
**Level of qualifications required:** PhD or equivalent

**Function:** Post-Doctoral Research Visit

### About the research centre or Inria department

The Inria Sophia Antipolis - Méditerranée center counts 37 research teams and 9 support departments. The center's staff (about 600 people including 400 Inria employees) is composed of scientists of different nationalities (250 foreigners of 50 nationalities), engineers, technicians and administrators. 1/3 of the staff are civil servants, the others are contractual. The majority of the research teams at the center are located in Sophia Antipolis and Nice in the Alpes-Maritimes. Six teams are based in Montpellier and a team is hosted by the computer science department of the University of Bologna in Italy. The Center is a member of the University and Institution Community (ComUE) "Université Côte d'Azur (UCA)".

### Context

This project is proposed by the teams Castor and Coffee, joint teams of the Math. Dept. J. A. Dieudonné and the Sophia Antipolis Inria Research Centre.

The objective is to develop and to analyze models and numerical approaches for the simulation of viscous flows, first in a moving domain, and second in order to manage the boundary conditions for flows perturbed by an obstacle.

This work takes place within collaborations with National Taiwan University and Toulouse University, and it could be possible to organize visits in this team. Travel expenses are covered within the limits of the scale in force.

### Assignment

**Assignments:**

The project will be supervised by S. Minjeaud and T. Goudon. The post-doc will study a model describing flows in a moving domain. A specific attention will be paid to the interactions between the different scales of the model, the underlying asymptotic issues and numerical constraints. The second theme wishes to characterize the "reference flow" to be used when defining "artificial" boundary conditions on the computational domain.

**For a better knowledge of the proposed research subject:**

The website of the team Coffee [https://team.inria.fr/coffee/](https://team.inria.fr/coffee/) and team Castor [https://team.inria.fr/castor/](https://team.inria.fr/castor/) can be consulted for further information on the activity of the teams.

### Main activities

**To analyse PDE for flows in moving domains**

**To analyse the stability issues that govern the conception of artificial boundary conditions for the simulation of viscous flows**

**To identify relevant scales**

**To design and set up numerical methods for these problems**

**To write technical reports and documentation.**
**Skills**
Technical skills and level required: PhD in PDE, scientific computing or mechanics
Languages: French or English

**Benefits package**
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities

**Remuneration**
Gross Salary: 2650 brutto per month

**General Information**
- **Theme/Domain**: Numerical schemes and simulations
  Scientific computing (BAP E)
- **Town/city**: Nice
- **Inria Center**: CRI Sophia Antipolis - Méditerranée
- **Starting date**: 11/1/18
- **Duration of contract**: 1 year, 4 months
- **Deadline to apply**: 3/25/18

**Contacts**
- **Inria Team**: COFFEE
- **Recruiter**: Goudon Thierry / thierry.goudon@inria.fr

**The keys to success**
The subject requires some familiarity with the theory of PDE and their numerical treatment; the knowledge of a language for scientific computing (like Matlab, Scilab, Octave, Python, Fortran ou C++) is also expected.

**Conditions for application**
Before to apply, and preferably before march 20, it is strongly recommended to contact the scientific in charge of this offer.

**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.

**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.