



C12 Quantum Electronics, a deeptech startup developing reliable & application-specific quantum processors is looking for a ...

Nanofabrication engineer

Permanent contract

From May 2021 - Paris

C12 develops **quantum processors** with the goal of **speeding-up highly complex computing tasks**.

Building a quantum computer still needs **scientific innovators** ready to tackle exciting challenges. C12 founders are convinced that a new material for the hardware will bring a **technological breakthrough**.

Spin qubits coupled to a microwave cavity is a promising and scalable platform for quantum information processing. Interfacing spins with microwave photons brings interesting perspectives for their individual control and manipulation as well as for the circuit architecture. C12 hosts spin qubits in **carbon nanotubes**, an **exceptional material for quantum mechanics**. A suspended isotopically pure ^{12}C nanotube holds great promises in terms of stability, as it reduces all sources of decoherence (charge noise, nuclear spin noise, phonon relaxation). The qubits stability is essential for scalability, in the mid-term to reach quantum advantage as well as in the long-term to reduce hardware overhead for fault-tolerant computing.

At C12, not only spins will be entangled, but also **science and business**. **Scientific excellence and technology** are at the heart of the company, with a team of 8 PhDs coming from different fields of quantum physics. **Business drive, product focus development and ambition to accelerate** are also rooted in C12's culture. C12's lab space sits in the centre of Paris and is enjoying an exceptional scientific environment.

As part of C12 Quantum Electronics' Core Team, you will contribute to achieve **landmark results in quantum computing**, making a difference in the emerging quantum technologies. We are young: you will also have an impact on our values and ambition. We will take care of building a diverse team of curious and excellent individuals, driven by scientific integrity.

Your role in C12 Quantum Electronics

We are looking for a nanofabrication engineer for the fabrication of printed circuits chip in the cleanroom. These printed circuits enable the control & read-out of our qubits and include superconducting resonators as well as superconducting & magnetic gate electrodes.

- Fabrication of quantum devices
- Identification of potential limiting factors to coherence and fabrication precision
- The design and implementation of procedures/tools to enhance throughput and precision
- Working closely with quantum device design teams to improve overall circuit performance
- Helping to create, develop and maintain process documentation

You will join our nanofabrication team led by Gulibusitan Abulizi, Nanofabrication scientist at C12 and former PhD & post-doc in Schönenberger's group in Basel. You will collaborate with researchers and engineers (in quantum physics, nanotechnologies and quantum information) to develop the hardware platform of C12. You will be involved in solving complex, long-term quantum engineering challenges.

About you

- Ph.D. in Physics, Experimental Physics, Materials Science and Engineering, Nanotechnology, Nanoscience or a related field
- Previous experience performing multi-step nanofabrication autonomously in a clean room - Experience in lithography especially in e-beam lithography is highly appreciated
- Meticulous attention to detail
- Good English language skills
- Enthusiasm to work as a team player across different disciplines

Preferred qualifications

- Specific experience with the following processes:
 - Electron-beam lithography of precisely defined sub-micron features
 - Wafer-scale photolithography with micron-resolution
 - Experience of improving and developing new fabrication recipes

C12 Quantum Electronics encourages all who feel qualified to apply. Recruitment decisions are based solely on qualifications, skills, knowledge and experience. Applications from women are particularly welcomed.

Join the quantum race and send your CV at: careers@c12qe.com

C12 Quantum Electronics - Connecting quantum power to reality