
Internship position 2019

Applied Mathematics and Engineering Sciences

(Possibility to pursue with a PhD)

Expected profile

- 3rd year master student in applied mathematics, physics or mechanical engineering
- Good experience in programming (C, C++) and in data analysis
- Fluent in english

Optional competences

- Knowledge in statistical physics
- Knowledge in fluid dynamics
- Rigorous, autonomous and creative thinking
- Interest in environmental applications

Duration and period

5-6 months (between February and August 2019).

Host institution

[Inria Sophia Antipolis - Méditerranée](#)

Supervisors

- [Mireille Bossy](#) (Inria research director), specialist in stochastic modelling;
- [Christophe Henry](#) (Inria starting researcher), specialist in particle-laden flows.

Topic

Particles in the environment: Agglomeration and fragmentation

Key words

Lagrangian stochastic models, Numerical analysis, particles, agglomeration, fragmentation.

Description

Various types of inclusions are present in the environment, such as droplets in cloud physics, pollutant in the atmosphere or plankton in oceans. These particles/droplets can aggregate to form larger systems. This can have profound consequences on environmental flows: for instance, the coalescence of droplets in clouds is responsible for rain formation, while plankton aggregation can impact their sedimentation rate.

The aim of this internship is to refine an existing stochastic model for particle agglomeration and fragmentation. For that purpose, the student will extend a recent model that has been developed. The doctoral student will participate to the development of state-of-the-art numerical tools, perform simulations, analyze and validate results.

This internship can lead to publications in international journals.

Motivated candidates will also be encouraged to pursue with a PhD on a related topic ([detailed proposal](#)).

To apply

Please send an email to both:

- mireille.bossy@inria.fr
- christophe.henry@inria.fr

Applicants are required to send a cover letter, a CV, transcripts of their Master grades, and at least one recommendation letter to the above address.