

# Research Engineer in Single-Photon Source Fabrication (M/F)

## General information

- **Location:** Palaiseau, France
  - **Contract:** Fixed-term contract initially, with transition to a mission-based permanent contract
  - **Salary:** From €2,932.84 gross per month (depending on experience)
  - **Education level:** PhD
  - **Experience:** 1–3 years (PhD included)
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## Your role

We are seeking a **Research Engineer** to contribute to the **fabrication and optimization of single-photon sources based on quantum dots integrated into optical microcavities**.

These devices, developed within the **GOSS-QD team** at C2N, rely on semiconductor quantum dots emitting at various wavelengths and embedded in AlAs/GaAs micropillar cavities. They are core building blocks for **quantum photonic technologies**, with applications ranging from single- and entangled-photon sources to spin-photon interfaces.

You will join an internationally recognized research team whose mission is to **enhance device performance** (brightness, photon indistinguishability) and to **integrate advanced functionalities**, such as:

- control of the quantum dot charge state,
- optical mode engineering,
- strain control.

Within the framework of the **QDlight joint laboratory (C2N–Quandela)**, you will actively contribute to the **scientific and technological roadmap** by:

- improving existing fabrication processes,
- proposing and developing new technological approaches,
- designing next-generation devices.

You will also perform **basic optical setups and measurements** to characterize how fabrication steps influence the optical properties of microcavities. Your results will directly guide design choices and research strategies, advancing the state of the art in quantum photonic devices.

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## Main activities

- Participate in the fabrication of quantum-dot-based micropillar devices
- Work closely with researchers to define technological objectives
- Identify and optimize fabrication steps that impact device performance
- Design and test new device architectures
- Perform optical and electrical characterization measurements
- Systematically document results and report conclusions to the team

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## Profile

### Technical skills

- PhD (or equivalent) with approximately **3 years of research experience**
- Strong background in **micro- and nanofabrication techniques** (thin-film deposition, lithography, etching, etc.)
- Good understanding of **optical microcavities** and **semiconductor heterostructures**
- Experience in **optical and/or electrical characterization**
- **English:** minimum B2 level (CEFR)

### Personal qualities

- Strong team spirit and ability to work in multidisciplinary environments
- Ability to work independently and with scientific rigor
- Good written and oral communication skills
- Strong analytical skills and proactive mindset
- Ability to clearly structure and synthesize results

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## Work environment

The **Centre for Nanoscience and Nanotechnology (C2N)** is a leading research institute located near Paris, within Université Paris-Saclay. It brings together approximately **400 staff members**, including over 100 permanent researchers, across 30 research teams.

C2N hosts a **2,900 m<sup>2</sup> state-of-the-art cleanroom**, the largest and most recent in France, enabling world-class research in nanofabrication, photonics, optoelectronics, materials science, and quantum technologies.

You will join the **GOSS-QD (Group for Optoelectronics and Spintronics on Semiconductor)** team, internationally recognized for pioneering work in quantum photonics, including:

- record-brightness and near-perfect indistinguishable single-photon sources,
- high-rate spin-photon entanglement,
- photonic quantum computing prototypes,
- advanced spin-photon interfaces.

The **QDlight joint laboratory**, created through a strategic partnership between C2N and **Quandela**, provides a unique environment at the interface between **fundamental research and industrial innovation**, accelerating the transfer of scientific breakthroughs into real-world quantum technologies.

Send your CV and cover letter to [pascale.senellart-mardon@universite-paris-saclay.fr](mailto:pascale.senellart-mardon@universite-paris-saclay.fr)