Postdoctoral position :

Modeling active catalytic microparticles

We are looking for young outstanding researchers to join our research team on the modeling of active phoretic particles. This position is part of the CollectSwim project supported by the European Research Council (ERC) and led by Sébastien Michelin at LadHyX (Ecole Polytechnique, France).

The CollectSwim project's objective is the development of analytical/numerical tools to analyze the collective dynamics of synthetic chemically-active micro-particles and predict the resulting effect on a suspension's macroscopic properties. These particles achieve self-propulsion in Stokes flows using local self-generated physico-chemical gradients (autophoresis). Our group works closely with experimental collaborators to propose models able to account for the actual properties and behavior of these active fluids.

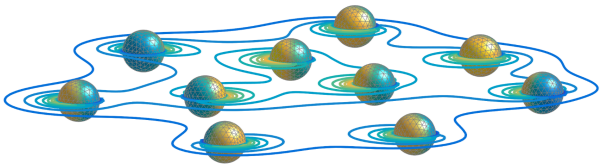
Our current research focuses on the following axes : (i) modeling of the individual propulsion, including the nonlinear couplings of hydrodynamics, physical chemistry, diffusion and geometry ; (ii) modeling of hydrodynamic and physico-chemical interactions between particles and with their environment ; (iii) numerical simulations on the collective dynamics and response of active particles in suspensions. Depending on his/her background, interests and expertise, the selected candidate will join our group to work on one or more of these projects as a postdoctoral scholar.

Candidates should hold a PhD in either fluid dynamics, applied mathematics or physical chemistry. Some experience on one of the following topics, although not required, will be positively appreciated : (a) theoretical modeling of physico-chemical processes or (b) numerical modeling of viscous flows and/or active suspensions.

The selected candidate will join Dr. Michelin's group at LadHyX (Ecole Polytechnique), a research institution recognized worldwide for its expertise and leadership in hydrodynamics. He/she will benefit from a highly stimulating, dynamic and multidisciplinary environment, including experts on soft matter, aerodynamics, biomechanics, fluid-solid interactions and geophysical flows.

The initial appointment is for two years, starting in September 2017.

Interested candidates should send their application by email, including a detailed CV, research statement and the name of 2 or 3 potential references.



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