



Offer #2025-09002

Post-Doctoral Research Visit F/M

Nonreciprocal superconducting circuits and applications for quantum computing

Contract type : Fixed-term contract

Renewable contract : Yes

Level of qualifications required : PhD or equivalent

Fonction : Post-Doctoral Research Visit

Context

As part of an ERC project aimed at developing nonreciprocal superconducting circuits, the objective is to integrate one or more nonreciprocal elements to realize a protected qubit.

Assignment

Under the supervision of Philippe Campagne-Ibarcq, the recruited candidate will be involved in the simulation, design, fabrication, and characterization of Josephson metamaterials, with the goal of realizing an on-chip circulator or gyrator featuring low insertion loss and high isolation. The candidate will also work on integrating this element into a coherent superconducting circuit for the protection of quantum information.

As a postdoctoral researcher, the candidate will also take part in supervising one or more PhD students.

Main activities

- Design and simulation of microwave circuits

- Quantization of the proposed architectures
- Microfabrication
- Cryogenic measurements
- Data analysis and model refinement

Skills

Technical skills and required level: PhD in quantum physics

Languages: English

Benefits package

- Restauration subventionnée
- Transports publics remboursés partiellement
- Congés: 7 semaines de congés annuels + 10 jours de RTT (base temps plein) + possibilité d'autorisations d'absence exceptionnelle (ex : enfants malades, déménagement)
- Possibilité de télétravail (après 6 mois d'ancienneté) et aménagement du temps de travail
- Équipements professionnels à disposition (visioconférence, prêts de matériels informatiques, etc.)
- Prestations sociales, culturelles et sportives (Association de gestion des œuvres sociales d'Inria)
- Accès à la formation professionnelle
- Sécurité sociale

General Information

- **Theme/Domain :** Optimization and control of dynamic systems
Scientific computing (BAP E)
- **Town/city :** Paris
- **Inria Center :** Centre Inria de Paris
- **Starting date :** 2025-09-01
- **Duration of contract :** 2 years
- **Deadline to apply :** 2025-07-31

Contacts

- **Inria Team :** QUANTIC

- **Recruiter :**

Campagne Ibarcq Philippe / philippe.campagne-ibarcq@inria.fr

About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

The keys to success

Strong background in quantum physics, both theoretical and experimental. Proficiency in at least one programming language. A PhD carried out in a superconducting circuits laboratory is required.

Warning : you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.

Instruction to apply

Defence Security :

This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy :

As part of its diversity policy, all Inria positions are accessible to people with disabilities.