

Position description

1. Position identification

Title of post : Post-doctoral researcher in the scope of the project "Feedback enhanced quantum cavity magnomechanics" (FeEnQCaMM), funded by ANR and NSERC (Canada)

Type of contract : CDD post-doc

Category (A,B or C) : A

Contract/project period : 15 months at Unistra and 15 months at LOMA (UniBordeaux)

Expected date of employment : 05/2025 or 06/2025

Proportion of work : 100%

Workplace : Université de Strasbourg, Institut de Science et d'Ingénierie Supramoléculaires (I.S.I.S), Centre Européen de Sciences Quantiques (CESQ) , 2 rue du Loess, 67200, Strasbourg, France

Desired level of education : PhD in physics or related fields

Experience required : PhD holders or equivalent who are not fully independent with experience in one or more the following areas: hybrid quantum systems, quantum optics, open quantum systems, quantum optomechanics, magnonics, feedback.

Contact(s) for information on the position (identity, position, e-mail address, telephone) : Prof. Anja Metelmann (metelmann@unistra.fr)

Dr. Fabio Pistolesi (fabio.pistolesi@u-bordeaux.fr)

Dr. Victor A. S. V. Bittencourt (sant@unistra.fr)

Date of publication : 01/04/2025

Closing date for the receipt of applications : 30/04/2025

2. Research project or operation

We have an open post-doctoral position [15 months in Strasbourg and 15 months in Bordeaux, France] in the scope of the project Feedback enhanced quantum cavity magnomechanics (FeEnQCaMM), funded by ANR and NSERC (Canada). The post-doctoral researcher will work with the theory of coherent and measurement-based feedback for cavity magnomechanical systems, developing new feedback strategies for cavity magnomechanics, e.g. for improving phonon cooling. The researcher will work in a highly collaborative environment between the University of Strasbourg and the University of Bordeaux. The post-doc will be based the first 15 months at the University of Strasbourg, under the supervision of Prof. Dr. Anja Metelmann and Dr. Victor A. S. V. Bittencourt (CESQ), and the following 15 months at the University of Bordeaux, under the

supervision of Dr. Fabio Pistolesi (LOMA). During this period, the candidate will also be in close contact with our experimental partner group at the University of Alberta (Canada).

We seek candidates with experience in one or more the following areas: hybrid quantum systems, quantum optics, open quantum systems, quantum optomechanics, magnonics, feedback.

3. Activities

➤ **Description of the research activities :**

- Research in the scope of the theory of coherent and measurement-based feedback for cavity magnomechanical systems;
- Developing new feedback strategies for cavity magnomechanics, e.g. for improving phonon cooling.

➤ **Related activities : /**

1/2

4. Skills

➤ **Qualifications/knowledge :**

PhD in physics or related fields

➤ **Operational skills/expertise : /**

➤ **Personal qualities : /**

5. Environment and context of work

➤ **Presentation of the laboratory/unity :**

CESQ is a transnational quantum research and educational hub of the University of Strasbourg and the CNRS. We build upon an exceptional tradition of interdisciplinary research in Strasbourg that covers quantum physics chemistry, materials science, photonics and computing. CESQ provides an open environment for collaborations, training and innovation with state-of-the-art experimental and theory research.

The researcher will be hosted at the group of Prof. Anja Metelmann on engineered quantum systems. The group is divided between the Karlsruhe Institute of Technology (KIT) in Germany and Unistra, and has a diverse research activity including theory of open quantum systems, engineered nonreciprocity, superconducting circuits and devices, cavity optomechanics and other hybrid quantum systems.

After the first 15 months at Unistra, the post-doc will be hosted for the last 15 months at the Laboratoire Ondes et Matière d'Aquitaine (LOMA), a joint laboratory of the University of Bordeaux and the French Centre de la Recherche Scientifique (CNRS), where he will be hosted at the group of Dr. Fabio Pistoiesi.

➤ **Hierarchical relationship :**

Prof. Anja Metelmann and Dr. Fabio Pistoiesi are the principal investigators of the project

Dr. Victor Augusto S. V. Bittencourt will be in close contact with the post-doctoral researcher for supervision during the project.

To apply, please send your CV and cover letter to :
Prof. Dr. Anja Metelmann metelmann@unistra.fr
Dr. Fabio Pistoiesi fabio.pistoiesi@u-bordeaux.fr
Dr. Victor Augusto S. V. Bittencourt sant@unistra.fr