonics engineers/physicists. When hiring we look for talented individuals with an interest in commercializing quantum photonics. We are open to model the specific job contents and tasks around your competences and aspirations.

To give you as a potential applicant a well-structured information about the possible tasks, we have below grouped the key tasks into three possible job-roles.

- 1) **Single-Photon source characterization:** Carrying out optimization and characterization of our chips including automation of complex optical setups
- 2) **Quantum applications:** Demonstrating the use of our state-of-the-art single-photon source by conducting experiments in quantum communications and sensing
- 3) **Optical fabrication:** Optimizing our single-photon source chip design by working in the

If you can see yourself in one of these roles or in a combination of tasks from these roles, please don't hesitate to reach out to us as soon as possible. We will start the hiring process/dialogue as soon as we receive your application

‘Role1’: Single-photon source characterization

Description

We are seeking a researcher to participate in the development of Sparrow Quantum’s single-photon sources.

We work with GaAS/InAS quantum dots embedded in planar structures and operated at cryogenic temperatures. You will together with our team be responsible for characterizing and improving the devices. Activities will include development and optimization of complex optical systems in line with Sparrow Quantum’s development and production strategy. This includes Python automation scripting, optical system integration and testing, design, and development of optical sub-systems, as well as performing measurements for chip quality through characterization measurements for purity, indistinguishability, and efficiency. The work will include novel research into the understanding of single-photon source generation.

Relevant experience

- Master’s degree or higher in a relevant field
- Strong fundamentals in optics, quantum photonics or a related topic
- Hands-on optical lab experience
- Experience conducting ultra-precise experiments at cryogenic temperatures
- Python / Matlab coding for data analysis and automation
- Self-starter and ability to work independently
- Excellent verbal and written communication skills

‘Role2’: Quantum applications

Description

The performance of many current quantum photonics applications is limited by the quality of the single photons carrying the information. With our state-of-the-art single photons, we can push these limits. This is the strength of Sparrow Quantum’s unique technology. We wish to highlight this by exploring and demonstrating the use of our single-photon source for applications such as quantum communication and sensing.

As a quantum application engineer/physicist you will be system responsible for a QKD demonstration currently under development as well as working on design and development of new quantum sensing experiments and even telecom wavelength conversion. Activities includes design, implementation, testing, and verification of optical modules. You will be responsible for the system integration. This position is an exciting possibility for an enthusiastic candidate to conduct quantum research and demonstration experiments using the world’s best single photons. The position includes project management, and you will work closely together with researchers, partners, and technical staff.

Relevant experience

- Master’s degree or higher in a relevant field
- Strong fundamentals in quantum photonics or a related topic
- Hands-on optical lab experience
- Experience with quantum communication
- Python / Matlab coding for data analysis

- Self-starter and ability to work independently
- Excellent verbal and written communication skills

‘Role 3’: Optical fabrication

Sparrow Quantum develops and commercializes single-photon sources based on GaAs chips operating at cryogenic conditions. The unique and patented technology is the result of many years of cutting-edge research at the renowned Niels Bohr Institute in Copenhagen, where Sparrow Quantum has lab-facilities and offices. Our mission is to enable the future of quantum technology by become the world’s leading supplier of state-of-the-art single-photon sources.

Description

We are looking for an optical fabrication engineer/physicist to join our growing team. You will drive and support design, development, and research into semiconducting materials and chip design in alignment with Sparrow Quantum’s vision of developing a user-friendly single-photon source. You will work with world-leading researchers and partners towards optimizing Sparrow Quantum’s unique technology. It is an exciting position where you will be working in the cross-field between materials, photonics, and quantum. Activities include work with cross-functional teams, python scripting, design, processing, and characterization of Sparrows single-photon source chips. The position will include research and development in single-photon source generation and quantum photonics on a GaAs platform. The ideal candidate will be familiar with wafer growth and be experienced in a cleanroom as well as having a strong background in simulation and design of waveguide devices such as gratings and photonic crystals. Activities will include proposing and implementing design solutions for new nanophotonic structures and evaluate the design by simulation and characterization testing.

Relevant experience

- Master’s degree or higher in a relevant field
- Strong fundamentals in quantum photonics, optics, material science or a related topic
- Highly experienced in clean-room laboratories
- Knowledge of waveguide processing and design simulation
- Python / Matlab coding for data analysis and automation
- Self-starter and ability to work independently
- Excellent verbal and written communication skills