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Internship proposal M1MSIAM
Micro-swimmer: Mathematical Modelling and Numerical simulations

Grenoble, December 15th 2016

- **Duration:** 2 or 4 months
- **Supervision:**
  - Mourad Ismaïl (Applied Mathematics)
  - Philippe Peyla and Salima Rafaï (Physics)
- **Paid internship if 4 months**
- **Application:**
  Send a cover letter and a detailed CV to Mourad.Ismail@univ-grenoble-alpes.fr

Prerequisites:

- Finite Element Method and FreeFem++ software

The aim of this internship is to study the numerical simulation of micro-swimmers (pushers and/or pullers) in confinement using FreeFem++ software (http://www.freefem.org). In particular we are interested in singular and collective behaviors of micro-swimmers in confinement. Depending on confinement, the dynamic can drastically change. The governing equations are Stokes equations coupled with Penalty method to take into account the rigidity of swimmers body. This work will be carried out through close collaboration with experiments