ESPCI
Laboratoire PMMH
10 rue Vauquelin, 75231 Paris Cedex 05

Séminaire PMMH

Salle de réunion du PMMH, Campus Jussieu, Bâtiment Cassan A, 1 er étage

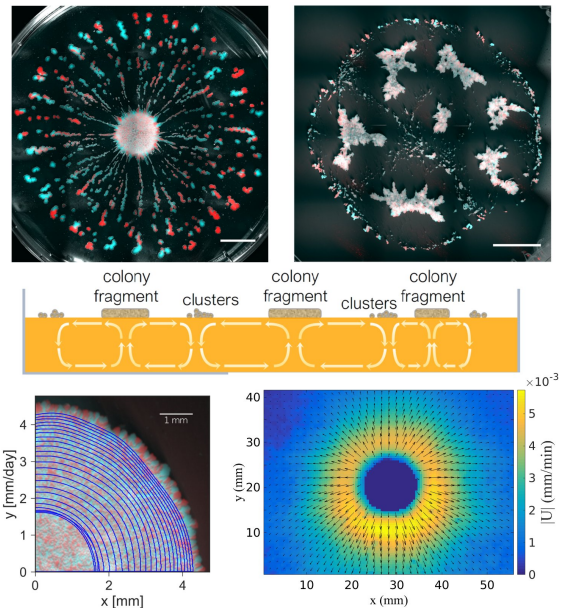
Vendredi 13 décembre 2019, 11h00-12h00

Séverine Atis

Harvard University

On Growth and Form of Range Expansions at Liquid Interfaces

Range expansions coupled with fluid flows are of great importance in understanding the organization and competition of microorganism populations in liquid environments. However, combining growth dynamics of an expanding assembly of cells with hydrodynamics leads to challenging problems, involving the coupling of nonlinear dynamics, stochasticity and transport. We have created an extremely viscous medium that allows us to grow cells on a controlled liquid interface over macroscopic scales. In this talk, I will present laboratory experiments, combined with numerical modeling, focused on the collective dynamics of genetically labeled microorganisms undergoing division and competition in the presence of a flow. I will show that an expanding population of microbes can itself generate a flow, leading to an accelerated propagation and fragmentation of the initial colony. Finally, I will show the mechanism at the origin of this metabolically generated flow and how it affects the growth and morphology of these microbial populations.



Prochain séminaire : vendredi 20 décembre 2019, Jean-Philippe Bouchaud, (CFM)
Programme des séminaires : www.pmmh.espci.fr, onglet *Séminaires PMMH*
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