QUANDELA

www.quandela.com

contact@quandela.com

Development of a single photon router based on Mach Zehnder Interferometer – Optical/photonic engineer (f/h/d)

Photonics, Quantum optics, Quantum computing | Full time | In Massy (91), France

About Quandela

Quandela is a spin-off company from the French national laboratory CNRS founded in 2017, composed by a team of motivated quantum technology enthusiasts with broad experience in optics, quantum photonic and semiconductor nanotechnologies.

Located in the south suburbs of Paris, with main offices in Massy and fabrication facilities in the deep-tech campus of Paris-Saclay, in the south suburbs of Paris, Quandela pursues the development of unique components that boost the emergence of quantum technologies.

The core product consists in ultra-bright sources of pure quantum light based on a disruptive technology developed during the past 15 years within the laboratory C2N-CNRS.

These unique quantum light sources serve as building blocks for the development of optical quantum computers and for the deployment of quantum networks.

Your Role

During your internship, you will be part of a team in charge of the development of optical system sold by Quandela. This concerns both the R&D and system production teams, and you will refer to one of the R&D engineers.

The internship project would involve the creation of a Mach Zehnder interferometer containing an Electro Optic Modulator for fast switching of beam of light. An annex system will be used to lock the system and monitor its stability.

You will be able to align optical interferometers and help to develop some monitoring and feedback loop systems. You will also participate in the work team according to the current needs. Therefore, you must be able to communicate and work in an international team.

Main Tasks

- Optical system design
- Feasibility studies
- Electronic conception
- Optical devices characterization

Your skills and profile

The following skills need to be demonstrated by the selected candidate:

- Already have work with optical components
- Possess a creative way of thinking, be energetic and autonomous
- Willingness to work in an international team

Qualifications and Experience

- Background in engineering, photonics, physics, or a related discipline
- English communication skills; both verbal and written

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Development of a single photon router based on a crystal index modulation – Optical/photonic engineer (f/h/d)

Photonics, Quantum optics, Quantum computing | Full time | In Massy (91), France

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Your Role

During your internship, you will be part of a team in charge of the development of optical system sold by Quandela. This concerns both the R&D and system production teams, and you will refer to one of the R&D engineers.
The internship project involves the development of a new single photon demultiplexer. This implies the study and implementation of a single photon deflector using high frequency tuning of the refractive index of a crystal with a RLC resonant electrical oscillator. You will also participate in the work team according to the current needs. Therefore, you must be able to communicate and work in an international team.

Main Tasks

- Optical system design

- Feasibility studies
- Electronic conception
- Optical devices characterization

Your skills and profile

The following skills need to be demonstrated by the selected candidate:

- Already have work with optical components
- Possess a creative way of thinking, be energetic and autonomous
- Willingness to work in an international team

Qualifications and Experience

- Background in engineering, photonics, physics, or a related discipline
- English communication skills; both verbal and written

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Development of highly efficient optical systems for photonic quantum computing - Optical/photonic engineer (f/h/d)

Photonics, Quantum optics, Quantum computing | Full time | In Massy (91), France

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These unique quantum light sources serve as building blocks for the development of optical quantum computers and for the deployment of quantum networks.

Your Role

During your internship, you will be part of a team in charge of the development of optical system sold by Quandela. This concerns both the R&D and system production teams, and you will refer to one of the product engineers.
The internship project involves automating several complex optical systems, including optical characterization and optimization setups. For this you must be able to implement optimization algorithms and follow experimental protocols, some of which you will certainly write.

Main Tasks

- Test line automatization
- Optimisation algorithm implementation

- Optical devices characterization
- Optical system building
- Feasibility studies

Your skills and profile

The following skills need to be demonstrated by the selected candidate:

- Ability to follow an experimental protocol and optimise it
- First experience with optical components
- Ability to implement optimisation algorithms
- Possess a creative way of thinking, be energetic and autonomous
- Willingness to work in an international team

Qualifications and Experience

- Background in engineering, photonics, physics, or a related discipline
- English communication skills; both verbal and written

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Development of a single photon source at the telecom wavelength – Optical/photonic engineer (f/h/d)

Photonics, Quantum optics, Quantum computing | Full time | In Massy (91), France

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These unique quantum light sources serve as building blocks for the development of optical quantum computers and for the deployment of quantum networks.

Your Role

During your internship, you will be part of the team in charge of the development of optical system sold by Quandela. This concerns both the R&D and system production teams, and you will refer to one of the R&D engineers.

For long distance quantum communication applications, Quandela develops a single photon source at the telecom wavelength. It is based on the deterministic emission of a 780 nm single photon from a semiconductor quantum dot followed by its frequency conversion at 1550 nm.

The internship project involves the development and optimization of the optical frequency conversion system and its validation in the quantum regime.

Main Tasks

- Optical alignment and efficiency optimization

- Test and characterize new solutions
- Manipulation of single photon sources and validation of the conversion setup
- Feasibility studies

Your skills and profile

The following skills need to be demonstrated by the selected candidate:

- Ability to follow an experimental protocol and optimise it
- First experience with optical systems
- Possess a creative way of thinking, be energetic and autonomous
- Willingness to work in an international team

Qualifications and Experience

- Background in engineering, photonics, physics, or a related discipline
- English communication skills; both verbal and written