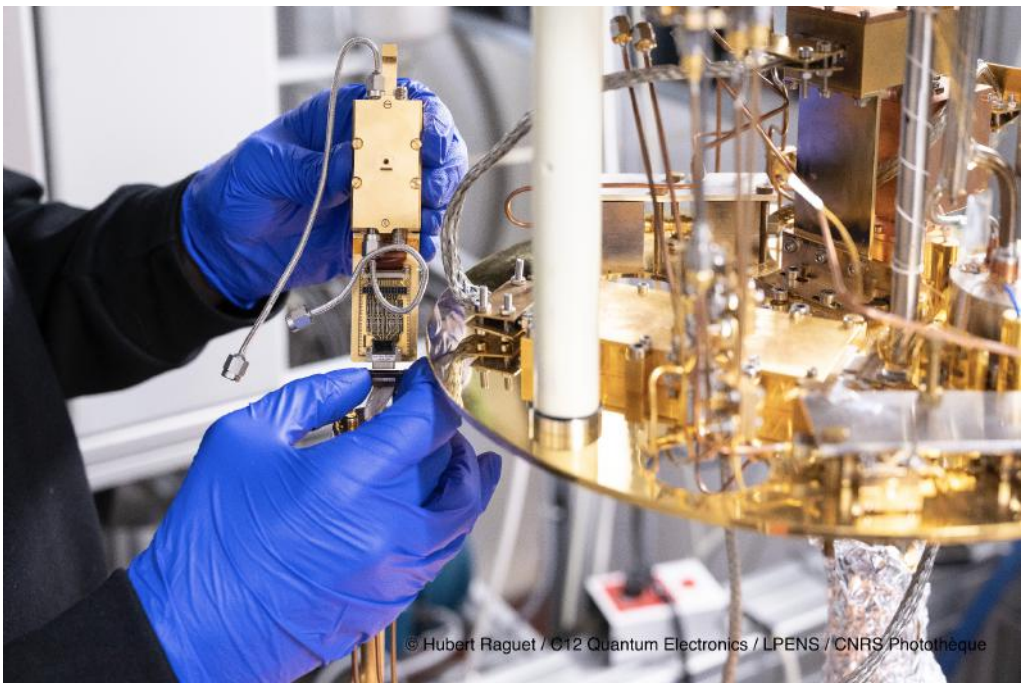
C12 Quantum Electronics, a deeptech startup developing quantum computers is looking for a …

R&D interns

6-month internships (potential permanent positions offered at the end)

Semester 1 or 2 2022 - Paris



C12 Quantum Electronics develops reliable & application-specific quantum computers, to solve highly complex computing tasks, currently out of reach of even most powerful supercomputers.

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

C12 Quantum Electronics uniquely uses **carbon nanotubes** as the fundamental building blocks of its quantum processor. This **ultra-pure material minimizes errors**, radically improves performance and reduces hardware overhead for fault-tolerant computing. Combined with well-established semiconductor techniques, **carbon nanotubes will help scale quantum computing, just as silicon revolutionized classical computing.**

Founded in 2020, C12 Quantum Electronics is a fast-growing start-up, having raised a seed round of USD 10 million in June 2021 and building its **own lab space** in the center of Paris.

Your role in C12 Quantum Electronics

We are looking for our **next generation of interns. Depending on your skills and interest, you have the opportunity to join one of our teams.** Expected skills are highlighted with a hashtag. One of them is sufficient to apply.

- **Carbon nanotubes growth**: to create our quantum processors, we grow isotopically pure carbon nanotubes via chemical vapor deposition. #engineering #material science #chemistry
- **Characterization**: we non-invasively select candidate nanotubes with the desired semi-conducting gap and that are free from defects, from which we build our qubits. #quantum transport #optical spectroscopy #machine learning #data science
- **Nano-assembly**: we use a unique and patented "stapling" technology to integrate ultra-pure carbon nanotubes on printed circuit microchips. #mechanical engineering #experimental physics #electronics
- **RF engineering:** we perform and analyze microwave simulations, to improve the design of passive on-chip distributed RF circuits for qubit control. #microwave electronics #simulation #software development #quantum electronics circuits
- **Qubit measurements**: in our cryostats, we characterize our spin qubits by applying microwave pulses. #quantum physics #qubit measurement #experimental physics
- **Theory & applications**: we develop the theoretical models describing our qubits and test first quantum algorithms using an emulator. #theoretical quantum physics #software development

Your job, as a part of each team, will involve helping operate the existing apparatus and set-ups, acquire statistics and prepare clean documentation and eventually, aid in the brainstorming/ construction of new apparatus and/or set-ups to overcome limitations in the current processes. You will have the opportunity to work in an exceptional scientific and engineering environment and to learn many new skills.

The internship can lead to a permanent position offer if your contribution has been important for C12 and you fit well in our team.

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

Please specify in your application which team you'll like to join

About you

- By the time you arrive, you'll have a **previous significant experience (6 months minimum)** in one of the field mentioned above
- You have a Master of Science, Master of Engineering or equivalent
- End-of-studies internship is seen as an advantage

You should join us if...

- You want to contribute to achieve **landmark results in quantum computing**, making a difference in the emerging quantum technologies

- You want to work within an **19-people team** with various backgrounds in **nanofabrication, quantum electronics, and carbon nanotube science** to materialize the vision of a revolutionary quantum computing processor
- You want to thrive in a exceptional scientific environment with several **industrial and academic partners**
- You relate to our values (excellence, scientific integrity, diversity, curiosity, and care) and want to help us define our product-focus **culture and ambition to accelerate**

C12 Quantum Electronics' unique technology

At C12 Quantum Electronics, a qubit, the fundamental functional unit of a quantum computer, is built from an isotopically ultra-pure 12C nanotube suspended above a silicon chip containing control electrodes and a quantum communication bus. Our spin qubits hold great promises in terms of individual control and manipulation as well as for the circuit architecture. A suspended isotopically pure 12C nanotube holds great promises in terms of stability, as it reduces all sources of decoherence (charge noise, nuclear spin noise, phonon relaxation).

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.

C12 Quantum Electronics - Leading the next materials leap in quantum computing