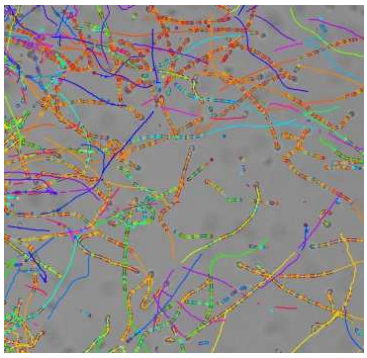
Post-doctoral position in Biophysics of active matter

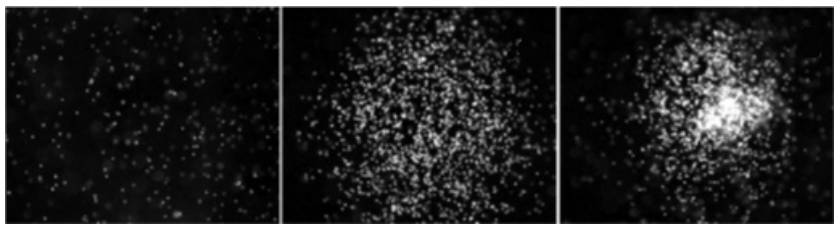
Individual and collective motion of plant pathogen zoospores

Institut de Physique de Nice (INΦNI) : Team MIMIC (Xavier Noblin)
Institut Sophia Agrobiotech (ISA) : Team IPO (Eric Galiana)

Summary:

This interdisciplinary project (COMOZOO funded by the IDEX UCA^{JEDI}) examines the biophysics of motion of plant pathogen zoospores *Phytophthora parasitica*. Zoospores are 10 microns diameter biflagellate cells that present various swimming behaviors to colonize plant roots from wetted environments. Little is known about its individual and collective motion behavior. This project will establish methods to study and understand various behaviors using microfluidics systems, in particular individual swimming behavior, collective motion, response to chemical gradients, or motion in confined environment. This collaborative project is at the interface of physics and biology. The work will be mainly experimental on the more physical aspects in the Institut de Physique de Nice (Xavier Noblin, Céline Cohen, Philippe Thomen http://lpmc.unice.fr/ and soon the new website: http://www.inphyni.cnrs.fr/) but in strong interactions with the Institut Sophia Agrobiotech (Eric Galiana) and for the modelling part with a group in the Mathematics institute (Laboratoire J-A Dieudonné, Fernando Peruani). It will take advantage of expertise and resources in INΦNI (clean room, microscope facilities) but also in the ISA institute (confocal microscopy, biological material).





Right: Swarm formation in water under a ionic gradient.
Image size: 1mm. **Left: Zoospores tracking, image size: 400 µm**

Qualifications:

Applicants should be highly motivated with a strong interest and experience in Biophysics and physics of fluids. Experience with microscopy, microfluidics, PIV techniques, image analysis or biophysics is a plus. Ability to work independently in the context of a dynamic, interactive interdisciplinary group is essential.

Salary & Benefits: 2140 € Net. Duration: 1 year.

Details of how applicants should apply:

Candidates should send a letter of application and curriculum vitae with names and contact information for two or three referees to Xavier Noblin (xavier.noblin@unice.fr).

Closing date: December 22th.